



An investigation of the relationship between achievement goal orientations and the use of stress coping strategies with canonical correlation

Bayram Cetin*

Ahmet Akin**

Abstract

The aim of this research was to examine the relationship between achievement goal orientations and the use of stress-coping strategies among college students. The sample consisted of 532 university students who were enrolled in different programs at Sakarya University, in Turkey. Of the participants, 279 were female and 253 were male. To assess strategies typically used in coping with stressful situations, the *Coping Scale* (Ozbay & Olivarez, 1999) and to measure achievement goal orientations of the sample the *Achievement Goal Orientations Scale* (Midgley et al., 1998) were administered. Canonical correlations were conducted to statistically analyze the data. Consistent with hypotheses, results demonstrated that there were significant relationships between students' achievement goal orientations and their use of coping strategies.

Keywords: Achievement goal orientations, Coping strategies, Canonical correlation.

* Assisst. Prof. Sakarya University Faculty of Education, Educational Science Department, bccetin@sakarya.edu.tr

** Research Asst. Sakarya University Faculty of Education, Educational Science Department, aakin@sakarya.edu.tr

Başarı yönelimleri ile stresle başa çıkma stratejileri arasındaki ilişkilerin kanonik korelasyonla incelenmesi

Özet

Bu araştırmanın amacı üniversite öğrencilerinin başarı amaç yönelimleri ile stresle başa çıkma stratejileri arasındaki ilişkileri incelemektir. Araştırmanın örneklemini Sakarya Üniversitesi'nin çeşitli bölümlerinde öğrenim gören 532 üniversite öğrencisi oluşturmaktadır. Araştırmada Başarı amaç yönelimleri (Midgley ve diğerleri, 1998) ile Başa çıkma envanteri (Özbay ve Olivarez, 1999) kullanılmıştır. Başarı amaç oryantasyonları ile başa çıkma stratejileri arasındaki ilişkiler kanonik korelasyonla incelenmiştir. Araştırmadan elde edilen bulgular öğrenme amaç yönelimi ile aktif planlama, kabul bilişsel yeniden yapılandırma ve dış yardım arama arasında pozitif, diğer başa çıkma stratejileri arasında ise negatif ilişkiler olduğunu kanıtlamıştır. Bunun aksine performans-yaklaşma ve performans-kaçınma amaç yönelimi ile dine sığınma, duygusal kaçma soyutlanma ve biyokimyasal kaçma soyutlanma arasında pozitif, aktif planlama ve kabul bilişsel yapılandırma arasında ise negatif ilişki bulunmuştur. Bulgulara göre öğrenme amaç yönelimini benimseyen öğrencilerin daha çok aktif başa çıkma stratejilerini, performans-yaklaşma ve performans-kaçınma amaç yönelimini benimseyen öğrencilerin ise pasif başa çıkma stratejilerini kullandıkları söylenebilir.

Anahtar Kelimeler: Başarı amaç yönelimleri, başatme stratejileri, kanonik korelasyon

Introduction

Achievement goal theory has emerged as a major new direction in motivational research (Midgley et al., 1998). Ames (1992) defines achievement goals as an "integrated pattern of beliefs, attributions, and affect that produces intentions of behavior" and further adds, "that is represented by different ways of approaching, engaging in, and responding to achievement-type activities" (p. 261). Achievement goal theory try to explain the beliefs that students hold about the purpose of pursuing achievement as well as the standards or criteria used to evaluate successful performance (Pintrich & Schunk, 1996; Schunk, 2000; Urdan, 1997). More specifically, goal orientation refers to students' personal framework that influences their cognitive, affective and behavioral responses in the learning context (Butler, 1992; Duda & Nicholls, 1992; Dweck & Leggett, 1988). These responses have been described as affecting learners in an adaptive or maladaptive manner (Midgley et al., 2000).

According to classic formulations of achievement goal theory, students use two contrasting achievement goals, learning and performance ones (Ames, 1992; Dweck, 1986; Dweck & Leggett, 1988; Ames & Archer, 1988; Archer, 1994; Elliott & Dweck, 1988). Learning goals are also known as mastery goals (Ames & Archer, 1988) or task-involved goals (Nicholls, Patashnick, & Nolen, 1985). Similarly, performance goals are also considered ego-involved goals (Nicholls, Patashnick, & Nolen, 1985) or ability goals (Ames & Archer, 1988; Dweck, 1986; Dweck & Leggett, 1988). Because the definitions among mastery, task and learning goals and among ability, ego and performance goals are similar, these perspectives have been integrated and are used interchangeably (Stavrianopoulos, 2005).

Learning goals are characterized as the most positive approach, and generally include a desire to increase competence and continually improve oneself. Learning goals are also more learner driven, intrinsically motivating and, focus on mastering materials and concepts, improvement, challenge-seeking, and promote learning as an end itself. Learning oriented students are interested in and focus on new skill acquisition and knowledge development (Albaili, 1998). Individuals who hold learning goals seek to develop their competence on a task or increase their understanding of a subject and attribute this to be achieved by hard work. Students with learning goals believe that competence is malleable and controllable, view errors as opportunities to learn, to increase their effort, and re-strategize and persist in

the face of failure (Dweck, 1986; Dweck & Leggett, 1988). A learning orientation results in the most adaptive responses, such as increased effort to solve a problem or more perseverance when confronted with a difficult situation (Roedel, Schraw, & Plake, 1994). Therefore, learning goals are concerned with actual learning and understanding.

Performance oriented students, are concerned primarily with demonstrating their ability (or concealing a perceived lack of ability) by outperforming others, particularly if success is achieved with little effort (Ames, 1992; Dweck, 1986). Students with performance goals see intelligence as fixed, avoid challenging tasks in an effort to avoid negative evaluations, are less likely to be intrinsically motivated to learn. These students are focused on issues of ability, view errors as indicative of a lack of ability, give up easily when they fail and are concerned with being judged able (Dweck, 1986; Dweck & Leggett, 1988). Satisfaction is based on the ability they have displayed rather than the effort involved to achieve mastery. This orientation often leads to increased anxiety and an inability to persist when faced with obstacles (Eppler & Harju, 1997; Anderman & Maehr, 1994). Dweck (1986, 1990) and Nicholls (1989) have argued that a learning goal orientation is more desirable than performance goal orientation, which concentrates on outperforming others.

Contemporary categorization of achievement goal orientations. Some researchers (Elliot, 1999; Elliot & Church, 1997; Elliot & Thrash, 2002; Harackiewicz, Barron, Carter, Lehto, & Elliot, 1997) have recently examined the maladaptive pattern of performance goal orientation and suggested that performance goals are not wholly maladaptive and in some cases performance goals could lead students to better and more adaptive patterns of achievement than do learning goals. They argued that the classification of learning and performance goals is quite general and confusing because of mixed research results (Elliot & Harackiewicz, 1996; Elliot & Church, 1997; Middleton & Midgley, 1997).

Thus performance goals have been partitioned into performance-approach and performance-avoidance orientations (Elliot, 1999; Elliot & Harackiewicz, 1996; Middleton & Midgley, 1997). According to this distinction, students who adopt performance-approach goals strive to gain favorable judgments of their competence by trying to outperform others. Performance-avoidance students, on the other hand, are trying to avoid failure by all means, even if they have to avoid working on the task. They are also strive to avoid unfavorable judgments of their competence by trying not to look more stupid or ignorant than others.

Researchers supporting this distinction, suggest in their studies that it is specifically the performance-avoidance orientation, which results to maladaptive patterns of behaviors and not the performance-approach one (Elliot, 1997; Elliot & Church, 1997; Elliot & Harackiewicz, 1996). For example Middleton and Midgley (1997) found performance-avoidance goals to negatively predict academic self-efficacy and positively predict avoiding seeking help and test anxiety. Moreover performance-avoidance is positively related to academic self-handicapping (Midgley & Urdan, 2001). Therefore performance-approach goal orientation may sometimes be linked to adaptive patterns of learning, whereas the performance-avoidance goal orientation may be responsible for negative effects. This study supports the view that performance-approach can be adaptive and suggests that performance-avoidance is maladaptive.

Achievement goal orientations and stress-coping. It is assumed that students' achievement goal orientations would be related to how they interpret stress encountered in learning contexts, responses to stress and their using of coping strategy. Research has shown that achievement goal orientations influence the way an individual thinks, feels, and behaves in achievement settings and are linked to different behavioral, cognitive, and affective outcomes (Linnenbrink & Pintrich, 2002). Learning orientation relies on self-referenced conceptions of success and competence, and focus on learning, improving one's performance, and mastering a task (Kim, 1999). Learning goals are usually seen as associated with positive emotions such as enjoyment of learning task. Students who are predominantly learning oriented and have internal criteria of determining success may be better equipped to cope with stress (Dweck & Leggett, 1988).

For performance orientation, however task mastery or the refinement of their own skill is not sufficient to determine competence or success. Thus their assessment of proficiency depends on comparison of their own performance with that of others (Kim, 1999). A performance goal orientation is likely to reflect maladaptive responses, and is characterized by a focus on outcome and a desire to avoid negative feedback. This orientation is more school or teacher driven, generally related to extrinsic motivation and is often connected with emotions such as hopelessness, anxiety and stress. These emotions focus on social comparison, doing better than others, appearing smart, and avoiding the negative perception of being untalented and stupid. Students who adopted performance goals

are often more anxious and stressful about their academic performance and their standing among their peers, rather than the learning process itself (Nicholls, Jones, & Hancock, 2003). They may perceive more stress in achievement contexts because they utilize normative bases to assess success and have external criteria of success, such as outperforming other peers, may be especially vulnerable to perceive stress and suffer possible performance decrements.

Coping style, as most commonly referred to in the literature, is the typical manner in which an individual will confront a stressful situation (Morris, Brooks, & May, 2003) and is one of the most popular conceptual framework for explaining personal tendencies in the use of coping strategies. The literature on coping processes and outcomes in education has increased in the last decade due to recognition of the importance of developing appropriate coping skills. If students don't have the proper coping strategies to deal effectively with these situations they are likely to experience poor performance and negative affect. Lazarus and Folkman (1984) define coping styles as "...constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (p. 141). They reflect to tendency to respond in a predictable manner when confronted with a specific set of circumstances (e.g., situations that the person appraises as controllable or uncontrollable, highly stressful or moderately stressful) (Anshel, Williams, & Williams, 2000). Lazarus and Folkman (1984) describe two main categories of coping, namely problem-focused strategies and emotion-focused strategies. Problem-focused strategies refer to cognitive and behavioral efforts to try to alter the source of stress. Examples are to solve the problem, obtain information, plan in advance, learn new skills or to increase effort. Emotion-focused coping strategies are aimed at reducing the unwanted physical and emotional arousal. These include strategies such as mental and behavioral disengagement, denial or acceptance.

Endler and Parker (1990) argued that people develop different styles of coping when responding to stressful situations. This distinction may stem from their achievement goal orientations that they endorsed. For example, Pensgaard and Roberts (2003) examined the relationship between task and ego orientations and the use of stress-coping strategies among athletes participating in the 1994 Winter Olympic Games. Their findings demonstrated that high task/low ego orientation was related to the use of active coping and social emotional support, while low task/high ego orientation was related to the use of positive redefinition

and growth strategies. They also found that high ego orientation was associated with less use of active coping and planning strategies among female athletes, but not among male athletes. Additionally Morris, Brooks and May (2003) found that traditional and nontraditional college students differ in both achievement goal orientations and coping styles. Their findings also demonstrated that achievement goal orientations such as learning *goals* may be predictive of specific coping styles and those nontraditional college students more often endorsed a learning goal orientation and utilized task-oriented coping.

To date research that investigated relationship between achievement goal orientations and coping strategies used the classic formulations of achievement goals. In other words they didn't consider performance-avoidance goals. In our study we examined this relationship based on contemporary theory of achievement goals and we wanted to investigate how achievement goal orientations and coping strategies are related. So the purpose of this research is to investigate the relationship between three achievement goal orientations (learning, performance-approach and performance-avoidance) and the use of coping strategies among college students.

Method

Participants

532 undergraduate students from different departments of the University of Sakarya, Turkey, took part in this study. These departments are Turkish language education ($n=99$), psychological counseling and guidance ($n=88$), pre-school education ($n=76$), computer education and instructional technologies ($n=72$), elementary school education ($n=112$), and social science education ($n=85$). Of the participants, 279 were female; 253 were male. The mean age of the participants was 20 years.

Measures

Achievement Goal Orientations. The Achievement Goal Orientations Scale (AGOS) (Midgley et al., 1998) was used to assess participants' achievement goal orientation. This scale consists of 18 items, six items for learning goal orientation (LGO), six performance-approach goal orientation (PPGO) and six performance-avoidance goal orientation (PVGO) with each response being made on a five-point Likert scale anchored by "strongly agree" and "strongly disagree". AGOS was translated into Turkish and validated involving 607 university students by Akin and Cetin (2007). The internal consistencies of the Turkish

version were .77, .79 and .78 for LGO, PPGO and PVGO, respectively. Three-week test re-test reliability estimates were .95 for LGO, .91 for PPGO, and .94 for PVGO. The item-total correlations ranged from .42 to .61. As a result of confirmatory factor analysis, fit indexes of the scale was found; Ki-kare= 260.26 ($p < 0.01$), RMSEA=.047, NFI= .95, CFI= .97, SRMR= .049, GFI= .95 ve AGFI= .93. Factor loadings of scale ranged from .47 to .92. The translation validity findings demonstrated that correlation between subscales of Turkish and English forms was quite high (.96 for LGO, .97 for PPGO, and .94 for PVGO).

The Coping Inventory. In order to determine students' coping strategies, the Coping Inventory was used (Ozbay & Sahin, 1997). The Coping Inventory contains two scales measuring distinct aspects of active coping (active planning, external help seeking) and four scales of passive coping (turning to religion, emotional disengagement, biochemical disengagement, acceptance). This inventory has 43 items, and each item is scored on a five-point Likert scale (0 "always false" to 4 "always true"). The results of exploratory factor analysis of the scale have demonstrated that these six factors accounted for 50.2 % of the variance. Factor loadings ranged from .35 to .58 for active planning, from .47 to .73 for external help seeking, from .69 to .87 for turning to religion, from .34 to .66 for emotional disengagement, from .40 to .80 for biochemical disengagement, and from .36 to .73 for acceptance. The internal consistency Cronbach α coefficients were .81 for entire scale, and .75, .81, .89, .62, .56, and .56 for six sub-scales, respectively.

Results

A canonical correlation analysis was conducted using the achievement goal orientations variables as predictors of the coping strategies variables to evaluate the multivariate shared relationship between the two variable sets. The analysis yielded three functions with squared canonical correlations (R_c^2) of .853, .644, and .016 for each successive function. As can be seen in Table 1, the full model across all functions was statistically significant using the Wilks's $\lambda = .052$ criterion, $F(18, 1479.75) = 152.26$, $p < .001$. Because Wilks's λ represents the variance unexplained by the model, $1 - \lambda$ yields the full model effect size in an r^2 metric. Thus, for the set of four canonical functions, the r^2 type effect size was .948, which indicates that the full model explained a substantial portion, about 95%, of the variance shared between the variable sets.

Table 1
Multivariate Test of Significance (S = 3, M = 1 , N = 260 1/2)

Test Name	Value	Approx.F	Hypoth.DF	Error DF	Sig. of F
Pillais	1,51264	88,98681	18,00	1575,00	,000
Hotellings	7,61362	220,65410	18,00	1565,00	,000
Wilks	,05159	152,25986	18,00	1479,75	,000
Roys	,85265				

The dimension reduction analysis allows the researcher to test the hierarchical arrangement of functions for statistical significance. As noted, the full model (Functions 1 to 3) was statistically significant. Functions 2 to 3 were also statistically significant, $F(10, 1048) = 72.30946$, $p < .001$. Function 3 (which is the only function that was tested in isolation) did not explain a statistically significant amount of shared variance between the variable sets, $F(4, 525) = 2.10$, $p = .08$ (see Table 2).

Table 2
Dimension Reduction Analysis

Roots	Wilks L.	F	Hypoth. DF	Error DF	Sig. of F
1 TO 3	0.05159	152.2599	18	1479.75	0.00
2 TO 3	0.35014	72.30946	10	1048	0.00
3 TO 3	0.98428	2.09566	4	525	0.08

As can be seen in Table 3, given the R_c^2 effects for each function, only the first two functions were considered noteworthy in the context of this study (85.3% and 64.4% of shared variance, respectively). The last functions only explained 1.6%, of the remaining variance in the variable sets after the extraction of the prior functions.

Table 3
Eigenvalues and Canonical Correlations

Root No.	Eigenvalue	Pct.	Cum. Pct.	Canon Cor.	Sq. Cor
1	5.787	76.00	76.002	0.923	0.853
2	1.811	23.788	99.79	0.803	0.644
3	0.016	0.21	100.00	0.125	0.016

Table 4 presents the standardized canonical function coefficients and structure coefficients for Functions 1 and 2. The squared structure coefficients are also given as well as the communalities (h^2) across the two functions for each variable. In this research, .45 was admitted as a criterion for the structure coefficient that explains 20% of variance (following a convention in many factor analyses). Looking at the Function 1 coefficients, one sees that

relevant criterion variables were active-planning and acceptance. This conclusion was supported by the squared structure coefficients. These coping strategies also tended to have the larger canonical function coefficients. A slight exception involved the acceptance, which had smaller function coefficient than active-planning, but larger structure coefficient than it. This result was due to the multicollinearity that this variable had with the other criterion variables. Furthermore, with the exception of active-planning, all of these variables' structure coefficients had the same sign, indicating that they were all positively related. Active-planning was inversely related to the other coping strategies.

Table 4
Canonical Solution for Goal Orientations Predicting Coping Strategies for Functions 1 and 2

Variable	Function 1			Function 2			h ² (%)
	Coeff	r _s	r _s ² (%)	coeff	r _s	r _s ² (%)	
Active Planning	0.676	<u>0.830</u>	68.89	0.212	<u>0.530</u>	28.09	<u>96.98</u>
Ext. Help. Seeking	-0.035	-0.061	0.37	0.306	<u>0.462</u>	21.34	21.72
Turn to Religion	-0.084	0.009	0.01	0.292	<u>0.476</u>	22.66	22.67
Emoti. Disengag.	-0.123	-0.015	0.02	0.557	<u>0.485</u>	23.52	23.55
Bioch. Disengag.	-0.074	-0.054	0.29	0.579	<u>0.483</u>	23.33	23.62
Accept. Cog. Rest.	-0.496	<u>-0.871</u>	75.86	0.138	0.416	17.31	<u>93.17</u>
R _c ²			85.30			64.40	
Learning	0.475	<u>0.798</u>	63.68	1.03	<u>0.603</u>	36.36	<u>100.00</u>
Perf-appr.	-0.570	<u>-0.893</u>	79.74	0.757	0.413	17.06	<u>96.80</u>
Perf-avoid.	-0.161	<u>-0.699</u>	48.86	0.209	0.316	9.99	<u>58.85</u>

Note. Structure coefficients (*r_s*) greater than |.45| are underlined. Communality coefficients (*h²*) greater than 45% are underlined. Coef = standardized canonical function coefficient; *r_s* = structure coefficient; *r_s²* = squared structure coefficient; *h²* = communality coefficient.

Figure 1 presents the structure coefficients for Functions 1. Regarding the predictor variable set in Function 1, all of the goal orientation variables were the primary contributors to the predictor synthetic variable. Although the structure coefficient for learning was positive, it was negatively related to all of the coping strategies except for active-planning. Performance-approach and performance-avoidance goal orientations were positively related to the coping strategies, except for active-planning. Only learning goal orientation was positively related to the active-planning. Figure 1 suggests that only two variables were relevant (Active planning and acceptance). These results were fairly supportive of the theoretically expected relationships between achievement goal orientations and coping strategies, and we labeled Function 1 as “goals and self coping” (for rationale, see Discussion section).

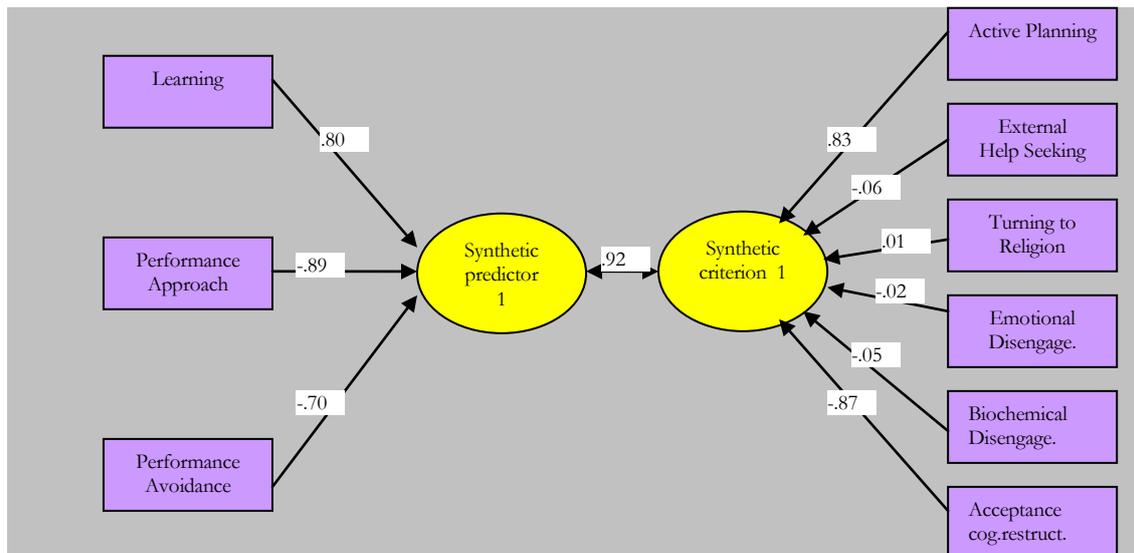


Figure 1. Canonical Root for Goal Orientations Predicting Coping Strategies for Function 1

Moving to Function 2, the coefficients in Figure 2 suggest that all criterion variables were relevant except for acceptance. These coping strategies were positively related on this function. As for goal orientations, only predictor variable of relevance was learning. Looking at the structure coefficients for the entire function, we see that learning was positively related to all criterion variables. Given the nature of these variables, we labeled this function as “learning and mixed coping” (for rationale, see Discussion section).

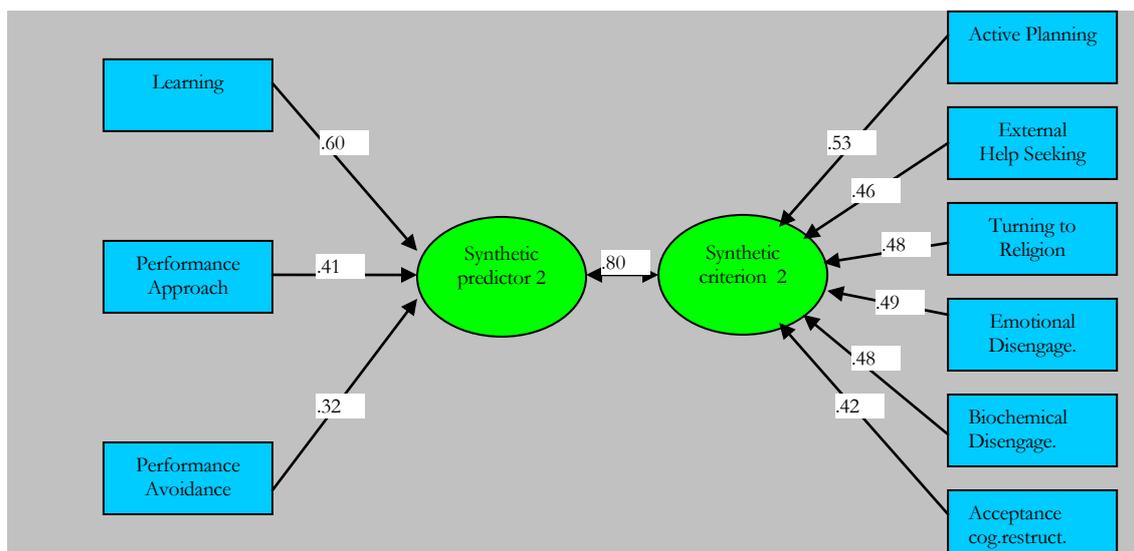


Figure 2. Canonical Root for Goal Orientations Predicting Coping Strategies for Function 2

Discussion

In this study the relationships between achievement goal orientations and stress coping strategies were examined with canonical correlations. As expected overall results demonstrated that there were significant associations emerged between sets of achievement goal orientations and coping strategies. In the first function, three achievement goal orientations made significant contribution as predictor. From the criterion variables, active planning and acceptance made significant contribution. The other coping strategies didn't make significant contribution. If active planning and acceptance were examined, they based on personal effort without expectation external help. In these coping strategies, an individual must make all things to cope stress by him/herself. Therefore, this canonic root was named goals and self coping. While the LGO was found correlated positively with canonical predictor and canonical criterion, PPGO and PVGO were correlated negatively with them. In criterion variables, active coping associated positively with canonical predictor and criterion, whereas acceptance associated negatively with them. As a conclusion, it can be said that an individual who has the more LGO s/he could use the more active planning and who has the more LPGO/LVPG s/he could use the more acceptance. In the second function, while only LGO made significant contribution as a predictor, all coping strategies except for acceptance made significant contribution as a criterion. Therefore, this canonic root was named learning goal and mixed coping. When the structure coefficients are examined it is seen that, LGO related positively to all of the coping strategies. This means that a student who adopts LGO may use coping strategies except acceptance.

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