Effects of Metacognition Instruction on Self Efficacy of Primary School Children with Learning Disabilities

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Abstract

This study investigated the effect of using metacognition instruction on self efficacy of primary five students with learning disabilities. 60 students identified with LD participated .The sample was randomly divided into two groups; experimental (n= 30 boys) and control (n= 30 boys). T -test was employed for data analysis. Findings from this study indicated the effectiveness of metacognition instruction on self-efficacy of the target students. On the basis of the findings, the study advocated for the effectiveness of using metacognition instruction on self-efficacy of learning disabled students.

Keywords. Metacognition instruction, self efficacy, learning disabled..

Introduction

Bandura (1997, p. 3) describes self-efficacy as a "major basis of action" and regulation; as beliefs in one's capabilities to organize and execute the course of action required to produce given attainments [which] may entail regulating one's own motivation, thought processes, affective states, and actions, or it may involve changing environmental conditions, depending on what one seeks to manage. It is, as Schwarzer (1997) calls it, a "can-do" - or "1 can-do" - cognition. It is a confidence or belief in one's ability, distinct from one's actual abilities.

Self-efficacious students exhibit optimistic thought patterns, focusing on self-aiding (i-e., task relevant, strategic thinking) rather than self-hindering (Le., personal deficiencies, the impossibilities of the task, adverse consequences) self-talk (Bandura, 1989, 1997). In academic situations they select challenging tasks, set high goals and maintain a commitment to those goals, invest effort in their tasks, persist in the face of difficulty, and recover quickly from setbacks, frustrations, failures and self-doubt (Bandura, 1989, 1997, Schwarzer, 1997). Hackett and Betz (1989) found the due or usefulness of a task to the individual to be positively related to self efficacy. Self efficacy is also positively related to cognitive and self-regulatory strategy use (Bouffkrd-Bouchard, Parent, & Larivee, 1991; Pintrich & Garcia, 1993; Pintrich & De Groot, 1990), and therefore an interna1 locus of control because individuals see themselves as having control over the situation and act accordingly. It is negatively associated with depression, helplessness, and anxiety (Bandura, 1997). Zimmerman (1989) summarizes the research indicating that high self-efficacy is related to quality learning strategies, the self-monitoring of learning outcomes, effective study skius, and skill acquisition. Research findings have indicated that self-efficacy has a direct positive effect on anxiety (Pajares & Kranzler, 1995; Schwarzer & Jerusalem, 1992) and performance (Jinks & Morgan, 1999; Pajares & Miller, 1991), since students with higher levels of self-efficacy have been found to exhibit lower levels of test anxiety and higher Levels of performance than students with lower levels of self-efficacy.

Metacognition and Self-Efficacy

Meta-cognition is any knowledge or cognitive activity with subject of understanding or adjusting the cognition and divided into meta-cognition knowledge and meta-cognition experience. Meta-cognition knowledge consists of three categories about "self, task and cognitive strategies" (Cetinkaya P & Erktin E, 2003). There are two continues meta-cognition including knowledge about cognition and adjust of knowledge and control on it. Cognition occurs when the person is aware of their cognitive abilities, and the second part of metacognition is a thinking by which the thought will be regulated and monitored (Perfect and Schwartz, 2004). Meta-cognition components are responsible for two important functions

including knowledge related to cognitive topics which make the person aware of his cognition and thinking specification and also adjust cognitive activities. Adjusting the cognition is including three important skills: planning, monitoring and assessment (Mourad Ali , 2010).

A research by Moghtaderi& Khanjani (2012) showed that self efficacy is related to high levels of using cognitive and meta-cognition strategies as well as involvement and sustainability in homework completion. Other researchers(Britner & Pajares, 2006;Zusho et al., 2003) assert that high self-efficacy is associated with greater metacognition, including more efficient use of problem solving strategies and management of working time, expending greater effort, and persisting longer to complete a task, particularly in the face of obstacles and adversity. Furthermore, students with high self-efficacy tend to use metacognitive strategies to generate successful performance outcomes(Braten, et al., 2004, Pintrich & De Groot , 1990).

Mourad Ali Eissa (2010) examined The effect of metacognitive strategy training on the self -regulation of test anxiety and the associated low self-efficacy of high aspiration level- first year secondary school students. 60 students were invited to participate. The sample was randomly divided into two groups; experimental (n= 30 , 11 boys ,19 girls)and control (n= 30 , 9 boys and 21 girls). ANCOVA and Repeated Measures Analyses were employed for data analysis. Findings from this study indicated the effectiveness of the program employed in alleviating test anxiety and increasing self efficacy in the target students.

In a more recent study, Saada Abdul Fatah (2013) explored the effectiveness of metacognitive strategy training on improving academic motivation, academic self- efficacy ,and relieving text Anxiety of preparatory school gifted underachievers. Findings from this study indicated the effectiveness of the program employed in improving academic motivation , alleviating test anxiety and increasing self efficacy in the target students.

Thus the present study seeks to give answers to the following question.

Are there differences in post-test scores mean between control and experimental groups on Self Efficacy Scale ?

Method

Participants

Sixty grade five students identified with LD were invited to participate. Each student participant met the following established criteria to be included in the study: (a) a diagnosis of LD by teacher's references, and learning disabilities screening test (Kamel, 1990) (b) an IQ score on the Mental Abilities Test (Mosa, 1989) between 90 and 114 (c) absence of any other disabling condition. The sample was randomly divided into two groups; experimental (n= 30 boys) and control (n= 30boys). The two groups were matched on age, IQ , achievement and attitude tests .Table 1. shows means, standard deviations ,t- value , and significance level for experimental and control groups on age (by month) , IQ , Self Efficacy (pre-test).

Table 1. *Pretest Scores Means, standard deviations ,t- value , and significance level for experimental and control groups on age (by month) , IQ , and Self Efficacy*

Variable	Group	N	M	SD	T	Sig.
Age	Experimental	30	132.24	1.96	-.121	-
	Control	30	132.41	2.01		
IQ	Experimental	30	109.19	7.44	-.305	-
	Control	30	109.80	8.05		
Self Efficacy	Experimental	30	39.20	4.87	1.79	-
	Control	30	40.06	3.31		

Table 1. shows that al t- values did not reach significance level. This indicated that the two groups did not differ in age , IQ , and Self Efficacy (pre-test) .

Measure

Self Efficacy Scale.(Mourad Ali Eissa, 2010) .The Scale was developed for two purposes: one, to provide an intermediate rather than specific measure of self-efficacy, and two, to provide a scale which might provide students' strong or weak self-efficacious characteristics. Reliability coefficients were computed for the full scale (math self-efficacy) and subscales (ability, effort, resiliency). These results were -91 for math self efficacy, .93 for ability, -73 for effort, and -80 For resiliency.

Procedure

The metacognitive instructional approach of Strategies Program for Effective Learning and Thinking (SPELT) was used in the teaching of two strategies in this study.The metacognitive nature of SPELT is reaüzed in its training techniques. SPELT combines two types of training as identified by Brown and Palincsar (1982. as cited by Mourad Ali, 2010). It is an 'Informed Training" (explicit instruction in strategies and their use) and a 'Self-Control Training" (explicit instruction in planning, monitoring and evaluating strategy use) program as opposed to 'Blind Training (students are taught strategies with no explanations as to why, where or when). The program is comprised of three phases (Mourad Ali, 2010). Phase I, Direct Teaching of Strategies, requires the teacher to introduce students to the benefit and use of strategies. Strategies are taught directly to students: students are Med, and reminded and prompted to use strategies. This is teacher-imposed strategy instruction. in Phase II, Maintenance, Evaluation and Generalization of Strategies, students continue to use the strategies, but also evaluate their strategy use and use the strategies in different subjects or settings. Students begin to take a more active role in their learning during this phase. Phase III, Strategy Generation by Students, necessitates complete student involvement in utilizing, monitoring, evaluating and generating strategies. Students progress from being passive to active learners, self-regulating their learning and performance. Students received 3 training sessions a week, lasting between 40 and 45 min .Instruction took place in the regular classroom in order to naturalize the situation.

Design and Analysis

The effects of implementing metacognition instruction on self efficacy was assessed using pre- post testing.

Results

Self Efficacy

Table 2. shows T. test results for the differences in post- test mean scores between experimental and control groups in self efficacy.

The table shows that (t) values for *Ability, effort, resilience and total* were 19.89, 12.59, 9.13, 22,48 respectively. These value were significant at the level (0.01) in the favor of experimental group. The table also shows that there are differences in post- test mean scores between experimental and control groups in self efficacy in the favor of experimental group

Table 2. *T. test results for the differences in post- test mean scores between experimental and control groups in self efficacy*

Subscales	Group	N	Mean	St. Deviation	T	Sig.
Ability	Experimental	30	60.66	2.27	19.89	0.01
	Control	30	23.43	4.44		
Effort	Experimental	30	19.46	2.83	12.59	0.01
	Control	30	12.36	4.13		
Resilience	Experimental	30	3.33	1.07	9.13	0.01
	Control	30	2.02	2.11		
Total	Experimental	30	83.46	2.64	22,48	0.01
	Control	30	44.86	4.76		

Discussion

The main objective of the present study was to explore the effects of metacognition instruction on self efficacy in fifth graders with learning disabilities. The results of this study as revealed in table 2 show that metacognition instruction was effective in improving self efficacy of students in experimental group, compared to the control group whose individuals were left to be taught in a traditional way.

Metacognition instruction is a promising approach for supporting the diverse needs of all students for it consistently had positively affected student self efficacy. The conclusions of this study encourage the use of metacognition instruction because it is of substantial benefit to students who may be struggling in the classroom and is responsible teaching in that it acknowledges not only the strengths and differences among learners, but also the increasing diversity in the modern classroom.

Recommendations

Based on the findings and conclusions made in this study, it is recommended that use of metacognition instruction be adopted for students learning. This is due to the positive influence exerted on the students' self efficacy when metacognition instruction approach was used. Training sessions and professional development for metacognition instruction that require concerted response from all stakeholders including school principals, teachers and school authorities should be done.

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