

COGNITIVE LEARNING STRATEGIES MEDIATING THE RELATIONSHIP OF ACTION CONTROL WITH ACADEMIC PERFORMANCE AMONG SECONDARY SCHOOL STUDENTS

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ABSTRACT

This study aimed to explore the mediating role of cognitive learning strategies in linking action control with academic performance of secondary school students. The data was collected from 350 secondary school students ranging in age with 14 to 17 years on a booklet consisting of Action Control Scale and Self-regulated Learning Strategies Questionnaire. Results indicated that action control was negatively correlated with learning strategies and did not predict student's performance. However, findings showed the indirect effect of action control on academic performance through cognitive learning strategies. Results implied that learning strategies mediated the relationship between action control and students performance.

Keywords: Action control, Cognitive learning strategies, Academic achievement

INTRODUCTION

Self-regulated learning has been investigated by many of the researchers since 1980s particularly focusing its significance, purpose, and roles in explaining the ramification and differences in putting efforts by students to learn on their cope (Pintrich, 2000; Torrano & Gonzalez, 2004). The importance of self-regulated learning is now considered, particularly in students learning in schools (Jacobs et al., 2002), afterwards it has also been evidenced that students with self-regulated learning reported have been found more successful academically (Pajares 2008; Zimmerman and Schunk, 2008).

Self-regulated learning is defined as a process of learning that helps students in determining their emotions, beliefs, and actions that lead them to achieve their learning goals successfully. Self-regulated learning model generally presents three stages of learning; preparation, execution, and understanding performance (Pintrich & Zusho, 2002; Zimmerman, 2008). Motivation towards self-

regulated learning of students makes them different from their class fellows and other in performance. Clarebout, Horz, and Schnotz, 2010; Elstad and Turmo, 2010; Labuhn, Zimmerman, and Hasselhorn, 2010 reported from their findings that the students who employ self-regulated learning techniques in their learning, develop more interest and motivation in studies; also participate in class discussion and explore more about learning materials. Furthermore these self-regulated learners attempt to acquire their academic goals (Kolovelonis, Goudas, & Dermitzaki, 2011). Many researchers; Schunk and Zimmerman (2007); Zimmerman (2008); Rosario, Nunez, Valle, González-Pienda and Lourenço (2013) have affirmed that such students perform more better than other students.

Self-regulated learning model presented by Pintrich (1999) exhibit three strategies of learning; cognitive, meta-cognitive control and resource management strategies. In cognitive strategy,

learners rehearse, elaborate, organize, and think critically; and students manipulate knowledge in responding to goals' demands. For instance selecting between main and secondary knowledge, and concentrating on attention (Pintrich, 1999; Pintrich & DeGroot, 1990). For processing of knowledge, rehearsal is the primary technique in which learning material is verbally repeated for the purpose of memorizing them. In elaboration technique, learner paraphrase and summarize the information; and in organization technique students take notes, draft outlines, and focus on several perspectives of learning material. Critical thinking involves critical analysis of thoughts and utilizing information for new circumstances (Pintrich, Smith, Garcia, & McKea-chie, 1991).

Rosário et al. (2009); Usher and Pajares (2008); Zimmerman and Schunk (2008) explored the effect of cognitive learning techniques on learning success and performance with motivational aspects such as planning, task fixing, self-efficacy, willingness, intentions, procrastination, and efforts.

Action control one of the personality traits (Kuhl, 1994b) is associated with many aspects of one's goal achieving ways and procedures (Papantoniou, Moraitou, Katsadima & Dinou, 2010). Two polar ends explain well this trait of action control; action-orientation and state-orientation (Diefendorff et al., 2000; Kuhl, 1994a). It supports to understand that all people don't acquire similar performance even when they have same information, abilities, competencies, and skills. People who are with action orientation personality traits utilize their available sources in the right manners to achieve their aims and goals. However, people having state orientation remain fail to concentrate on their goals. They divert their attention due to their feelings, emotions, and situational variables (Papantoniou, et. al., 2010; Brunstein & Olbrich, 1985).

Kuhl and Beckman (1994) further proposed that action control orientation has three facets; Preoccupation (versus Disengagement), Hesitation (versus Initiative), in addition to Volatility (versus Persistence). Preoccupation or disengagement is described as detachment from thinking or not favorable events that could separate an individual's interest from doing their valuable aims. While the state oriented component usually believe in unfavorable circumstances in a way to recognize it

that may be true or fake. (Diefendorff, Hall & Streaun, 2000; Kuhl & Beckman, 1994). Hesitation (vs. Initiative) component presents two contradictory poles of hesitancy when compared to initiative that refers to having problem in taking initiate to do responsibilities and duties. People who have action orientation often take initiative for their aims. They become more comfortable when they have to start a new task. While the individuals who are state focused oriented show careful thoughts for working on new goals and tasks (Kuhl & Beckman, 1994). Volatility (vs. Persistence indicates those individuals' ability to assert their focus on tasks. People with high degree of action remain consistent until they get attain their goals. People with high degree of state focus orientation usually divert their attention from one task to another and don't complete their goals (Diefendorff, et. al., 2000). Thus the three facets of action orientation describe the three different aspects of task acquisition. Action oriented people do not divert their attention and remain engaged in their going-on tasks.

People with action control trait perform more effectively and successfully in their academics goals. Action control trait of learners has significant impact on their performance and academic success as compared to the learners with trait of state orientation. Since action oriented people absolutely focus on their assignments, surely engage in their tasks, and do work consistently on their tasks (Kuhl, 1994a). Action oriented learners unquestionably become initiative and do not show unwillingness for their actions upon achieving tasks. They do not feel any hesitation while working on new projects because they are curious about getting new knowledge and want to be master in learned material. Furthermore they show commitment till the work is completed. Finally it is noted that action control has significant positive association the success of learning (Brunstein & Olbrich, 1985; Kuhl, 1994b). Keeping the evidences from literature related to the importance of action control in academic success, the present research was designed to extend these findings by exploring the mediating role of cognitive learning strategies between the relationship of action control and academic achievement.

METHOD

Participants

The sample consisted of 350 students (146 girls and 204 boys) recruited from secondary classes in different public and private schools of Multan City through convenient sampling technique. Age range of the participants was 14 to 17 years (Mean age = 15.64; SD = 2. 8). Participants' characteristics are given in Table 1.

Table 1

Demographic characteristics of entire sample (N=350)

Characteristics		Frequency	%
Age	14-15	195	55.7
	16-17	155	44.3
Gender	Girls	146	41.5
	Boys	204	58.0
Qualification	9 th	178	50.9
	10 th	168	48.0
Birth order	Elder	107	30.4
	Middle	117	33.2
	Younger	126	35.8
Grades	A	74	20.3
	B	164	47.1
	C	112	32.6

Instruments

Following instruments have been used in the research.

Academic Achievement. Academic achievement of the participants was assessed through their grades obtained in last term exams.

The Action Control Scale. The scale is made up of 36 alternative statements related to daily life activities tri-partitioned components: failure-related (AOF), decision-related (AOD) and performance-related action orientation (AOP)[(Kuhl& Beckmann, 1994)]. The participant has to select one that suits him or her. Two statements represent action

orientation and state orientation respectively. The statements were scored either 0 or 1. Zero (0) is accredited to antiphons related to state orientation while one (1) to action control. All the scores itemized for each subscale. High scores indicating higher action orientation. Internal consistency for the present research was .70.

The Motivated Strategies for Learning Questionnaire. Assay of the cognitive learning strategies was done with The Motivated Strategies for Learning Questionnaire (Pintrich, 1991). It consisted 50 items corresponds to 7-point Likert scale where 1 (not at all true of me) and 7 (very true of me). The scale was further divided into three subscales of self regulated learning strategies. Cognitive learning strategies were used for research purpose. For the present research, internal consistency was .85.

Procedure

For the present study, public and private secondary schools from one union council of Multan city were approached. Data was collected from students enrolled in 9th and 10th grade. Prior to executing the research, disciples were asked to provide their permission to be a part of study. Confidentiality was assured to them and they were explained that their information will solely be utilized for research purpose. Questionnaires were administered in the classroom setting.

Data was analyzed using SPSS-17. Relationship among action control, learning strategies and academic achievement was calculated through Correlation coefficient (Table 2). Besides this, impact of action control on the learning strategies and academic achievement was estimated by linear regression model (Table 3). Furthermore, Sobel's test was calculated for the significance of mediation model (Table 4).

RESULTS

Table 2

Correlation Coefficient among Variables

No.	Variables	1	2	3	4	5	6	7	8
1	AOF	1	.113*	.085	-.655**	-.645**	-.630**	-.629**	-.631**
2	AOD		1	.086	-.630**	-.626**	-.621**	-.613**	-.621**
3	AOP			1	-.613**	-.620**	-.630**	-.621**	-.613**
4	Rehearsal				1	.928***	.926***	.963***	.960***
5	Elaboration					1	.968***	.971***	.916***
6	Organization						1	.966***	.976***
7	Critical Thinking							1	.955***
8	Academic performance								1

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Correlation matrix indicates the relationship among action control, cognitive learning strategies and academic performance. It indicates that action

control is negatively correlated to learning strategies and academic performance.

Table 3

Summary of Regression Coefficients for the Hypothesized Model

Variables	Model I Direct Effect AC on AA			Model II Indirect Effect					
				Path A AC on CLS			Path B CLS on AA		
	B	SE	B	B	SE	B	b	SE	B
Constant	2.97	.565							
AC	.580	.381	-.081						
Constant				2.845	.183				
AC				-1.35	.348	-.921*			
Constant							1.859	.103	
CLS							.063	.023	.146
R ²	.007			.027			.026		
ΔR ²	.004			.019			.017		
F	2.299*			3.253*			1.136*		

* $p < 0.05$

Table 4

Sobel's test for the Significance of Mediation

	Regression	B	SE	Sobel's test	P
Path A	AC predicting CLS	-1.35	.348	-2.733	0.005*
Path B	CLS predicting AA	.063	.023		

$p < 0.01$, (AC: Action Control; CLS: Cognitive learning strategies; AA: Academic Achievement) Results indicate that the action control has insignificant impact on academic achievement. But,

it has an indirect effect on academic performance through cognitive learning strategies. It is also evident through the results of sobel's test ($p < 0.05$).

DISCUSSION

Present study intended to examine the relationships among action control, learning strategies and academic achievement. Action control was found to negatively associate with cognitive learning strategies (rehearsal, elaboration, organization as well as critical thinking). As action control is described as an individuals' perceptions in relation to conspicuously setting goals and to remain motivated for adopting explicit strategies to attain goals (Snyder, Rand & Sigmon, 2002). Moreover, it can be elucidated by self-efficacy beliefs which are vigorous predictors of academic achievement and it also correlated with self-regulatory processes (Bandura, 1997). Higher order learning skills like critical thinking indubitably impact the self regulation. It can be explained in term of entangled features preceded techniques which are related to an individual's capacity to sense a problem through numerous dimensions. Though, cognitive learning strategies appears to be encumbered performance, either direct or indirect way by means of improper use of resource management strategy, in terms of its "time consuming" and more "creative" than "executive" nature.

The action control does not predict academic achievement as p value is greater than 0.05. On the other hand, action control proves to have an impact on learning strategies. Particularly, it is evident students who deal effectively with time, study environment and effort. It is in line with the work of Bembenutty, (1998); Jaramillo & Spector, (2004); Papantoniou, (2002) and Roy, Vezeau, & Bouffard, (2008) which indicated that students having numerous abilities to get work done, and action orientation students are keen to scrutinize the usefulness of their knowledge in dealing effectively with time, study environment and to put a better input on leaning skills, in spite of possible interruptions. Since it was hypothesized learning strategies would mediate the relationship of action control with academic performance. Study findings are in lined with preexisting research which is indicative of predictive relationship between learning strategies and academic performance (Bidjerano & Dai, 2007; Chen, 2002; Bandalos, Finney, & Geske, 2003). It is essential for educators to remain aware of students' characteristics like action control which have a potential impact on academic performance. Hence,

self regulation is a learnable characteristic, therefore the study results may help educators to assess students' personality disposition and providing information to the instructors which student will possess self-regulatory skills and who do not. So, with the knowledge of the relationship between these two goal-related constructs and self-regulated learning, instructors will be in more upright situation to design individualized interventions accordingly explicit trainings may be provided such students.

CONCLUSION

Intendment of the present investigation was to bring assiduity towards the inter-relationships of self-regulated learning, action control and academic performance. Moreover, it also helps instructors to identify trait-like characteristics, such as action control as a source of students' self-regulated learning.

Limitations and Suggestions

Use of self-reported measures of action control and self-regulatory skills is one important limitation of the study. New meticulous research designs considered necessary to ascertain the association of studious self-regulation with trait-like attributes. It can be assessed by employing discernible self-regulation estimation methods such as real-time or videotape assessment of strategies. The study limitation pertains with constrained sample particularly in respect to gender and age.

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