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SENSITIVITY TO PUNISHMENT IN THE ACADEMIC CONTEXT: IT'S RELATIONSHIP WITH LOCUS OF CONTROL, GENDER AND GRADE LEVEL

(AKADEMİK BAĞLAMDA CEZA HASSASİYETİ: DENETİM ODAĞI, CİNSİYET VE SINIF DÜZEYİYLE İLİŞKİLERİ)

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ABSTRACT

Sensitivity to punishment can be defined as the sensitivity that results in being over sensitive to punishment and punishment stimuli, fear, anxiety, inhibition, and reactivity that is not functional. Despite the fact that punishment practices are frequently encountered in academic contexts, the review of literature has not revealed a measurement tool towards measuring students' sensitivity to punishment in the academic context. For this reason, in this study, the "Scale of Punishment Sensitivity in the Academic Context (SPSAC) for Middle School Students" to be used for measuring middle school students' sensitivity to punishment in the academic context was firstly developed. It was then determined whether internal-external locus of control was a variable predicting sensitivity to punishment in the academic context, and whether sensitivity to punishment differed based on gender and grade level variables. The population of this study consisted of the students studying at middle schools in the central districts of Eskisehir province. This study used the data gathered from 741 students of fifth, sixth, seventh and eighth grade studying at five middle schools selected using simple random sampling method among these schools. As a result of EFA, which was performed for construct validity, three factors having an eigenvalue higher than 1 and explaining 66% of the total variance were revealed. The goodness-of-fit indexes [$\chi 2$ =41.03, $p<.01$, $\chi 2/sd$=1.75, GFI=0.96, AGFI=0.93, NFI=0.95, NNFI=0.97, SRMR=0.05, RMSEA=0.05, CFI=0.98] for the CFA model showed a good model-data fit. The split-half reliability coefficient for the SPSAC total scores was .83, the Alpha reliability coefficient was .80, and the test-retest reliability was .80. The analyses showed that the SPSAC scores significantly differed based on the gender and grade level variables, and internal-external locus of control was an important predictor of sensitivity to punishment ($R = 0.545$, $R2 = 0.297$, $p<.01$).

Keywords: Punishment sensitivity, locus of control, student, middle school, scale.

ÖZET

Ceza hassasiyeti, cezaya ve ceza uyarıcılarına karşı aşırı duyarlı olma, korku, kaygı, ketlenme ve işlevsel olmayan tepkisellikle sonuçlanan bir hassasiyet olarak tanımlanabilir. Ceza uygulamalarına akademik bağlamlarda sıklıkla rastlanmasına karşın, literatür taramasında öğrencilerin akademik bağlama ilişkin ceza hassasiyetlerini ölçmeye yönelik bir ölçme aracına rastlanmamıştır. Bu nedenle bu çalışmada öncelikle ortaokul öğrencilerinin akademik bağlama ilişkin ceza hassasiyetlerini ölçmede kullanılacak "Ortaokul Öğrencileri İçin Akademik Bağlamda Ceza Hassasiyeti Ölçeği" (ABCHÖ) geliştirilmiştir. Daha sonra iç-dış denetim odağının akademik bağlama ilişkin ceza hassasiyetini yordayan bir değişken olup olmadığı; ceza hassasiyetinin cinsiyet ve sınıf düzeyi değişkenlerine bağlı olarak farklılaşıp farklılaşmadığı da belirlenmiştir. Bu çalışmanın evrenini Eskişehir merkez ilçelerindeki ortaokullarda öğrenimini sürdüren öğrenciler oluşturmaktadır. Bu okullardan basit seçkisiz örnekleme yöntemi kullanılarak seçilmiş beş ortaokulda öğrenimini sürdüren, 5., 6., 7., 8. sınıf öğrencilerinin oluşturduğu 741 öğrenciden toplanan veriler kullanılmıştır. Yapı geçerliği için uygulanan AFA'da öz değeri 1'den büyük, toplam varyansın %66'sını açıklayan üç faktör elde edilmiştir. DFA'da modele ait uyum iyiliği indeksleri [$\chi 2$ =41.03, $p<.01$, $\chi 2/sd$=1.75, GFI=0.96, AGFI=0.93, NFI=0.95, NNFI=0.97, SRMR=0.05, RMSEA=0.05, CFI=0.98] model-veri uyumunun iyi olduğunu göstermiştir. ABCHÖ toplam puanı için iki yarı test güvenirlik katsayısı .83; Alpha güvenirlik katsayısı .80; test-tekrar test güvenirliği .80'dir. Analizler ABCHÖ puanlarının cinsiyet ve sınıf düzeyi değişkenlerine göre anlamlı biçimde farklılaştığını ve iç-dış denetim odağının ceza hassasiyetinin önemli bir yordayıcısı olduğunu ($R = 0.545$, $R2 = 0.297$, $p<.01$) göstermiştir.

Keywords: Ceza hassasiyeti, denetim odağı, öğrenci, ortaokul, ölçek

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INTRODUCTION

Many characteristics including the determination and patience that people show to achieve certain goals, the resistance that they have for the problems to be encountered, their insistence on achieving their goals and the quality of their performance are affected by motivational sources. Particularly in our country, due to progressing to the next educational institution being determined by exams which involve a difficult competition, not only students but also their parents get stressed. In order to make their children to stick to the educational goals, the parents occasionally use practices of punishment. Although they might seem effective, after a while, these practices can cause situations that damage children's psychological well-being and academic future. Covington (2000) indicates that as a result of the interaction between students' own motivational characteristics and the practices they are exposed to in academic contexts, their academic achievement is affected quantitatively and qualitatively. Studies that confirm this statement show that punishment decreases students' level of learning and motivation in class (Ahmad, Said & Khan, 2013) and from a broader perspective (by decreasing their participation and distracting their attention, increasing the school drop-out rate, affecting their confidence negatively, causing fear and hesitation, hindering learning and creativity, and causing demotivation in students) affects their academic performance (Naz, Khan, Daraz, Hussain & Khan, 2011) negatively, and causes students to experience academic decline (Arif & Rafi, 2007).

Punishment practices not only harm students' academic achievement, but also affect their psychological and behavioural characteristics negatively. Naz et al.'s study (2011) in which they examined the effects of physical punishment on students' (elementary school and high school) academic performance, psychological characteristics and personality development is a good example in this regard. They found that physical punishment caused students to get depressed, think in a pessimistic way, and feel anxious, reduced their self-respect, increased aggression among students, led to inferiority complex, mental harassment and hooligan behaviours in students, and thus, negatively affected their psychology. They also revealed that physical punishment damaged students' personality development by inhibiting their development potential, causing impulsive and emotional instability, leading them to rebellious and uncompromising behaviours and causing social maladaptation, growing hostile feelings towards the society and forming revenge feelings, developing passive-aggressive behaviours, making hate widespread among students, and causing disappointment among them. In their study, Arif and Rafi (2007) found that punishment caused students to perform negative behaviours.

Based on the negative consequences of punishment as summarised above, it can be argued that perhaps one of the most serious negative consequences of punishment is turning students into individuals with high level of sensitivity to punishment who has the fear of getting punished and try to avoid punishment. Gathering the information presented in the literature together (Corr, Pickering & Gray, 1997; Gray, 1978, 1981, 1990; Gray & McNaughton, 2000; Farmer, 2005),

sensitivity to punishment can be defined as a sensitivity that results in being over-sensitive to punishment and punishment stimuli, fear, anxiety, inhibition, and reactivity that is not functional. Punishment sensitivity along with award sensitivity have been studied by many theorists such as Eysenck and Gray. Gray (1970, 1973, 1981, 1987, Gray & McNaughton, 2000) developed Eysenck's theoretical approach in which sensitivity to different environmental cues and reactivity are related to anxiety and impulsivity. Gray's model is closely related to three broad functional reactivity categories. These are; behavioural extremes, behavioural disorders and examples of inhibited or avoided behaviours (Farmer, 2005). As an outcome of their studies, Gray (1981) defined a phenomenon named as Behavioural Inhibition System (BIS). BIS is a system sensitive to non-reward and novelty cues (Gray, 1978, 1981, 1990). The activities of BIS mostly work in the form of solving the approach-avoid tension in the direction of avoidance (Farmer, 2005). BIS prevents individuals to act to achieve their goals. This system is also responsible for negative emotions such as anxiety, fear, sadness and suppression that are felt against punishment, non-reward and novelty cues (Gray, 1978, 1981, 1990). According to Gray, in the cases of environmental stimulants being related to punishment or the already existing punishment, behaviour is inhibited, stimulation increase and the sources of attention are directed to the threatening situation (Corr, Pickering & Gray, 1997; Gray, 1987; Gray & McNaughton, 2000). Examples of inhibited or avoided behaviours can be seen as being dumbfounded, actively avoiding stimuli instilling fear, or being unwilling to enter certain environmental contexts. Social anxiety or generalized anxiety disorders form the most passive forms of avoidance (Farmer, 2005). Based on Gray's model, Farmer (2005) proposed that individuals with high punishment sensitivity, in other words being extremely sensitive to the effects of the punishment, and overreacting to the stimulants of fear, are more likely to be those having significant behavioural disorders and generalized behavioural deficiencies. Supporting Gray's hypothesis that BIS is related to anxiety and negative emotions, Segarra, Ross, Pastor, Montan˜e´s, Poy and Molto´ (2007) found that BIS was positively related to anxiety, being neurotic, negative emotions, fear, obsession, low self-respect, being socially introverted and depression.

The practices encountered in academic life are known to constantly include, though not desired, punishment. Students' behaviours in the academic context are affected by many factors. Undoubtedly, one of these factors can be the over-sensitiveness that they develop against punishment. Due to the inclination in students' disposition depending on the punishment practices in academic life, it is a strong possibility that they develop punishment sensitivity as a result of being exposed to practices of punishment. Based on the theories and research findings summarised above, it seems sensible that students' sensitivity to punishment with respect to the academic context negatively affects their academic life, the behaviours they perform at school, and the relationships that they establish with their peers and teachers.

A literature review revealed that the two widely used measurement tools to

measure reward and punishment sensitivity in adults were developed by Carver and White (1994) and Torrubia, Avila, Molto and Caseras (2001). Furthermore, researchers like Colder and O'Connor (2004), Luman, van Meel, Oosterlaan and Geurts (2012), Coplan, Wilson, Frohlick and Zelenski (2006), and Muris, Meesters, de Kanter and Timmerman (2005) conducted either adaptation or development studies for measuring reward and punishment sensitivity especially towards children behaviour disorder. However, in the literature review conducted, no measurement tools measuring students' punishment sensitivity that they can develop depending on punishments exposed in the academic context have been encountered. However, reducing the negative effects resulting from such sensitivity or taking precautions in this respect can only be possible through developing a valid and reliable measurement tool that can be used to identify the students having such sensitivity and its relationship with other psychological characteristics. For this reason and to fill this gap, this study aimed to develop a scale that measures middle school students' punishment sensitivity in the academic context.

Based on Gray's model, Farmer (2005) mentions the existence of individuals who are over-sensitive and responsive to the effects of punishment, and over-reactional to the fear stimuli in their nature. One of the structural inclinations of people's ways of reacting to environmental effects is their ways of interpreting life. People give differing reactions in similar situations based on how active or passive they feel themselves in directing their experiences. This phenomenon is known as locus of control in psychology.

Locus of control refers to individuals' perception towards the control they have over the events they experience in their lives (Rolison & Scherman, 2002). Locus of control indicates individuals' feelings that the events they experience in their lives result from either internal inputs or external powers (Burns & Dillon, 2005). According to Rotter (1966), the possibility of an individual performing a behaviour depends on his/her perception of whether that behaviour has an effect to achieve the desired result. For this reason, behaviours of individuals how think they can control many situations and those who think they cannot differ. Rotter (1966) and Lefcourt (1976) proposed that depending on either internal or external factors, the belief of locus of control is related to many psychological functions. For example, in the literature, there are studies showing that individuals with internal locus of control are more resistant to pressure from outside (Crowne & Liverant, 1963), and individuals with external locus of control are more inclined to learned helplessness than those with internal locus of control (Seligman, 1974; Abramson, Seligman & Teasdale, 1978) Based on these theoretical conclusions, it is thought that as students become externally controlled, they would believe more intensely that the results they would achieve in the academic context are out of their own control, their expectation of encountering negative situations in the academic context would be higher Accordingly, they would presumably develop a higher sensitivity to punishment which is closely related to negative situations. To test this assumption, this study investigated whether middle school students' having internal or external locus of control was a variable predicting their sensitivity to punishment

in the academic context. In addition, because many psychological traits of students are related to their gender and age, this study also examined whether middle school students' sensitivity to punishment in the academic context differed based on their gender and grade level.

METHOD

This study was carried out in the context of scale development. It was implemented by employing cross-sectional design and relational survey model. In this regard, the data were gathered from different age groups at a sitting. Simple random sampling method was used in the study. Fifth, sixth, seventh and eighth graders studying at state middle schools were included in the study.

Population and Sample

The population of this study consisted of 32.688 students studying at middle schools in the Odunpazari and Tepebasi districts of Eskisehir province. In the selection of the sample, it was calculated that 380 students would be sufficient in a confidence interval of 0.05. However, 741 students were included in the sample by employing simple random sampling method. Five of the 76 middle schools in the Odunpazari and Tepebasi districts of Eskisehir province were accidentally selected through the web site random.org. The data gathering was conducted on a voluntary based in the classes where the researcher was allowed at the schools. The participants were a total of 741 students in fifth, sixth, seventh and eighth grade studying at five state middle schools in Eskisehir. The sample was split into two groups to form two different data sets for explanatory and confirmatory factor analyses. The characteristics of these sample groups are presented below.

Characteristics of Sample Group 1. This group consisted of fifth, sixth, seventh and eighth graders studying at three state middle schools. It included a total of 498 students, of whom 236 were female (47.4%) and 230 were male (46.2%), and 32 forgot to mark their gender (6.4%). The distribution of the students according to schools are as follows: 219 (44.0%), 91 (18.3%) and 188 (37.7%). 73 of the students (14.7%) were fifth graders, 57 (11.4%) were sixth graders, 185 (37.1%) were seventh graders, and 183 (36.7%) were eighth graders.

Characteristics of Sample Group 2. This group consisted of fifth, sixth, seventh and eighth graders studying at two state middle schools. This group included a total of 243 students, of whom 117 were female (48.1%) and 126 were male (51.9%). The distribution of the students according to schools are as follows: 137 (56.3%) and 106 (43.6%). Fifty of the students (20.5%) were fifth graders, 76 (31.2%) were sixth graders, 52 (21.4%) were seventh graders, and 65 (26.7%) were eighth graders.

Data Gathering Tools

In this study, the Nowicki-Strickland Internal-External Locus of Control Scale, which was adapted to Turkish by Öngen (2003), was used to determine whether having internal or external locus of control was a predictor variable for

middle school students' sensitivity to punishment in the academic context.

Nowicki-Strickland Internal-External Locus of Control Scale (IELOS). Öngen (2003) conducted the adaptation study of IELOS based on the data gathered from a group of 337 students at 7th, 8th, 9th and 10th grades. The researcher started the adaptation by translating the scale into Turkish. After obtaining expert opinion, the scale was piloted to test the comprehensibility of the items by students. The 40-item scale was rated on a 4-point Likert scale including Strongly agree (1), Agree (2), Disagree (3) and Strongly Disagree (4). Higher scores from the scale factors refer to individuals being internally controlled, and lower scores refer to those externally controlled. The analyses for the construct validity of the Turkish version revealed a five-factor structure including 29 items and explaining 40% of the total variance. The factors were respectively named as follows: "Locus of control for family relationships" (8 items), "Locus of control for succes" (8 items), "Locus of control for peer relationships" (7 factors), "Locus of control for superstitions" (2 items) and "Locus of control for fate" (2 items). The factor loadings of the items ranged between .31 and .79. The Cronbach's Alpha reliability coefficient calculated for the whole scale was .72. To determine to what extent the items in the scale distinguish the adolescents in terms of locus of control, the significance in the difference between the students' item mean scores in the top and bottom 27% interval was identified using T-test. The results of the T-test showed that except item 35, the item means score of the group in the top 27% was statistically significant higher for all the items than the group in the bottom 27%. However, that particular item were not excluded from the scale due to having a high factor loading.

Procedure

To create an item pool for the scale, 50 middle school students were asked to write down their feelings, opinions and behaviours about being punished in the academic context in an open-ended form. Besides, an item pool containing 30 items was created using the theoretical and research findings towards the effects of punishment in the literature. The scale items were prepared on a four-point Likert scale as "Strongly agree.", "Agree.", "Somewhat agree." and "Strongly disagree.". Considering the views and suggestions obtained from two experts in the field of educational psychology, the suitability of the items for the characteristic being measured was re-evaluated and the number of items was reduced to 22. This draft form was piloted with 20 middle school students and the comprehensibility of the items was tested. The items in the draft form were easily understood by the students. The draft form was administered to 763 students studying at five state middle schools in Eskisehir province. However, when the scale forms were examined, it was seen that some students either rated the same choice for all the items or missing answer, or had missing answers. These forms were excluded and the analysis included a total of 741 students.

Data Analysis

The data were analysed using descriptive statistics, Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), reliability analyses and correlation. For the construct validity of the scale, EFA was conducted on the first data set gathered from 498 students, and Direct Oblimin Rotation Technique was employed. The reason for choosing this technique is the assumption that the factors to be revealed constituted a structure by being related to each other (Gorsuch, 1983, 203-204; Tabachnick & Fiddell, 2007, 646). To determine the accuracy of this assumption, the correlations that the factors revealed as a result of the analysis showed with each other were examined. CFA was then applied to the second group of data from 243 individuals, and it was tested whether the structure revealed in CFA was confirmed. The reliability of the scale was measured using Cronbach alpha coefficient (for the whole survey and sub-dimensions), test-retest reliability in a 20-day interval, split-haft test reliability (scale sub-dimensions) and item discrimination index. While calculating the item discrimination index, both item-total correlations were used and the difference between the item mean scores of the bottom 27% and the top 27% groups formed based on the total scores in the scale was tested using T-test. Considering the possibility that small differences can be significant in large groups, the significance level was chosen as α=.001. In addition, the anti-image correlations of the scale items were also calculated. In the study, Multilinear Regression Analysis was used as well to determine whether middle school students' having internal or external locus of control predicted their sensitivity to punishment. To determine whether their sensitivity to punishment in the academic context differed based on the gender and grade level variables, t-test and One-Way ANOVA for Unrelated Samples were used. As for identifying between which groups the differences existed, Scheffe test was employed.

FINDINGS

Findings for the Validity of SPSAC

Direct Oblimin Rotation Technique was used in the Exploratory Factor Analysis conducted for the construct validity of the Scale of Punishment Sensitivity in the Academic Context (SPSAC) for Middle School Students. The suitability and the sufficiency of the data were initially tested for factor analysis. The KMO value of SPSAC was found as 0.80, and the Bartlett's test result was significant ($\chi^2_{(36)}$ =1271,166, p<.001). EFA results of SPSAC are presented in Table 1. As a result of EFA, three factors having an eigenvalue higher than 1 and explaining 66% of the total variance were revealed. Eigenvalues of the basic elements were 3.47, 1.39 and 1.09, respectively. The common variance of the three factors defined related to the items ranged from .54 to .78. The factors explained 38.64%, 15.48%, and 12.12% of the total variance, respectively. After rotation, it was found that each factor included three items. The items in the first factor emphasized that students stay passive or do not participate in lessons when they are in expectation of a result for which they can be punished in lessons, and thus, this factor was named as "Inhibition Due to Punishment" (IDP). As the second factor emphasized the

negative feelings that the students developed towards courses, teachers and school due to being punished in the academic context, this factor was named as "Negative Attitudes Towards Punishment Contexts" (NATPC). As for the items in the third factor, they were related to the changes in emotions and behaviours caused by punishment in the academic context and that serve not to be punished again, and this factor was named as "Regulatory Effect of Punishment" (REP). Based on the eigenvalue criterion, the number of important factors in the scale was defined as three. Besides, examining the component matrix table, it was seen that the factor loadings of all the 9 items in the first factor were .40 and over. This finding shows that the scale has also a general factor. The fact that the total variance resulted from factor 1 was 39% before rotation is another proof of the existence of a general factor. In other words, the factor 1 loadings of the items and the variance explained being high show that the scale has a general factor. A sharp decrease was also observed after the first factor in the scree plot. This is another proof for that the scale can have a general factor. To determine whether the scale was prepared in the form of an additive scale, Tukey's Additivity Test was conducted. The results showed that the nonadditivity value of the scale was not significant, (F=0.24, P>.05). This is another proof for the view that the scale had an additive form characteristic. All these findings show that it was suitable to use the SPSAC with one factor as well as three factors. The correlations of the sub-dimensions of SPSAC with the total score and between each other are presented in Table 2. As is seen in Table 2, all the factors were strongly related to the total score, moderately related to each other.

Table 1. Explanatory Factor Analysis Results of SPSAC

		Rotated Factor Loadings			
Factor Name	**Item No**	**Factor-1**	**Factor-2**	**Factor-3**	**Commu-natilites**
Inhibition Due to Punishment (IDP)	1	.83			.70
	2	.88			.78
	3	.74			.66
Negative Attitudes Towards Punishment Contexts (NATPC)	8		.79		.65
	11		.79		.66
	14		.75		.64
Regulatory Effect of Punishment (REP)	5			.62	.54
	19			.67	.71
	20			.83	.61
Cronbach Alpha		.80	.75	.61	Total .80
Split-Half Test Reliability (Spearman-Brown)		.79	.76	.67	Total .83
Explained Variance		% 38.64	% 15. 48	% 12.12	Total % 66.25

Table 2. Correlations of SPSAC Factors with Each Other

	IDP	NATPC	REP
IDP			
NATPC	.40**		
REP	.43**	.36**	
SPSAC TOTAL	.81**	.75**	.83**

To obtain further evidence on to what extent the three-factor structure of the scale revealed in EFA fit the data gathered, CFA was done on the second group of data gathered from 243 individuals. The chi-square value calculated for data fit is significant, $\chi^2_{(24)}$ =41.03, p<.01. The chi-square degrees of freedom ratio which took into account the effect of sample size was found to be quite low (χ^2/sd=1.75). Furthermore, other goodness of fit indexes are presented in Table 3.

The standard fit measure values of these indexes are as follows: The coefficients obtained from GFI and AGFI ranged between 0-1. Although there is not a consensus in the literature, the coefficient being over 0.85 (Anderson & Gerbing, 1984; Cole, 1987; Marsh, Balla & McDonald, 1988) or 0.90 (Kline, 1994; Schumacker & Lomax, 1996) is accepted as a good fit. The coefficients obtained from RMSEA also ranged between 0-1. The RMSEA being 0.05 or below is enough for a fit (Jöreskog & Sörbom, 2001). For NFI and NNFI, .95 or over, for CFI, .90 or over, and for SRMR, .05 are accepted as good measures (Hu & Bentler, 1999). The χ^2/df rate being between 2-5 shows good fit while the values lower than 2 means perfect fit (Jöreskog & Sörbom, 2001; Kline, 2005). This value being lower than 2 is an indicator of better fit. In this regard, examining the values obtained related to the model based on the standard fit values, the modelled factor structure seems to be verified.

Table 3. Fit Parameters Related to the CFA Model of SPSAC

Fit Parameter	Coefficient
GFI	0.96
AGFI	0.93
NFI	0.95
NNFI	0.97
SRMR	0.05
RMSEA	0.05
CFI	0.98
df	24
χ^2	41.03
χ^2/df	1.75

A path diagram for the model obtained in CFA is shown in Figure 1. As is seen in Figure 1, the standardized coefficients obtained in CFA and showing the relationship between the factors and the items ranged from 0.50 to 0.95.

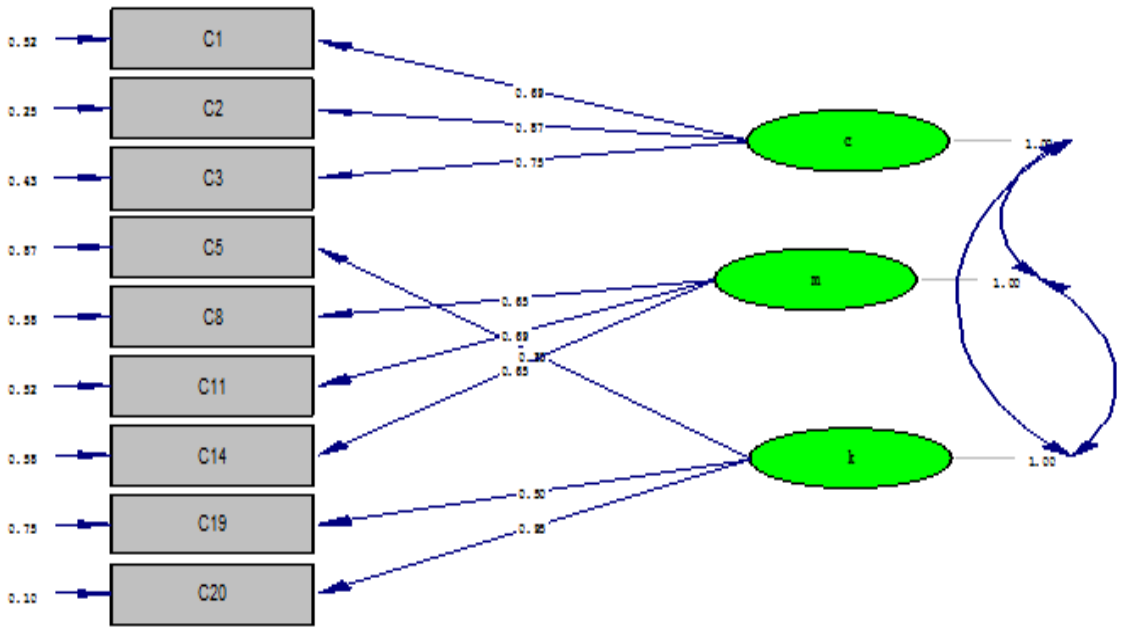

Figure 1: Path diagram for SPSAC

Findings for the Reliability of SPSAC

For the test-retest reliability of SPSAC, data were gathered from a group of 60 students twice in a 20-day interval. The test-retest reliability for the whole SPSAC was .80. The split-half reliability coefficients (Spearman_Brown) for the SPSAC factors and the total score are as follows: .79, .76, .67, .83. The Cronbach alpha coefficients for the SPSAC factors and its total score are, respectively, as in the following: .80, .75, .61, .80. The item analysis results of SPSAC are given in Table 4.

As is seen in Table 4, it was identified that item-total correlations for all the items in SPSAC ranged between .30 to .60, and the t-values were significant (p=.000). Considering these values, it can be argued that the items in the scale had high reliability and were towards measuring the same behaviour. This finding can be interpreted as that the items distinguished that students in terms of punishment sensitivity in the academic context.

Table 4. Item Analysis Results of SPSAC

Item No	Item-Total Correlation	t (Bottom 27% - Top 27%)[2]	Anti-Image
1	.54	-23.98***	.83
2	.56	-22.72***	.72
3	.60	-19.50***	.81
8	.47	-13.81***	.82
11	.45	-14.69***	.79
14	.52	-13.90***	.83
5	.39	-11.29***	.83
19	.30	-10.78***	.68
20	.55	-22.81***	.82
	N=498	$n_1=n_2=135$	***p=000

Findings on Whether Middle School Students' Sensitivity to Punishment in the Academic Context Differed Based on the Gender and Grade Level Variables

Unrelated Samples T-Test was applied to determine whether middle school students' sensitivity to punishment differed based on the gender variable. The t-test results are presented in Table 5. As is seen in Table 5, a significant difference for the scores in the factor "Negative Attitudes Towards Punishment Contexts" (NATPC) [$t_{(247)} = 4.38$, $p<.01$] and the total SPSAC scores [$t_{(247)} = 2.32$, $p<.05$] was found for gender. The male students scored significantly higher than the female students in the NATPC factor scores [$t_{(247)} = 2.81$, $p<.05$] and the SPSAC total scores [$t_{(247)} = 2.81$, $p<.05$]. The male students' NATPC factor scores and SPSAC total scores ($\bar{X}$=6.32; X=20.10) were higher than those of the female students ($\bar{X}$=5.20; X=18.71).

Table 5. T-Test Results of SPSAC Factor and Total Scores Based on Gender

	Gender	**n**	**$\bar{X}$**	**SD**	**sd**	**t**
IDP	Boy	230	6.88	2.84	459	-0.18
	Girl	236	6.83	3.24		
NATPC	Boy	230	6.32	2.85	459	4.38
	Girl	236	5.20	2.58		
REP	Boy	230	6.94	2.61	459	1.34
	Girl	236	6.61	2.60		
SPSAC Total	Boy	230	20.10	6.56	459	2.32
	Girl	236	18.71	6.30		

To determine whether middle school students' sensitivity to punishment in the academic context differed based on the grade level variable, One-Way ANOVA for Unrelated Samples was performed. The ANOVA results are presented in Table 6. As can be seen in Table 6, whereas the mean scores of the SPSAC factors showed a significant difference based on grade levels, no significant difference was revealed for the mean scores of the whole scale based on grade levels. In this regard, there was a significant difference in the ANOVA results [$F_{(3-461)} = 2{,}64$, $p<.05$] based on the mean scores of the first factor "Inhibition Due to Punishment" (IDP). For the second factor, "Negative Attitudes Towards Punishment Contexts" (NATPC), there was also a significant difference in the ANOVA results [$F_{(3-461)} = 4{,}19$, $p<.01$]. Regarding the third factor, "Regulatory Effect of Punishment" (REP), there was again a significant difference in the ANOVA results [$F_{(3-461)} = 6{,}75$, $p<.001$]. According to the Scheffe test, the difference in the students' scores in "Inhibition Due to Punishment" was between fifth and eighth grades, and the mean scores of those in the eighth grade were higher than those in the fifth grade (fifth grade $\bar{X}$=5.97; eighth grade $\bar{X}$=7.12). As for the difference in the students' scores in "Negative Attitudes Towards Punishment Contexts", it was between fifth grade and seventh and eighth grades, and the mean scores of those in the seventh and eighth grades were higher than those in the fifth grade (fifth grade $\bar{X}$=4.84; seventh grade $\bar{X}$=5.84; eighth grade $\bar{X}$=6.14). Regarding the students' scores in

"Regulatory Effect of Punishment", the difference was between eighth grade and sixth and seventh grades, and the mean scores of those in the sixth and seventh grades were higher than those in the eighth grade (sixth grade $\bar{X}$=7.53; seventh grade $\bar{X}$=7.20; eighth grade $\bar{X}$=8.14).

Table 6. ANOVA Results of SPSAC Factor and Total Scores Based on Grade Levels

	Source of Variance	Sum of Square	df	Mean Square	F	(p)
IDP	Between Groups	73.25	3	24.41	2.64	.04
	Within Groups	4241.46	458	9.26		
	Total	4314.71	461			
NATPC	Between Groups	95.00	3	31.66	4.19	.00
	Within Groups	3459.36	458	7.55		
	Total	3554.37	461			
REP	Between Groups	132.79	3	44.26	6.75	.00
	Within Groups	3000.68	458	6.55		
	Total	3133.48	461			
SPSAC Total	Between Groups	281.30	3	93.76	2.26	.08
	Within Groups	18944.00	458	41.36		
	Total	19225.31	461			

*p<05 **p<01 ***p<001

Findings on Middle School Students' Having Internal or External Locus of Control Predicting Their Sensitivity to Punishment in the Academic Context

The variables examined in this section were the middle school students' scores in punishment sensitivity in the academic context, and their scores in the sub-factors of the Nowicki-Strickland Internal-External Locus of Control Scale (locus of control for family relationships, success, peer relationships, superstitions and fate). The results of the regression analysis regarding the prediction of sensitivity to punishment in the academic context based on the internal-external locus of control sub-factors scores are presented in Table 7.

Table 7. Multilinear Regression Results for the Prediction of Punishment Sensitivity Based on Internal-External Locus of Control

Variable	B	Std. Error $_{\beta}$	β	t	p	Zero-order r	Partial r
Constant	27.753	2.753	_	10.081	.000		
Locus of control for family relationships	-0.483	0.070	-.455	-6.888	.000	-0.489	-0.407
Locus of control for success	0.247	0.074	0.189	3.325	.001	0.073	0.210
Locus of control for peer relationships	0.029	0.095	0.018	0.304	762	-0.168	0.020
Locus of control for superstitions	0.032	0.165	0.011	0.194	847	-0.077	0.013
Locus of control for fate	-0.401	0.136	-0.186	-2.948	.004	-0.371	-0.187
R = 0.545		R^2 = 0.297					
$F_{(5-239)}$ = 20.170		P = .000					

Examining the bidirectional and partial correlations between the predicting and the dependent variables presented in Table 7, there was a negative and moderate-level correlation between the locus of control for family relationships and sensitivity to punishment (r=-0.49); however, while controlling for the other variables, the correlation between these two variables was calculated as r= -.-0.41. There was a weak positive correlation between the locus of control for success and sensitivity to punishment (r=0.07); however, while controlling for the other variables, the correlation between these two variables was calculated as r= -.0.21. A weak negative correlation was found between the locus of control for peer relationships and sensitivity to punishment (r=-0.16); however, while controlling for the other variables, the correlation between these two variables was calculated as r= -.0.02. A weak negative correlation was similarly revealed between the locus of control for superstitions and sensitivity to punishment (r=0.08); however, while controlling for the other variables, the correlation between these two variables was calculated as r= 0.01. There was a moderate negative correlation between the locus of control for fate and sensitivity to punishment (r=-0.37); however, while controlling for the other variables, the correlation between these two variables was calculated as r= -0.19.

The variables of locus of control for family relationships, success, peer relationships, superstitions and fate all together had a moderate and significant relationship with the students' scores in sensitivity to punishment in the academic context ($R = 0.545$, $R^2 = 0.297$, $p<.01$). These five variables together explained 30% of the total variance in the students' sensitivity to punishment. According to the standardized regression coefficient (β), the importance of these five predictor variables on sensitivity to punishment was relatively ordered as the locus of control for family relationships, locus of control for fate, locus of control for peer relationships, locus of control for superstitions and locus of control for success. The t-test results for the significance of the regression coefficients showed that the variables of locus of control for family relationships, success and fate was a significant predictor of the sensitivity to punishment in the academic context. Locus of control for peer relationships and superstitions were not variables having a significant effect on the sensitivity to punishment in the academic context. According to the results of the regression analysis, the regression equality related to the prediction of sensitivity to punishment is as follows:

SENSITIVITY TO PUNISHMENT IN THE ACADEMIC CONTEXT = 27.753 - 0.483 LOCUS OF CONTROL FOR FAMILY RELATINSHIPS + 0.247 LOCUS OF CONTROL FOR SUCCESS + 0.029 LOCUS OF CONTROL FOR PEER RELATINSHIPS + 0.032 LOCUS OF CONTROL FOR SUPERSTITIONS - 0.401 LOCUS OF CONTROL FOR FATE

DISCUSSION AND CONCLUSION

The results of EFA and CFA conducted for the construct validity of the Scale of Punishment Sensitivity in the Academic Context (SPSAC) for Middle School Students showed that the scale was a valid measurement tool. Considering the

meanings that the items included in the scale factors emphasized in common, the factors were respectively named as "Inhibition Due to Punishment" (IDP), "Negative Attitudes towards Punishment Contexts" (NATPC) and "Regulatory Effect of Punishment" (REF). The reliability analysis for the scale showed that the items in the scale had high reliability and were towards measuring the same behaviour. This finding can be interpreted as that the items distinguished the students in terms of punishment sensitivity in the academic context.

In this scale development study, it was found that the students' sensitivity to punishment prevented them from taking action in the cases where there are clues about punishment, and this inhibited behaviour appeared a factor of punishment sensitivity. A sample item included in this factor is as follows: *"If I think I will get reaction, I don't answer to a question in a class even though I know the answer"*. The second factor of the scale revealed that the students developed negative feelings towards the contexts where there are clues about punishment, or there is the punishment itself. A sample item included in this factor is as follows: *"I don't like the school since it is a place where you get punished"*. The third factor of the scale showed that when the students went through experiences causing them to get punished, this situation led to an increase of stimuli and they paid their attention on the situation of getting punished. As a result of this increase of stimuli and the focus on punishment, the factor items demonstrated that the students developed negative feelings towards themselves, they felt their selves under threat and the main source of their performance in the academic context was the avoidance of getting punished. A sample item included in this factor is as follows: *"I usually study not to be punished at home or school"*.

When the SPSAC factors and items were examined, it was seen that the scale factors were closely related to *Behavioural Inhibition System* (BIS) defined by Gray (1981). In this system, it was determined that individuals are sensitive to punishment and unrewardedness, and their behaviours of avoidance are mostly dominant by preventing from taking action to achieve their goals (Farmer, 2005). Besides, in this system, individuals develop negative feelings such as anxiety, fear, sadness and inhibition towards the clues about punishment and unrewardedness (Gray, 1978, 1981, 1990), and their level of stimuli increase and their attention is directed towards new stimuli with threat (Gray, 1987; Corr et al., 1997; Gray & McNaughton, 2000).

Reminding Segarra et al.'s (2007) findings revealing positive relationships between BIS and being neurotic, negative feelings, fear, obsession, low self-respect, being socially introverted and depression, and considering the research findings with respect to the negative effects of punishment on students' learning, motivation, academic performance (Ahmad, Said & Khan, 2013; Arif & Rafi, 2007; Naz et al., 2011), and their psychological and behavioural characteristics and personality development (Arif & Rafi, 2007; Naz et al., 2011), it can be argued that SPSAC has a structure that is well-defined in terms of the phenomenon of punishment sensitivity. In Ching's (2012) reported that 61% of students replied it will make a

difference in their participation to learning, more than 60 % said they will likely to spend more effort when there is a possibility of punisment. Same study also reported that 69 % of student claimed their efforts will not likely to decrease and only 7 % claimed that they will likely to spend less effort when there is no likelihood of punishment. These responses indicate that there is no negative effect in the absence of punishment. Also, these findings point out that students regulate themselves behaviorally when there is a possibility of punishment. All these findings support the existence of a factor named Regulatory effect of Punishement (REF), as a sub-dimension of sensitivity of punishment scale.

The regression analysis showed that the middle school students having internal or external locus of control was a variable predicting their sensitivity to punishment in the academic context, ($R = 0.545$, $R^2 = 0.297$, $p < .01$). Controlling for the factor of locus of control for success, for the other factors (locus of control for family relationships, peer relationships, superstitions and fate), as the students have internal locus of control, their sensitivity to punishment decreases, and as they have external locus of control, their sensitivity to punishment increases. These results support the assumption based on the theoretical knowledge and the research findings in the literature. Considering that the locus of control is individuals' feelings with regard to the events in their lives originating from their own internal input, or external powers (Burns & Dillon, 2005), it is highly probable that when students with internal locus of control are exposed to some punishment practices, they think that they can control the situation of whether or not to get punished in the future by meeting certain conditions. Such a way of thinking may fulfil a protective function against developing an over-sensitivity towards punishment practices. On other other hand, it seems sensible that when students with external locus of control get punished, they are more inclined to think that the situation of whether or not to get punished is independent from their actions. This way of thinking causes them to be more alert against punishment practices. In the literature, the findings showing that individuals with internal locus of control are more resistant to pressure from outside (Crowne & Liverant, 1963), and individuals with external locus of control are more inclined to learned helplessness than those with internal locus of control (Seligman, 1974; Abramson et al., 1978) support the findings of the current study.

The t-test results for the significance of the regression coefficients showed that the variables of locus of control for family relationships, success and fate was a significant predictor of the sensitivity to punishment in the academic context. This finding is very sensible because parents, as a party that punishes with respect to the academic context, play an important role. Therefore, students who think that they do not have control in family relationships are expected to have a higher sensitivity to punishment in the academic context. The reason is that they would always have the belief that their parents punish them independent from their behaviours. Similarly, students who believe that they do not have the control in the flow of their fate lead them to the belief that they do not have control regarding the issues related to their academic work, either. This belief would cause them to be more sensitive to the possibility of being exposed to punishment practices in the academic context.

A notable finding is that in the regression analysis, the locus of control for success as a significant predictor of sensitivity to punishment in the academic context had a positive relationship with punishment sensitivity, unlike other factors of locus of control. This finding, which can be found strange at first, can be understandable when evaluated with Weiner's (1985) attribution theory that is a social psychological theory. This theory proposes that people want to maintain the positive image about themselves, and thus, they attribute their success and failure to internal or external reasons. It claims that the attribution is done in three dimensions, and these are internal-external, decisive-indecisive, and controllable-uncontrollable. The theory is based on the belief that there is a strong relationship between the concept of self, and success. The Weiner's theory (1985) also proposes that the ways of attribution have certain consequences. According to this theory, internal attributions related to success and failure decrease and increase self-respect and self-regard, whereas external attributions have no effect on the feelings towards one's self. The feelings of honour and self-respect are related to the internal-external dimension of attribution, whereas anger, guiltiness, gratitude, shame and contempt are related to the control dimension of attribution, and hopelessness is related to the indecisiveness dimension of attribution (Weiner, 1985; Weiner & Graham, 1984).

Considering Weiner's theory, the positive relationship between the locus of control for success and punishment sensitivity can be explained as follows: Students having internal locus of control regarding academic achievement would mostly attribute success and failure to internal factors such as effort and ability. Here, as the power of control increases, the attribution to effort is more likely. In this way, an inclination for internal and indecisive attribution becomes dominant. On the other hand, if students have external locus of control for success, they would then attribute success and failure to external factors such as the difficulty of the task and luck. One of the situations that cause students to get punish most in the academic context is low academic achievement. If students believe that they have control in academic achievement and get punished in the case of low achievement by parents or teachers, their belief "I can achieve if I study enough" can turn into the belief "I studied, but I failed.". In this case, the direction of the attribution that is internal and indecisive moves towards the internal but unchangeable, in other words decisive, dimension. In repetitive experiencing of this situation, individuals' feelings and perception about themselves would be damaged according to the theory. Therefore, each failure that causes them to get punished means to have negative feelings about themselves for students having internal focus of control. The possibility of students with external locus of control seeing the case of getting punished as a case to be avoided is higher than those with internal locus of control in such a situation. The relationships revealed between the factors of internal-external locus of control and the sensitivity to punishment in the academic context are also a proof for the criterion validity of SPSAC.

The analyses showed that for the SPSAC total scores and the scores in the factor "Negative Attitudes Towards Punishment Contexts", the male students had significantly higher scores than the female students. In the context of gender, these

findings can be explained by the different socialisation processes of girls and boys (Dökmen, 1991; Gilligan, 1982; Güneri, Sümer & Yıldırım, 1999). According to Dökmen (1991), feminine and masculine characteristics differ across many societies. For example, he reports in his study in Turkey that the characteristics emphasizing being sensitive, kind and gentle are determined as feminine characteristics, and on the other hand, the characteristics such as fearless, confident, dominant, acting as a leader, assertive, and not avoiding to take risks are determined as masculine characteristics. Güneri et al.'s study (1999) also shows that girls are asked to have a mostly dependent characteristic in the process of socialisation, and boys are encouraged to be more independent. In the light of all these findings, it seems sensible that boys are more negatively affected by punishment practices emphasizing being control by others than girls, and develop more negative attitudes towards punishment contexts than girls do.

The analyses showed that eighth graders scored higher in the factor "Inhibition Due to Punishment" of SPSAC than fifth graders. This finding is thought to be related to that eighth graders both have more experiences of punishment and are more anxious and stressful about the transition to high school compared to fifth graders. The analyses revealed that seventh and eighth graders scored higher in the factor "Negative Attitudes Towards Punishment Contexts" of SPSAC than fifth graders. This situation can be a result of students' cumulative experiences of punishment in the academic context. As the students' experiences of punishment increase in school and other academic contexts, it is known that they can develop a negative attitude towards the whole context in which they are punished (Skinner, 1971). The analyses showed that sixth and seventh graders scored higher in the factor "Regulatory Effect of Punishment" (REF), which refers to the negative feelings towards themselves formed by getting punished in students and serving to avoid punishment, and the behavioural regulation not to get punished, than eighth graders. It is known that adolescents have irregularities in their self images between the ages 12-14, and adolescents in this age group have lower self respect and more indecisive self image compared to the adolescent both in the higher and lower age groups (Reimer, 1996; Reimer, Overton, Steidl, Rosenstein & Horowitz, 1996). With respect to the REF factor scores, sixth and seventh graders having higher mean scores than eighth graders is thought to be related to low self-respect and indecisive self image due to a developmental reason.

The use of a relatively small sample is a limitation for this study. However, even with this limitation, it is thought that a scale that can measure sensitivity to punishment in the academic context was developed, and the study made an original contribution to the literature in this regard. Academic contexts are those where punishment practices exist at most. Because of either being directly exposed to punishment, or being exposed to the clues about punishments, students may develop such a sensitivity. Based on the findings of this study, before using punishment, parents and educators should remember the sensitivity caused by such practices and the undesired consequences due to this sensitivity. Further research can focus on identifying the patterns of relationship between middle school students' sensitivity

to punishment, and different psychological phenomena such as shyness, participation to school, participation to lesson and intrinsic motivation.

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