Research Paper Educaiton

Effect of Cognitive Restructuring on Achievement Orientation of Low-Achieving Students

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ABSTRACT

This study investigated the effect of cognitive restructuring on achievement orientation of low-achieving students. Two research questions and two null hypotheses guided the study. The design of the study was a quasi-experimental, non-equivalent control group, pretest posttest, involving one treatment group and control group. The sample of this study consisted of 135 low-achieving senior secondary class two students purposively drawn from four public senior secondary schools, two from each educational zone of Yenagoa and Okolobiri in Yenagoa Local Government Area of Bayelsa State, Nigeria. These schools were randomly assigned to experimental and control groups. One instrument, Achievement Orientation Questionnaire and Cognitive Restructuring Intervention Package were developed, validated and used for the study. The treatment group was exposed to the cognitive restructuring intervention package while the control group received placebo programme on examination malpractice and prevention. The data obtained were analysed using means and standard deviation for research objectives and ANCOVA for the hypotheses. The hypotheses were tested at 0.05 probability level. Results showed that cognitive restructuring significantly enhanced achievement orientation of low-achieving students. There was no significant interaction effect between cognitive restructuring and gender on achievement orientation of low-achieving students. Based on the findings it was recommended that workshops and seminars should be organized in schools to train teachers on how to use cognitive restructuring techniques in the classroom to improve the achievement orientation of low-achieving students. Also cognitive restructuring should form part of parenting education to enable parents to use the techniques in improving the achievement orientation of their children

Keywords :

Background of the Study

The poor achievement of students in external examinations in Nigeria has become a source of great concern to parents, teachers, educationists, educational institutions and all stake holders in education. This calls for concerted efforts for remediation. In everyday language achievement is something which someone has succeeded in doing. In education the term academic achievement refers to the performance or accomplishment of students in academic or learning task. It is used to indicate the degree of success attained in some general or specific area of academic task (Enyi, 2009). Achievement could also be defined as an end product of learning whose level and performance are affected by various conditions existing at the time of learning as well as the conditions intervening between learning and use (Herrock cited in Enyi 2009).

Academic achievement could be described as low, or high depending on the level of performance of the learner in an academic task. It is said to be low, where a student's performance is below an expected level of accomplishment or high where, a student's performance is above an expected level of performance. Those students whose performance in a learning task are below an expected level of accomplishment are referred to as low-achieving students.

Low achieving students are shown to lack positive achievement orientation for academic work (Omeje, 2007) They also tend to hold false assumption that one cannot succeed in school examination without some form of help from outside. \ Generally speaking they do not take school work serious . In this study low-achieving students describes those students who consistently score below average in school examinations.

Research studies have shown that achievement orientation influences academic performance greatly and is a major determinant of academic success or failure (Covington, 1984, Ames, 1992;). Research studies have also reported that low achieving students show negative achievement orientation (Tella, 2007). According to McGrew (2008) achievement orientation describes a person's set of belief that reflects the reasons why they approach and engage in academic and learning task. The orientation to achieve, however may evidence itself only in behaviour that children value. For example, a child may have positive orientation to achieve, and this may be exhibited in athletics but not in schoolwork. Thus, different situations have different achievement orientation for children (Eccles ,Wigfield & Schiefele 1998). Students with positive achievement orientation for success on a task usually persist at it longer and perform better than students with negative achievement orientation (Eccles, 1983; Eccles , Wigfield & Schiefele 1998). According to Carr cited in Tella (2007) students with high Intelligence Quotients (IQs) and positive

achievement orientation for success in school do get highest grades. Students with high IQs and students with low IQs and negative achievement orientation receive lower grades than students with low IQs and positive achievement orientation. In this study achievement orientation describes one's willingness and effort to succeed at academic tasks and meet high standards of educational accomplishment. Achievement orientation manifests as a pattern of behaviour that could be charted on a continuum of persistent striving for excellence and strong ego involvement in assigned or self elected tasks at one end and apparent lack of effort and low value for excellence at the opposite end of the continuum. To change the false beliefs and assumption that students have that impede academic performance there is need to restructure their cognition and achievement orientation.

Cognitive restructuring is based on rational emotive therapy propounded by Albert Ellis who focused more on thoughts. Ellis (1962) stated that human beings made themselves victim of irrational thinking and could virtually destroy themselves through irrational and muddled thinking. Beck (1976) stated that cognitive restructuring involved a process of re-orientating one's thought process to reality, of requiring one's mind to think truthfully, factually and logically Cognitive restructuring also known as cognitive reframing, is a technique that can help people identify, challenge and alter anxiety provoking thoughts patterns and beliefs (Baxter, 2010). For example, students who develop false assumption that they cannot pass examination without help or assistance from others or cheating may not be properly motivated to study hard for examination. Once a false assumption has been made, it will then often be used as a basis for prompting behaviours that end up acting in response to the false assumption as if it were true. According to Baxter (2010), irrational thought like this and their accompaning behaviour, play a big part in the onset of anxiety. In this study cognitive restructuring means the process of learning to dispel faulty thinking patterns and replacing them with more profitable one.

Cognitive restructuring was used by Ellis (1976) to effectively treat emotionally depressed patients. Furthermore Kovalski and Horan (1998) and Akaneme and Ngwoke, (2010) used cognitive restructuring to change the achievement orientation of schooling adolescents. Utilizing cognitive restructuring intervention with youths has experienced an increasingly diverse research base, supporting the effectiveness of varied approaches with adolescents or children clients (Braswell & Kendall, 2001; Graham, 2005). However these researches have traditionally taken place in the clinical setting. Research specifically connecting cognitive restructuring intervention with an improvement in achievement orientation of low-achieving students in school is sparse.

The significant of cognitive restructuring for low achieving students derives from its potential in releasing the creative potentials, independence, self-awareness, initiative taking, achievement motivation, analytical ability, interpersonal skills and personal competencies of a great number of students who would have ended up as indolent and dependent adults. There is need to tap into the natural resources of this class of students and turn them into goal-oriented and resourceful adults.

The extent to which gender affects academic achievement of students appears not to have been resolved. Research studies reported gender differences in academic achievement in mathematics and science subjects with boys performing better than girls in these subjects (Jahun & Momoh, 2001; Ezeugo & Agwagah, 2000). Again, Aiyedum (2000) reported no significant differences in the performance of boys and girls in mathematics. Akaneme and Ngwoke (2010) reported that gender had no significant main effect on students' achievement orientation. The debate on gender differences in education is inconclusive. Several studies have been conducted in the area of gender related differences in achievement orientation, The various studies appear to be inconclusive. There is therefore need to explore more the interaction of cognitive restructuring and gender on low-achieving students achievement orientation. The problem of the study is therefore posed as a question: what would the effect be of cognitive restructuring on low-achieving students' achievement orientation?

Research Questions

The following research questions guided the study:

1 What is the effect of cognitive restructuring on achievement orientation mean posttest scores of low-achieving students?.
2 What is the interaction effect of cognitive restructuring and gender on achievement orientation mean posttest scores of low-achieving students?.

Hypotheses

The following null hypotheses were tested at 0.05 probability level

$H0_1$: There is no significant difference in the mean posttest achievement orientation scores of low-achieving students exposed to cognitive restructuring intervention programme and those not exposed to cognitive restructuring intervention programme.

$H0_2$: There is no significant interaction effect of cognitive restructuring and gender on mean achievement orientation posttest scores of low achieving students

Methodology

The research design for the study was quasi-experimental, non-equivalent control group pretest posttest design. The population of the study was 565 low-achieving senior secondary two (SS II) students in the 24 public senior secondary schools in Yenagoa and Okolobiri education zones in Yenagoa local government area of Bayelsa State. The sample consisted of 135 low-achieving students, 62 males and 73 females from four schools with the highest number of low-achieving students purposively sampled from the two education zones. Two schools sampled in each zone were randomly assigned to treatment and control groups. The instrument used for the study was achievement orientations questionnaire (AOQ) which was developed by the researchers through experience and from literature. The Achievement Orientation Questionnaire (AOQ) was rated on a 4 – point scale of Always (4), Sometimes (3), Rarely (2) and Never (1) for positively skewed item. The negatively skewed items have the scores reversed (1, 2, 3, and 4). The subjects with scores of between 1.00 - 2.49 were regarded as having low achievement orientation while those with scores between 2.50 - 4.00 were regarded as having high achievement orientation..The intervention programme was a cognitive restructuring intervention package (CRIP). The instrument was face validated by three experts, two in educational psychology and one in measurement and evaluation in the University of Nigeria, Nsukka. For the AOQ, an internal consistency reliability coefficient of 0.87 was ascertained through Cronbach alpha method. The stability coefficient of AOQ estimated through test-retest method using Pearson product moment correlation was 0.69. Data were presented using means and standard deviations. Analysis of covariance was used to test the hypotheses at 0.05 probability level.

Experimental Procedure

Subjects participated in eight 45 minutes sessions which were held once a week for eight consecutive weeks. The intervention programme was a training using Cognitive Restructuring Intervention Package (CRIP) which was developed by the researchers through experience and from literature. It was trial tested and was founded to be very effective before used for the study. The programme was a group directed talk therapy and procedure. Subjects in both the experimental and control groups were pretested before the administration of the intervention programme. The researchers exposed the experimental group to the CRIP. The control group received a placebo programme (PP). The package consists of eight

basic components:

During the first week and session, participants introduced themselves to one another. Definitions of achievement orientation,was given. The effects of achievement orientation was discussed.

In the second week the researchers and the subjects discussed personal problems, negative and irrelevant thoughts which are known to affect the subjects' studies and make them not to prepare well for tests or examinations.

During the third week, participants were presented with the identification of unrealistic beliefs, values, practices and negative self-statements relating to subjects' low-achievement in tests or examinations.

During the fourth week basic irrational beliefs were reviewed and subjects discussed how these beliefs contribute to their low performance during examinations.

In the fifth week, participants were presented with the role of self-statements in motivation, self-belief, and behaviour. The idea that emotions are not the direct result of events, but are a product of the view an individual takes of them was presented, and personal responsibility for emotions was emphasized. They were also taught how to modify their negative self-statements by replacing them with positive self-statements.

The sixth week focused on developing and testing cognitive restructuring techniques to counter self-defeating statements .These include: desensitization, role playing (teaching others), cognitive rehearsals, considering alternative explanation(validity testing), thought stopping techniques, , dispelling irrational beliefs and forceful self -statements.

The seventh and eighth week focused on rehearsal and application of treatment conditions. Participants were made to identify their thoughts, feelings and behaviour to help them cope with the situations more constructively.

The control group received instructions for the eight weeks on examination malpractices: causes and prevention.

RESULTS

The results of the study are presented in line with the research questions and hypotheses that guided the study.

Research Question one.

What is the effect of cognitive restructuring on the achievement orientation mean posttest scores of low-achieving students?

Table I

The Pretest Posttest Achievement Orientation Mean Scores of Experimental and Control Groups of Low Achieving Students

Treatment groups		Pretest	Posttest	Pretest/posttest mean gain score
Experimental group	Mean	61.01	80.34	19.33
	N	76	76	
	SD	8.23	14.05	
Control	Mean	59.93	59.92	-0.01
	N	59	59	
	SD	6.03	5.71	
Total	Mean	60.54	71.41	
	N	135	135	
	SD	7.35	15.10	

Data presented in Table I show the pretest and posttest achievement orientation mean scores of low-achieving students in experimental and control groups. The low-aching students who were exposed to cognitive restructuring intervention programme had a pretest achievement orientation mean score of 61.01 with a standard deviation of 8.21 and a posttest mean score of 80.34 and a standard deviation of 14.05. This gives the pretest/posttest mean gain score as 19.33.

The low-achieving students in the control group had a pretest achievement orientation mean score of 59.93 with a standard deviation of 6.03 and a posttest mean score of 59.92 with a standard deviation of 5.71.This gives a pretest/posttest mean loss score -0.01. This indicates that low achieving students who were exposed to cognitive restructuring intervention programme improved in their achievement orientation than those who did not. To ascertain whether the observed difference was significant the corresponding hypothesis was tested.

Hypothesis One

There is no significant difference in the mean posttest achievement orientation scores of low-achieving students exposed to cognitive restructuring intervention programme and those not exposed to cognitive restructuring intervention programme

Table 2

Summary of Analysis of Covariance (ANCOVA) on the Effect of Cognitive Restructuring on Achievement Orientation Questionnaire (AOQ)

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Decision
Corrected model	14224.899	4	3556.225	28.328	.000	
Intercept	11880.400	1	11880.400	94.636	.000	
Pre-achievement orientation	160.770	1	160.770	1.281	.260	
Treatment	13818.694	1	13818.694	110.076	.000	
Gender	218.694	1	218.694	1.742	.189	
Treatment* Gender	2.259	1	2.259	.018	.893	
Error	16319.872	130	125.537			
Total	719055.000	135				
Corrected Total 30544.770 134						

The results in Table 2 show that the treatment as main effect had significant effect on the achievement orientation of low-achieving students. This is because the calculated F-value of 110.076 in respect of the treatment as main effect is shown to be significant at .05. This indicates that exposing low-achieving students to cognitive restructuring intervention programmme improves their achievement orientation. The null hypothesis of no significant difference in the mean achievement orientation scores of the treatment and control groups is rejected.

Research Question Two

What is the interaction effect of cognitive restructuring and gender on mean achievement orientation posttest scores of low-achieving students?

Table 3

The Pretest Posttest Achievement Orientation Mean Scores

of Cognitive Restructuring and Gender of Experimental and Control Groups of Low Achieving Students

Treatment groups	Gender Respondents	Pretest			Posttest			Pretest/posttest mean gain score
		Mean	SD	N	Mean	SD	N	
Experimental group	Males	60.92	8.44	36	81.86	9.30	36	20.94
Female	61.10	8.15	40	78.96	17.26	40	17.88	
	Total	61.01	8.23	76	80.34	14.05	76	
Control	Males	61.89	5.32	26	60.92	4.22	26	0.96
	Female	58.39	6.19	33	59.12	6.61	33	0.73
	Total	59.93	6.03	59	59.92	5.71	59	
Total	Males	61.32	7.26	62	73.08	12.86	62	
	Female	59.88	7.41	73	70.00	16.72	73	
	Total	60.54	7.35	135	71.42	15.10	135	

Data presented on table 7 show results on the pretest and posttest scores of the interaction effect of cognitive restructuring and gender on the mean achievement orientation score of low-achieving students in the experimental and control groups. The low-achieving male students in the experimental group had a pretest achievement orientation mean score of 60.92 with a standard deviation of 8.44 and a posttest mean score of 81.86 and a standard deviation 9.30. This gives the pretest/posttest mean gain score of 20.94. The low-achieving female students in the experimental group had a pretest achievement orientation mean score of 61.10 with a standard deviation of 8.15 and a posttest mean score of 78.98 and a standard as 17.26. This gives the pretest/posttest mean gain score as 17.88. The low-achieving male students in the control group had a pretest achievement orientation mean score of 61.89 with a standard deviation of 5.32 and a posttest mean score of 60.92 with a standard deviation of 4.22. This gives a pretest/posttest mean gain score as 0.96. The low-achieving female students in the control group had a pretest achievement orientation mean score of 58.39 with standard deviation of 6.19 and posttest achievement orientation mean score of 59.12 and a standard deviation of 6.61. This gives a pretest/posttest mean gain score as 0.73.This suggests that male and female low-achieving students who were exposed to cognitive restructuring intervention programme differed in their achievement orientation.

Hypothesis Two
There is no significant interaction effect of cognitive restructuring and gender on mean achievement orientation posttest scores of low-achieving students.

From Table 2, the calculated F-value of .018 in respect of interaction between cognitive restructuring and gender is not significant at 0.05. The null hypothesis of no significant interaction between cognitive restructuring and gender of low-achieving students is not rejected.

Discussion
The result of the study indicated that low-achieving student showed significant improvement on their posttest mean score as a result of the treatment. The experimental group post treatment achievement orientation score was significantly higher than the control group.

The findings agreed with findings of Akaneme and Ngwoke (2010) that cognitive restructuring significantly improved the achievement orientation of schooling adolescents. Kovalski and Horan (1999) also reported similar findings that internet based cognitive restructuring dislodged the mindset adolescents have that certain jobs were more appropriate to men than women. Again Adejumo (1985) and Salman, Esere, Omotosho, Abdullahi and Oniyangi (2010) reported in their studies that cognitive restructuring improved the achievement orientation of students and their subsequent performance in academic task.

The findings of this study are consistent with explanation of the behaviorist learning theory that irrational beliefs system and mindsets are both passively acquired. Therefore, effective cognitive restructuring training programme would lead one to refute such beliefs, evaluate the basis of such beliefs and mindsets. The direct confrontation of such beliefs with reality and alternative explanations can to a large extent dislodge the basis of such irrational beliefs and could subsequently lead to a change in disposition.

Results indicated that the interaction effect of cognitive restructuring and gender on low-achieving students achievement orientation was not significant. This finding is in agreement with that of Akaneme and Ngwoke (2010) who found no significant interaction effect of cognitive restructuring and gender on achievement orientation of schooling adolescents.

Implications
The findings of the study showed tha training in cognitive restructuring changes the primodial belief system of trainees. Therefore training in cognitive restructuring has the potential of dislodging the basis of irrational beliefs and mindsets that prevents young person from tapping into their natural potentials. It means that cognitive restructuring is a potential educative strategy for releasing the creative potentials, self awareness achievement motivation, personal competencies and interpersonal skills of at risk students who perform consistently below their natural potentials. It is possible therefore to train students to be able to harness their creative energy and become self regulatory, self learning and independent. These skills are indispensable for resourcefulness and independent living as adults.

Conclusion and Recommendations
The use of cognitive restructuring intervention programme significantly improves the achievement orientation of low-achieving students. Cognitive restructuring and gender of low-achieving students do not interact to determine achievement orientation. Therefore the use of cognitive restructuring intervention is effective in changing false beliefs, assumptions and negative mindset.

It is recommended that cognitive restructuring should form part of the school curriculum to enable teachers use the techniques to enhance achievement orientation of low-achieving students. Also cognitive restructuring should form part of parenting education to enable parents use the techniques in improving the achievement orientation of their children.

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