Achievement Goals and Academic Achievement: The Mediating Role of Learning Strategies

Muhammad Omer Shehzad[1] & Dr. Mudassar Aziz[2]

National Institute of Psychology, Quaid-i-Azam University, Islamabad

The study investigated the relationship among Achievement Goals, Learning Strategies, and Academic Achievement. Achievement Goals are reasons for engaging in achievement activities and Learning strategies through which learners acquire and learn new information and skills. Literature suggested that students' Achievement Goals predict Learning Strategies but relationship between Achievement Goals and Academic Achievement was unclear (Atkinson, 1957). This study was carried out to explore the role of Learning Strategies as an explanatory mechanism between the relationship of Achievement Goals and Academic Achievement. A survey was conducted using Achievement Goals Questionnaire (AGQ), Motivated Strategies for Learning Questionnaire (MSLQ) and actual semester scores as an Academic Achievement. The sample consisted of 321 students of University. The results showed that Achievement Goals are positively related with Learning Strategies. There was a significant relationship found between Mastery Approach, and Performance Approach Goals, and Academic Achievement. The results also revealed that Resource Management Learning Strategies fully mediated the relationship of Achievement Goals and Academic Achievement but Cognitive/Metacognitive Learning Strategies did not mediate the relationship between Mastery Avoidanceand Performance Approach Goals, and Academic Achievement. The differences in demographic variables were also discussed and explained in the light of literature.

Keyword. Achievement Goals, Learning Strategies, Academic Achievement

1.MSc Scholar,National Institute of Psychology, Center of Excellence, Quaid-i-Azam University, Islamabad.

2. Assistant Professor, National Institute of Psychology, Center of Excellence, Quaid-i-Azam University, Islamabad.

Correspondence concerning this article should be addressed to Muhammad Omer Shehzad,

MSc Scholar, National Institute of Psychology, Center of Excellence, Quaid-i-Azam University, Islamabad. Email: omershehzad267@gmail.com.

Achievement Goals and Academic Achievement: The Mediating Role of Learning Strategies

Academic achievement refers to a student's success in meeting short or long-term goals in education. Academic achievement may also refer to a person's strong performance in a given academic arena. Academic achievement is the magnitude to which students, teachers and institutes have achieved their goals (outcomes). Continuous assessments and examinations are the measures of academic achievement but there is no general pact or settlement on how it is tested or which aspect is important (Ward 1996). Academic achievement is important for study and has its own significance in field of education because everyone wants to achieve high, no matters what are their goals? What are their strategies? And what motivation they have? There are numbers of factors contribute to enhance it. Factors like students' motivation, students' interest, goals orientation, learning strategies and many others have effect on academic achievement. It is clear that academic achievement improves in students with high level of motivation and interest, and if these students use different learning strategies. But in case of achievement goals there were very ambiguous results that show how mastery and performance goals affect academic achievement. And also results are ambiguous that how approach and avoidance goals effect academic achievement. This study aims to explore the role of achievement goals and as well as learning strategies on academic achievement.

Academic achievement refers to success of students in getting short and long term goals. It is a multidimensional construct and concern with students' capability and performance. Cognitive, emotional physical and social factors are involved in academic achievement. It indicates students not with single events but through the whole life from school to their professional career (Steinberg, 2001).

The motivation of students in academic achievement was an important concept. Achievement goals were explained in terms of students motivated (i.e., how much the students were motivated towards the task), for the past two decades. It was examined that these goals are relevant to achievement. Achievement goals are goals that engaged the individual in academic task (Midgley, 2000).

Achievement Goal Theory

According to achievement goal framework different students have different achievement behavior and these differences are on the base of emotional, motivational cognitive and behavioral outcome (Elliot, 2005; Pintrich, 2000).

The theoretical and empirical work suggested that there are two types of achievement goals: mastery goals and performance goals. Mastery goals are defined as "the development of competence through mastering the learning materials" and

performance goals are defined as "demonstration of competence relative to others (Ames & Dweck, 1992; Urdan, 1997).

The existing achievement goal construct is based on competence and it is differentiated into two fundamental dimensions.

a) How it is ***defined***

b) How it is ***valenced***

How competence is defined. The standard that used to evaluate performance is the definition of competence. There are three different standards of competence.

a) Absolute-defined in terms of task requirement.

b) Intra-personal-defined as one's past maximum possible achievement.

c) Normative-defined in terms of performance better than others.

Absolute and intrapersonal competence share many conceptual characteristics (e.g. learning a new thing shows mastering the task and building of knowledge). The differences between absolute and intrapersonal, and normative standard was indirectly known in achievement motivation. It means achievement goal was constructed as a construct which include performing well relative to others and job requirement (McClelland, Atkinson, Clark, & Lowell, 1953; Murray, 1983). These differences were open in achievement goals framework that extends the master-performance dichotomy.

How competence is valenced. Valence is another dimension of competence. This dimension is defined as positive (i.e., success) and negative (i.e., failure) terms. Valenced-based process is assumed to directly suggest the approach and avoidance motivation (Cacioppo, Prieseter, & Bernston, 1993). In short valence-based processing and approach and avoidance motivation were relevant to competence (Atkinson, 1957; Murray, 1983). This distinction was acknowledged in trichotomous model of achievement goals theory (Dweck & Elliott, 1983).

Both dimensions, definition and valence, are very important and necessary components of competence. Achievement goal theory is impossible to formulate without the information about how competence is defined and valenced. It was a reasonable evidence for the conceptualization of 2×2 achievement goal framework that include the combination of both dimensions of competence. Figure 1 represents a demonstration of achievement goal framework.

According to the definition of competence, valence is either positive or negative. In APA dictionary of psychology positively valenced objects attracts individuals and

negatively valenced objects repel (Elliot & Murayama, 2008). These two types of valence (positive or negative) gave two types of motivation.

i. Approach

ii. Avoidance

On the basis of two measurements of competence definition and valence four types of achievement goals are formed; 1) Mastery-approach goals, 2) performance-approach goals, 3) mastery-avoidance goals and 4) performance-avoidance goals.

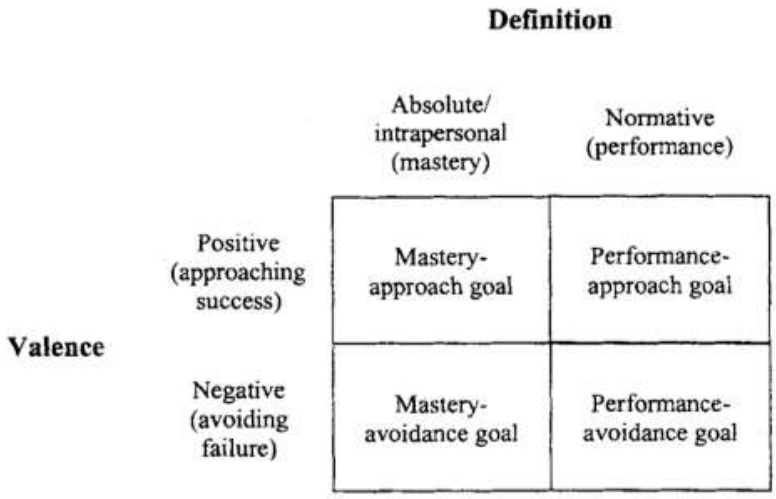

Figure 1. The achievement goal framework; Definition and valence represent the two dimensions of competence. Absolute/intrapersonal and normative represent the two ways that competence can be defined; positive and negative represent the two ways that competence can be valenced.

The achievement goal framework comprised of four types.

I. ***Mastery approach goals***. Students concerned with increasing their ability.

II. ***Mastery avoidance goals***. Students avoiding misunderstanding.

III. ***Performance approach goals***. Students study to show their ability to others and look smart.

IV. ***Performance avoidance goals***. Students study to avoid looking dumb or getting the worst grades.

Learning strategies are the mental processes hat can recruit students to help themselves learn and know new things and information (Brandt, 1988). There are different learning strategies like cognitive and meta-cognitive strategies, resource management strategies etc. Learning strategies are effortful and time consuming so the

students who got good grades use different kinds of learning strategies, so learning strategies and academic achievement are directly related.

Learning is the process in which students use different learning strategies to recover the existing knowledge in order to learn and understand new materials. Environment plays a major role in learning process. The learning strategies that students use depend upon nature of motivation and learning goals (Pintrich et. al., 1991).

Learning Strategies	
Cognitive and Metacognitive strategies	Rehearsal Elaboration Organization Critical thinking Metacognitive self-regulation
Resource Management strategies	Time management and Study environment Effort regulation Peer learning Help seeking

Figure 2. Learning strategies table
Note. Motivated strategies for learning, these strategies on which MSLQ is based

Although there has been significant research on students' knowledge or awareness of these strategies, there has been little attention as to how the context of learning affects students' actual use of these strategies (McKeachie et al., 1985; Thomas & Rohwer, 1986). The results suggest that students' use of learning strategies may be related to whether students adopt a mastery or performance goal orientation in the classroom.

Literature suggests that there is a positive relationships between academic achievement and cognitive and metacognitive strategies (Rebovich, Brooks, &Peterson, 1998), environment management (Zimmerman &Martinez-Pons, 1986), time management (Britton & Tessor, 1991), effort regulation (Chen, 2002), and help seeking (Rebovich, Brook, and Peterson, 1998).

Matos, Lens, and Vansteenkiste (2007) examined the relationship between students' achievement goals, their use of learning strategies, and their academic achievement. Results showed unclear relationship between achievement goals and academic achievement, achievement goals and learning strategies, and also between academic achievement and learning strategies. As reported by Pintrich (1999), there is positive relationship between self-regulatory learning strategies and mastery goals, and that actual performance of the students is positively related with mastery goals. The

research in the field of goal orientation found that extrinsic goal orientation negatively relates with self-regulatory strategies and actual performance.

Method

Sample

The sample of 321 individuals were reached on convenient basis. The sample was from Quaid-i-Azam University and from the different departments. The only condition the researcher imposed was that the participants were not from first semester or newly admitted. The reason behind it is that researcher is interested in the previous semester's percentages or CGPAs.

Table 1

Frequency table for Demographic Variables (N=321)

Characteristics	***f***	***%***
Gender		
Male	130	40.5
Female	191	59.5
Age		
Late adolescents	148	46.1
Middle adults	173	53.9
Department		
Social	178	55.5
Natural	143	44.5
Class		
BS	74	23.1
MSc	210	65.4
M.Phil.	37	11.5
Semesters		
2nd	102	31.7
3rd	144	44.9
4th	75	23.4
Resident		
Day scholar	229	71.3
Hostel lite	92	28.7

Table 1 exhibits the demographic descriptions of sample their frequency and percentage. These variables include gender, department, class, semester and resident. The

males (n = 130) are lower in frequency than females (n = 191) with a percentage of 40.5% and 59.5% respectively.

Instrument

Exams performance. Participants' exams grades were used as a measure of performance attainment. Grades were based on participants' finals marks of their semester exams.

Achievement goals. The 12-items of achievement goal questionnaire-revised (AGQ-R) was used to measure achievement goal construct (Elliot & Murayama, 2008). It has four subscales based on 2×2 achievement goal formulation (Elliot & McGregor, 2001), that is, mastery-approach subscale, mastery-avoidance subscale, performance – approach subscale and performance-avoidance subscale. Response on each items ranged from 1 (strongly disagree) to 5 (strongly agree).

MSLQ (Motivated Strategies for Learning Questionnaire).It was developed by Paul R. Pintrich (1996) at the National Center for Research at University of Michigan. This instrument has been under progress since 1986 when the Center was founded. It was designed to assess students' motivational orientations and their use of different learning strategies in related course. Two sections comprise the MSLQ, a motivational section and a learning strategies section. The learning strategies are used in this study which is bifurcated in to two subscales.

Procedure

Firstly, taking consent from the participants and then given questionnaire to them. The participants' age, gender, department, their roll number, their resident place either day scholar or boarder and study hours were asked as demographic references (see Appendix B) before they proceed to the actual instrument. The data were collected from Quaid-i-Azam University students after having their consent, and with the promise that their data will kept confidential. Participants were given rights to leave the study any time with no cost and no harm. Simple English language was used in the questionnaire. The time required for filling the questionnaire was most 15 minutes. The researcher also noted the comments made by the participants about the booklet, and has used the feedback points in the results, explanation and discussion of this paper.

Results

The present study aims to explore the relationship between achievement goals (mastery approach goals, mastery avoidance goals, performance approach goals and performance avoidance goals) and academic achievement via mediating role of learning strategies (cognitive/meta-cognitive strategies, and resource management strategies). The demographics

studied among the targeted sample were; age and gender of students. SPSS-21 was used to applied number of statistical analysis/procedure for exploring the relationship. The internal consistency of the scales was determined by Cronbach's alpha reliability coefficient. Pearson product moment correlations were calculated to determine the relationship between the variables of the current study, i.e., achievement goals, learning strategies and academic achievement. Independent sample *t*-test was computed on the demographics to explore the differences among responses of males and females. The proposed mediating role of learning strategies was measured through a Multiple Mediation Model (Preacher & Hayes, 2008). The tabulated results are as follows:

Table 2

Cronbach's Alpha and Descriptive Statistics for study variables (N = 321).

Measures	No. of items	*α*	*M*	*SD*	*Range*		Skewness	Kurtosis
					Potential	Actual		
LS	50	*.93*	227.73	36.06	50-350	97-329	-.43	.64
C n M	31	*.87*	144.41	25.97	31-217	50-214	-.44	.43
RMS	19	*.63*	83.38	12.33	19-133	44-130	-.04	.93
AG	12	*.82*	44.13	7.74	12-60	13-60	-.63	.66
MAG	3	*.71*	11.61	2.54	3-15	3-15	-1.15	1.24
MAV	3	*.58*	10.39	2.49	3-15	3-15	-.24	-.43
PAG	3	*.72*	11.27	2.60	3-15	3-15	-.80	.42
PAV	3	*.66*	10.85	2.58	3-15	3-15	-.60	.11

Note. LS = motivated strategies for learning; C n M = cognitive and metacognitive study strategies; RMS= resource management strategies; AG=achievement goal; MAG= mastery approach goals; MAV = mastery avoidance goals; PAG= performance approach goal; PAV = performance avoidance goals.

The Table 2 illustrates the results of mean, standard deviation, range, reliability, skewness and kurtosis learning strategies (LS) and Achievement goal (AG) and its subscales. It is observed that all the scales used have their skewness within the desired range of + 1.5 to -1.5.

Correlation among Construct

The Table 3 shows the correlation among the scales used for achievement goals, learning strategies and academic achievement with respective subscales.

Table 3

Inter-correlation among the sub-scales (N = 321).

Note. LS = motivated strategies for learning; C n M = cognitive and metacognitive study strategies; RMS= resource management strategies; AG=achievement goal; MAG= mastery approach goals; MAV = mastery avoidance goals; PAG= performance approach goal; PAV = performance avoidance goals.
**p < .05, **p < .01*

As shown in the Table, the scales with their subscales significantly correlated with each other as well as all the subscales that used in the research significantly correlate with each other except in the case of academic achievement. Mastery-approach goal and performance-approach goals are significantly correlated with academic achievement. Learning strategies are also significantly correlated with academic achievement and achievement goals.

	Measure	LS	C n M	RMS	AG	MAG	MAV	PAG	PAV
1	LS	-							
2	C n M	.97**	-						
3	RMS	.86**	.71**	-					
4	AG	.54**	.52**						
5	MAG	.57**	.56**	.47**	.78**	-			
6	MAV	.32**	.31**	.27**	.70**	.36**	-		
7	PAG	.44**	.40**	.42**	.71**	.63**	.29**	-	
8	PAV	.31**	.28**	.30**	.75**	.37**	.48**	.41**	-
9	CGPA	.16*	.13*	.17**	.14**	.52*	.13	.15**	.10

A Multiple Mediation Analysis: Multiple Mediator Models

The Multiple Mediation Model analysis was conducted after all five sets of path "a" and "b" (see Figures 3, 4, 5 and 6) and (see Table 4).

In addition to our hypothesis concerning the differential effects of mastery-approach goals, master-avoidance goals, performance-approach goals and performance avoidance goals on academic achievement, we also tested the mediating role of our hypothesized mechanisms in the relationship between achievement goals and academic achievement.

Table 4

Indirect effect of achievement goals on academic achievement through proposed mediators (N = 321).

Mediators	Bootstrap effect	Normal effect	Normal theory test			Biased corrected and accelerated CIs	
			Se	*Z*	*P*	Lower	Upper
			Mediated effect of MAG				
Total effect	.16					-.17	.48
C n M	.12	.26	.11	.27	.02	.5	.54
RMS	.11	.28	.09	2.96	.00	.06	.51
			Mediated effect of MAV				
Total effect	.17					.07	.74
C n M	.05	.13	.05	1.96	.10	-.00	.23
RMS	.06	.12	.05	2.31	.02	.03	.29
			Mediated effect of PAG				
Total effect	.14					-.13	.77
C n M	.07	.10	.10	1.41	.15	-.03	.25
RMS	.08	.16	.18	2.14	.03	.03	.37
			Mediated effect of PAV				
Total effect	.30					.04	.77
C n M	.05	.10	.06	1.84	.08	.01	.24
RMS	.06	.14	.10	2.46	.01	.03	.30

Note. LS = motivated strategies for learning; C n M = cognitive and metacognitive study strategies; RMS= resource management strategies; AG=achievement goal; MAG= mastery approach goals; MAV = mastery avoidance goals; PAG= performance approach goal; PAV = performance avoidance goals; LL = lower limit, UL = upper limit.

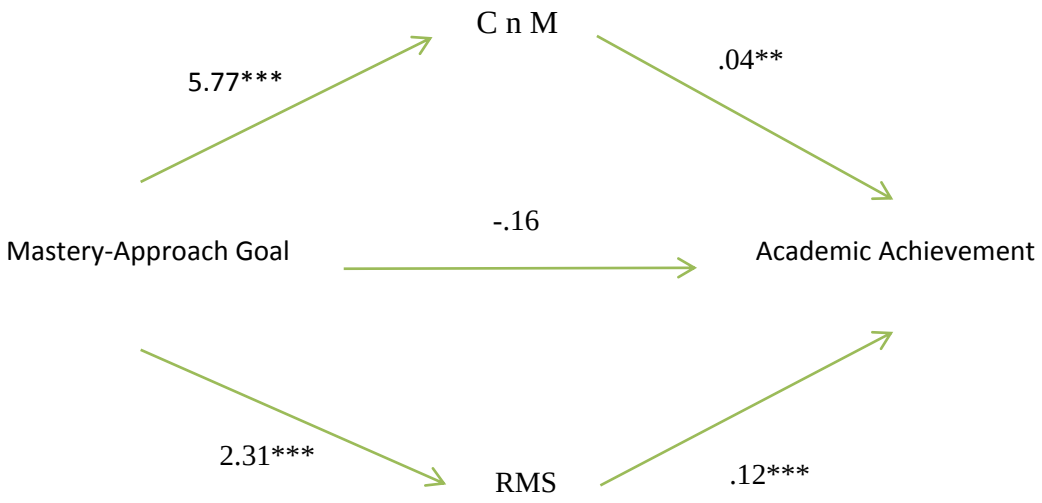

Figure 3. Coefficients responding effects of Mastery-Approach Goal on mediators and Academic Achievement. **p < .05, ** p < .01, *** p < .001.*

The resultsshow that the total effect of mastery-approach goal on academic achievement was not significant (*B* = .15, *p* = .35*)*.

Figure 3 shows that direct effect of mastery approach goal was not significant. Concerning the relationship between mastery-approach goal and two potential mediators, mastery-approach goal was significantly and positively associated with both mediators (i.e. C n M and RMS). Finally, Table 4 shows that the total indirect effect of mastery-approach goal on academic achievement was significant. Moreover, the two indirect effects, the effect of both mediators were significant *indirect effect* = .26, *p* = .02*; BCa* 95% *CI* [.049 - .548] and *indirect effect* = .28, *p* = .00*; BCa* 95% *CI* [.06 - .51]respectively.

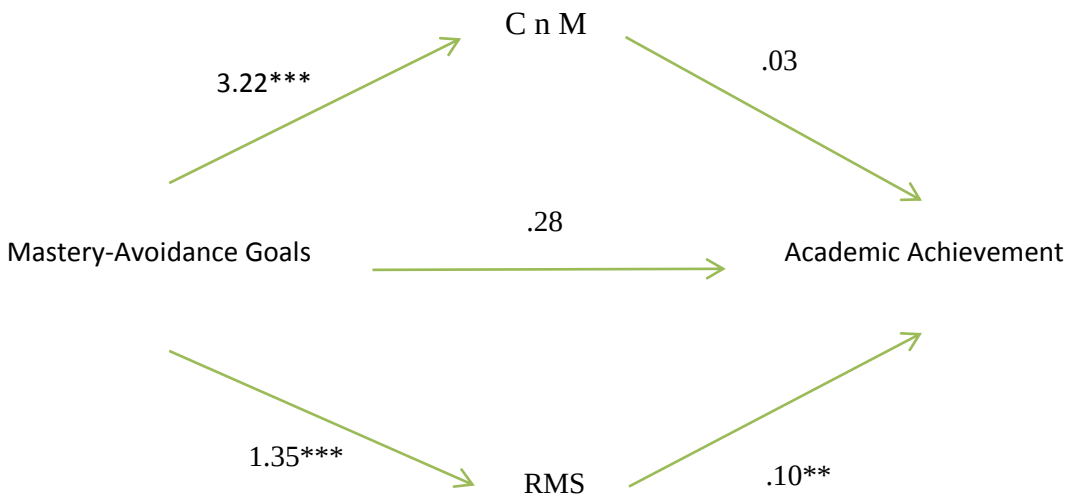

*Figure 4.*Coefficients responding effects of Mastery-Avoidance Goal on mediators and Academic Achievement. *$p < .05$, ** $p < .01$, *** $p < .001$.

The results show that the total effect of mastery-avoidance goal on academic achievement was significant (*B* = .41, *p* = .01*)*.

Figure 4 shows that direct effect of mastery avoidance goal was not significant. Concerning the relationship between mastery-approach goal and two potential mediator mastery-avoidance goals was significantly and positively associated with only one mediator (i.e. RMS). Finally Table 4 shows that the total indirect effect of mastery-approach goal on academic achievement was significant. Moreover, of the two indirect effect, only the effect of single mediator RMS was significant *indirect effect* = .12, *p* = .02*; BCa* 95% *CI* [.03 - .29]

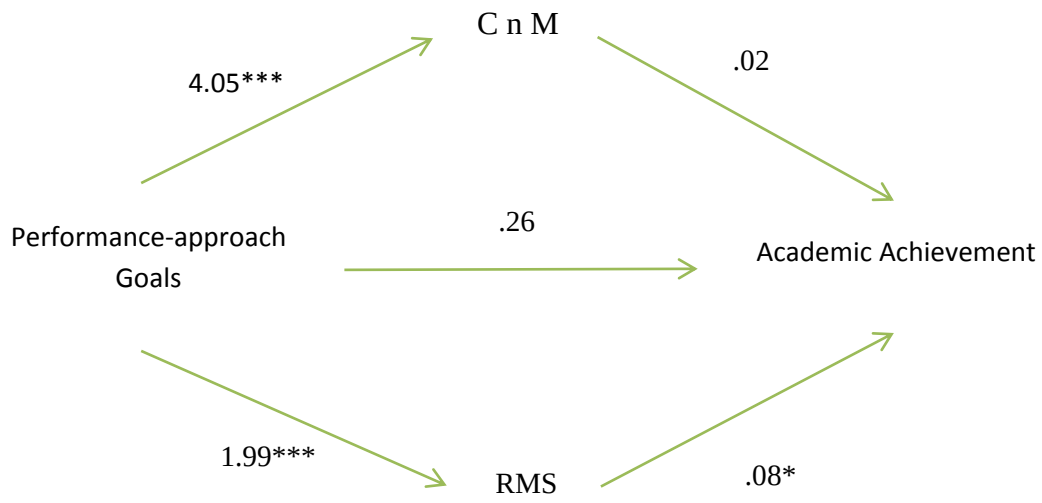

Figure 5. Coefficients responding effects of Performance-Approach Goal on mediators and Academic Achievement. *$p < .05$, ** $p < .01$, *** $p < .001$.

The result shows that the total effect of performance-approach goal on academic achievement was significant ($B = .45$, $p = .00$).

Figure 5 shows that direct effect of performance-approach goal was significant. Concerning the relationship between performance-approach goal and two potential mediator performance-approach goals was significantly and positively associated with only one mediator (i.e. RMS). Finally Table 4 shows that the total indirect effect of performance-approach goal on academic achievement was significant. Moreover, of the two indirect effects, only the effect of single mediator i.e., RMS was significant *indirect effect* = .16, $p = .03$*; BCa* 95% *CI* [.03 - .37].

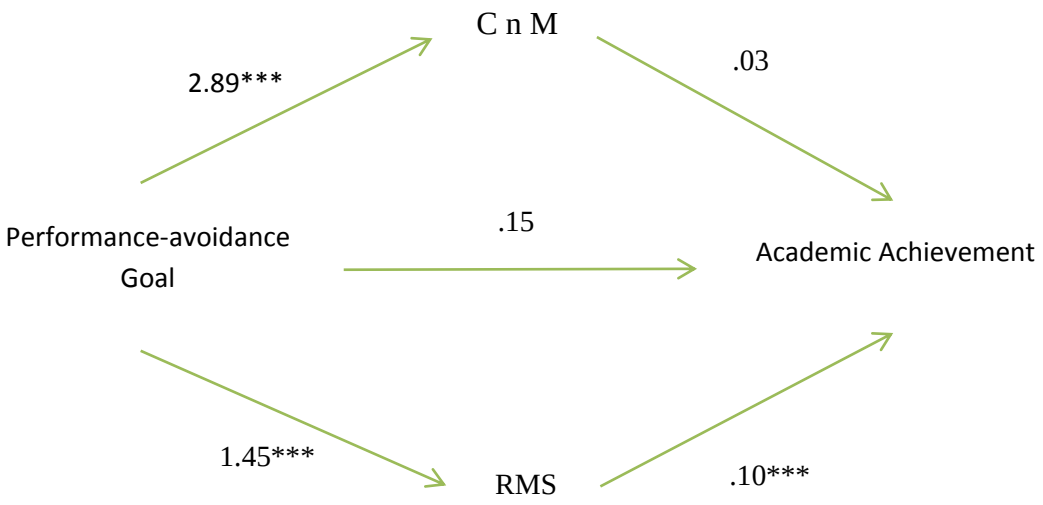

*Figure 6.*Coefficients responding effects of Performance-Avoidance Goal on mediators and Academic Achievement. **p < .05, ** p < .01, *** p < .001.*

The result shows that the total effect of performance avoidance goal on academic achievement was not significant (*B* = .30, *p* = .07*)*.

Figure 6 shows that direct effect of performance-avoidance goal was not significant. Concerning the relationship between performance-avoidance goal and two potential mediator performance-avoidance goals was significantly and positively associated with only one mediator (i.e. RMS) and in case of C n M, performance-avoidance goals was not significantly mediated. Finally, Table 4 shows that the total indirect effect of performance-avoidance goal on academic achievement was significant. Moreover, the two indirect effect, only the effect of one mediator (i.e. RMS) was significant *indirect effect* = .14, *p* = .01*; BCa* 95% *CI* [.03 - .30] and in case of C n M performance-avoidance goal was not significantly mediated (*indirect effect* = .98, *p* = .06*; BCa* 95% *CI* [.00 - .03].

Differences among Demographic Variables and Achievement Goals, Learning Strategies and Academic Achievement (CGPAs)

t-test. Independent sample *t*-test were conducted to check the differences along the demographic conditions i.e. gender (males and females), residence place of students (day scholar or boarder), students from natural science department and form social science department, and age (late adolescent and young adults) (see Table 4, 5, 6 and 7).

Table 5

Comparison of gender among study variables (N = 321)

Measures	Male		Female		*t(319)*	*P*	95% Cl		Cohen's *d*
	M	*SD*	*M*	*SD*			*LL*	*UL*	
LS	222.07	35.58	231.58	35.97	2.34	.02	-.40	.73	.26
C n M	141.36	26.06	146.49	25.78	.74	.08	-.66	10.92	-
RMS	80.83	11.06	85.12	12.87	3.10	.00	1.57	7.01	.37
AG	44.00	8.02	44.22	7.56	.25	.79	-1.50	1.95	-
MAG	11.51	2.70	11.68	2.43	.57	.56	-.40	.73	-
MAV	10.40	2.46	10.38	2.52	.04	.96	-.57	.54	-
PAG	11.29	2.66	11.26	2.57	.08	.93	-.60	.55	-
PAV	10.74	2.58	10.89	2.59	.32	.74	-.48	.67	-

Note. LS = motivated strategies for learning; C n M = cognitive and metacognitive study strategies; RMS= resource management strategies; AG=achievement goal; MAG= mastery approach goals; MAV = mastery avoidance goals; PAG= performance approach goal; PAV = performance avoidance goals; LL = lower limit, UL = upper limit.

As the table shows, there is a significant difference among the scores of males (*M* = 222.07, *SD* = 35.58) and females (*M* = 231.58, *SD* = 35.97) on learning strategies. Hence, suggesting that females are statistically more significant on learning strategies as compared to males. As well as there is a significant difference between subscale of learning strategies. The scores of males (*M* = 80.83, *SD* = 11.06) and females (*M* = 85.12, *SD* = 12.87) on resource management strategies respectively shows that females use these strategies more than males (see Table 5).

Table 6

Comparison of age of students with study variables (N = 321).

Measures	Adolescent		Adults				95% Cl		Cohen's
	M	*SD*	*M*	*SD*	*t(319)*	*P*	*LL*	*UL*	*d*
LS	225.54	38.13	229.60	34.19	-1.00	.31	-11.99	3.89	-
C n M	142.48	26.93	146.06	25.08	-1.23	.22	-9.29	2.14	-
RMS	83.16	13.80	83.57	10.96	-.30	.76	-3.13	2.30	-
AG	43.98	8.63	44.26	6.90	-.31	.75	-1.98	1.43	-
MAG	11.49	2.93	11.71	2.15	-.78	.43	-.78	.33	-
MAV	10.36	2.64	10.41	2.34	-.18	.02	-.60	.49	0.02
PAG	11.30	2.83	11.25	2.40	.17	.04	-.52	.62	0.01
PAV	10.82	2.87	10.87	2.32	-.16	.87	-.61	.52	-

Note. LS = motivated strategies for learning; C n M = cognitive and metacognitive study strategies; RMS= resource management strategies; AG=achievement goal; MAG= mastery approach goals; MAV = mastery avoidance goals; PAG= performance approach goal; PAV = performance avoidance goals; LL = lower limit, UL = upper limit.

As shown in table there is no difference between adolescent and adult students in case of leaning strategies and its subscales. But significant difference is seen on the two subscales of achievement goals. The score on mastery-avoidance goals of adolescents are M = 10.36, SD = 2.64 and scores of adults are M = 10.41, SD = 2.34. These results show that students follow mastery-avoidance goals due to increase in age. The scores on performance-approach goals of adolescents are M = 11.30, SD = 2.83, and scores of young adults are M = 11.25, SD = 2.40. This result shows that performance-approach goals are lessened due to increase of age.

Discussion

The current study aims to explore the relationship between achievement goals and academic achievement and providing learning strategies to mediate this interaction. Literature suggests hat achievement goals are of four types. These goals are mastery-approach goals, mastery-avoidance goals, performance-approach goals and performance-avoidance goals

According to the achievement goal framework different students have different achievement behavior (Elliot, 2005; Pintrich, 2000). Mastery goals and performance-approach goals were positively associated with academic achievement while performance-avoidance goals were negatively associated. According to literature, the relationship of performance goals and study strategies were not differentiated among the approach and avoidance versions of performance goals (Elliot et. al., 1999, Pintrich, 2000 & Wolters, 2004). Wolters (2004) distinguished between approach and avoidance versions of performance goals and showed that performance-approach goals were positively related to the use of cognitive strategies. Another study reported that achievement goals predicted learning strategies but not academic achievement when learning strategies mediated between achievement goals and academic achievement (Matos, Lens & Elliot et. al., 1999; Pintrich, 2000; Wolters, 2004; Vansteenkiste, 2007).

In the present study, the basic correlation coefficients were calculated. The relationships between the scales and subscales of achievement goals, learning strategies and actual scores of academic achievements of students were explored. The findings of the present study suggest that there is no relationship between mastery-avoidance and academic achievement, and between

performance-avoidance goals and academic achievement. In literature, mastery goals (approach and avoidance) and performance-approach goals were positively related with academic performance of students. Whereas, according to Chen and Wong (2015), mastery goals showed no relationship with performance. The reason found by researcher for this contradiction between avoidance goals and academic achievement is that there is a cultural and education system differences. The education system is completely focused on marks and CGPAs, and students performing better than others due to peer pressure. These factors also play the important role for adaptation of avoidance goals among students. The results also showed that learning strategies are positively related with academic achievement. In previous researches it was found that the relation between academic achievement and learning strategies is significantly positive, and literature also supports results. Fang (2014) reported that students' motivated learning strategies are statistically significant in correlation to academic achievement of students.

The multiple mediation analysis showed significant finding that could be explained through the indirect effect of achievement goals on academic achievement via learning strategies. The relationship between mastery-approach goals and academic achievement is mediated by cognitive and metacognitive, and resource management strategies. The results showed that cognitive and metacognitive, and resource management strategies fully mediated the relationship between mastery-approach goals and academic achievement (see Table 4). It was found in literature that cognitive strategies and resource management strategies mediated the relationship between mastery goals and academic achievement (Greene, Miller, Crowson, Duke, & Akey, 2004). The results also showed that resource management strategies fully mediated the relationship of mastery avoidance goals and academic

achievement. Cognitive and metacognitive strategies did not mediate the relationship.

The relation between performance-approach goals and academic achievement is mediated by cognitive and metacognitive, and resource management strategies. The results showed resource management strategies fully mediated the relationship betweenperformance approach goal and academic achievement. Cognitive and metacognitive strategies did not mediate the relationship of performance approach goal and academic achievement. Some studies have examined the joint and interactive effects of mastery and performance goals on learning strategies and academic achievement. The findings of these studies are significant for mastery goals, but they also reveal some positive effects of performance goals as well (Archer, 1994; Meece et. al., 1988; Meece & Holt, 1993; Pintrich & Garcia, 1991).

The relationship between performance-avoidance goals and academic achievement is mediated by cognitive and metacognitive, and resource management strategies. The results showed that resource management strategies fully mediated the relationship between performance avoidance goals and academic achievement.

In contrast with the previous literature, there were gender differences in using learning strategies. Table 5 showed that the women use more and different types of learning strategies as compared to men. The probable reason behind it is that, women are achievers, and are more serious about their studies. Males appear to be less concerned about the use of learning strategies because they showed non-serious behaviors and have many extracurricular activities.Literature showed significant gender differences on the learning strategies. Females were significantly better than males in their use of cognitive, metacognitive, and social strategies. Similar

gender differences were found using different strategy assessment techniques (Zoubir-Shaw & Oxford, 1994). Gibbs, Fergusson, and Horwood (2008) observed that females are high achievers as compared to males. And there were no differences among gender in case of achievement goals.

In contrast with age (see Table 6) of students who are either adolescents or adults, the results showed that young adults are significantly different from adolescents in using of mastery-avoidance goals and academic achievement, and performance-approach goals and academic achievement. The literature also gave enough evidence that adults are high achievers than adolescents and followed the approach goals (Pellizzari & Billari, 2011).

Limitations

The participants were only reached on a convenient basis and were selected from Quaid-e-Azam University. In addition, because of sampling technique, only a certain level of socioeconomic status was gathered. This limits the generalizability factor of the study across Pakistan.

The correlational method used in the study provides no causal association between the constructs. This also impacts the results' predictive value. The use of self-report measure resulted in high social desirability with acquiescence response style. These methods were also affected by the subjectivity of the participants such as their method at the time of filling out the questionnaire and their interpretation of the questionnaire items.

Recommendations

Following are the few suggestions that the researcher would like to make for future studies to enhance, improve and continue the work on understanding the topic of learning strategies:

1. To go for a bigger sample size in terms of the numbers of participants as well as gathering the sample from multiple universities across the city for better generalizability.
2. Translating and adapting the scales used in the current study to make the instruments more indigenous for further enhancing the reliability and validity of measure.
3. Adding demographics for learning strategies and achievement goals.
4. Cross-cultural studies could be conducted to examine the differences between different education systems.

Conclusion

The current study revealed that although achievement goals results in academic achievement, the interplay of learning strategies in this relationship act as mediator and reduce the effect of academic achievement. Two components of learning strategies gave possible reasonswhy achievement goals affect academic achievement. The current study has added to understudied phenomena in a literature in the form of seminal literatures, but sizeable amount of additional investigations will be required to understand the reasons of relationship of achievement goals and academic achievement. Survey method was used in this study. The results concluded that there is a positive relation between learning strategies and academic achievement. Learning strategiesmediate the relationship between achievement goals and academic achievement. The present study has practical and theoretical implications. It is suggested that using more and different learning strategies can enhance the academic achievement of students.

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