

EFFECT OF METACOGNITIVE REGULATION AND SYSTEMATIC DESENSITIZATION ON COGNITIVE COMPONENT OF PUBLIC SPEAKING ANXIETY AMONG SENIOR SECONDARY SCHOOL STUDENTS IN KAURU, KADUNA STATE, NIGERIA

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Abstract

The study examines the effect of Metacognitive Regulation and Systematic Desensitization on cognitive component of public speaking anxiety among Senior Secondary school students in Kauru. The design for the study was quasi experimental and population of the study was 191 senior secondary school students (SS3). Forty students were randomly selected as sample size and Personal Report of Public Speaking Anxiety Survey (PRPSAS) was used to collect the data which were analysed using t-test and Ancova. The results reveal significant difference in pretest and posttest mean score of Cognitive Component of public speaking anxiety of students exposed to metacognitive regulation and Systematic Desensitization with ($t=16.875$, $P=.000$ and $t=7.767$, $P=.000$) respectively. A significant difference was found in the mean score of the cognitive component of public speaking anxiety of the participants exposed to metacognitive regulation and systematic desensitization in favour of systematic desensitization with ($F=9.902$, $P=.000$). It was thus concluded that metacognitive regulation and systematic desensitization have significant effect on cognitive component of Public Speaking Anxiety with preference to systematic desensitization. It was therefore, recommended that psychologists should use metacognitive regulation and systematic desensitization to treat cognitive component of public speaking anxiety with preference to systematic desensitization.

Keywords: Metacognitive Regulation, Systematic Desensitization, Cognitive Component, Public Speaking Anxiety

Introduction

Majority of people have the tendency to fear carrying out any task they believe not to have the ability to perform. Similarly students can feel fearful or anxious to speak in public due to some situation they find themselves or the events the person is involved as well as the type of people around that individual. However, it becomes abnormal and counter-productive when a person is unable to function properly due this condition. This problem is known as public speaking anxiety. It centers on images of fearful scene inducing speaking anxiety and therefore described as cognitive component of public speaking anxiety among other components. Anxiety caused by the cognitive component appears to be common especially among senior secondary school students. As the researchers observed, in every class there are significant number of students at senior secondary schools in Kauru who find it difficult to express themselves in the midst of their fellow students or others. These are students who may be brilliant and can write interesting messages, ideas and arguments but when it comes to oral presentation, they display incompetence. Such students cannot deliver a speech or address other students during assembly or in special occasions.

Consequently, the researcher got worried what could be the remedy to the problem of public speaking anxiety and therefore, assumed that the problem of public speaking anxiety could be remedied by the use of effective techniques such as metacognitive regulation and systematic desensitization to help these students to cope with public speaking anxiety. On this background, arose the need for this study, the effect of metacognitive regulation and systematic Desensitization on cognitive component of Public Speaking among Senior Secondary School students in Kauru, Kaduna State, Nigeria.

On the concept of cognitive component of public speaking anxiety Beidel et al (2017), states that Cognitive dimension of public speaking anxiety relates to worry component of anxiety, which is often displayed through negative expectations, preoccupation with and self-deprecatory thoughts about an anxiety-causing situation. It refers to ones thoughts, attitudes, ideas, beliefs, or opinions. In terms of speech anxiety, it describes the child's negative thoughts and condemning self-talk about giving a speech by oneself and his surroundings when delivering a speech. Cleveland Clinic (2020) states that if one has cognitive anxiety of public speaking there is tendency to think the entire audience would laugh at one. An individual may also have uncontrollable and obsessive thoughts. It occurs when an individual sees vivid scenes, pictures, or images that come to mind in a threatening manner, including the way he sees himself.

According to Moss, (2002), once the individual with cognitive escalation of anxiety during speaking in public begins to perceive threat and to react with fearfulness, a serious anxiety episode becomes a possibility. However, a number of intervening steps must take place to escalate the initial lower level of fearfulness into a full-scale anxiety attack and the escalation takes place because the individual senses his or her initial anxiety and begins to have anxious thoughts: "Oh, no. It's happening again," or "I'm having another attack, I know it," or "I'll never stop having these attacks." Such thoughts, in turn, trigger more physical arousal, including such symptoms as rapid or irregular heartbeat, rapid uneven breathing, fluttery feelings in the chest, or dizzy or nauseous sensations. Once an individual notices increasing physical sensations of anxiety, additional fearful thoughts can take over and produce a more heightened anxiety: "Oh my God, I'm having a heart attack," or "I'm losing my mind," or "I'm out of control, and there's nothing I can do." The more the individual focuses on symptoms, the more severe become the subjective fears and the physiological activation. Focusing on the symptoms does not bring resolution, but rather escalation.

The researchers wondered what could be used to help students overcome public speaking anxiety and thus suspect that metacognitive regulation and systematic desensitization play a role. Metacognitive strategies are the skills deliberately used to enhance ones' ability to evaluate his/her thinking. Safaranj (2019) explains meta-cognitive strategies to include strategies of *planning* (setting goals, following-up the set and accomplished tasks, asking questions), *strategies of evaluating* (self-checking, attention focusing, following-up the understanding), and *strategies of centering* (adapting learning speed, re-learning, repetition, response strategies). In attempting to differentiate between metacognitive regulation and metacognitive strategy, states Beidel e'tal (2017), that metacognitive regulation refers to "metacognitive activities that help control one's thinking or learning while metacognitive skills/strategies are the deliberate use of strategies (i.e. procedural knowledge) in order to control cognition. Meta-cognitive learning strategies include meta-cognitive self-regulation and critical thinking but Linnenbrink and Pintrich (2003) states that metacognitive regulation is broad and it include all the metacognitive strategies person has about his/her cognitive processes and applies to improve

abilities or reduce anxiety such as public speaking anxiety. Efklides (2009) states that Metacognitive skills include orientation, planning, regulating, monitoring and evaluation strategies.

According to Bodie (2010), systematic desensitization may sound like something that would be done to the person while strapped down in the basement of a scary hospital, but it actually refers to the fact that we become less anxious about something when we are exposed to it more often. Systematic desensitization can result from imagined or real exposure to anxiety-inducing scenarios. Systematic desensitization as stated by Bodie (2010) is also known as exposure therapy because it is a gradual exposure which involves presenting an individual with a threatening stimulus for short periods of time ranging from a few seconds to a few minutes, depending on the nervousness of the stimulus. Conceptually, Santrock (2010) defines systematic desensitization as method based on classical conditioning that reduces anxiety by getting the individual to associate deep relaxation with successive visualization of increasing anxiety-producing situations. Systematic desensitization according to Mcleoud (2015), can be done in two ways as follows: *In vitro*: Here the client imagines exposure to the phobic stimulus without physical presence of the stimulus. *In vivo*: Here the client is actually exposed to the phobic stimulus.

Theoretically, Drew (2020) states that Flavell identified three stages of metacognition in early childhood development and they include Storage, Recall and Systematic Strategies. Metacognition theory by Brown (1987) divided metacognition into knowledge of cognition and regulation of cognition. Classical conditioning theory of Pavlov (1902) states that behavior is formed through the process of pairing an unconditioned stimulus (US) with a conditioned stimulus (CS) repeatedly until the response to the US is shifted to a CS. Santrock (2010) states that the relaxing feeling that the student imagines (US) produces relation (UR) in which the student then associates anxiety producing cue (CS) with the relaxing feeling cues by initial pairing a weak anxiety-producing cue with relaxation and gradually working up the hierarchy.

Empirically, Charles e'tal (2018), Taghizadeh e'tal (2016) and Tan e'tal (2016), Bichon (2015) and Tsiriatakis e'tal (2016) found significant effect of metacognitive regulation on cognitive component of public speaking anxiety while Hoft 'tal (2009), Madoni e'tal (2018) and Nordahl e'tal (2016) found significant effect of systematic desensitization on cognitive component of public speaking anxiety among students. Finally, Stupar-rutenfrans e'tal (2017), Charles e'tal (2018), found a significant differential effects of metacognitive regulation and systematic desensitization on cognitive component of public speaking anxiety among students.

Though, there are previous studies on metacognitive regulation as seen above but none of them used a package of metacognitive regulation that integrated the five strategies /phases of metacognitive training viz: orientation strategy, planning phase, evaluation phase, monitoring phase and controlling phase as stipulated in Scanlon (2020) and Efklides (2009). Consequently, the researchers assume that the study bridges in the existing gap. Hence the need for this study.

Hypotheses

The following null hypotheses were formulated to guide the study.

H01: There is no significant effect of metacognitive regulation on cognitive component of public speaking anxiety among Senior Secondary School students in Kauru, Kaduna State, Nigeria.

H02: There is no significant effect of systematic desensitization on cognitive component of public

speaking anxiety among Senior Secondary School students in Kauru, Kaduna State, Nigeria

H03: There is no significant differential effect of metacognitive regulation and systematic desensitization on cognitive component of Public Speaking Anxiety among Senior Secondary School students in Kauru, Kaduna State, Nigeria.

Methodology

The design adopted for this study was pretest and post-test quasi experimental design. Price (2017) states that when a quasi-experimental research does not involve a control group, pretest and posttest design should be used. In the quasi experimental design, the researcher deliberately manipulated the experimental situations by controlling those subjects exposed to certain situations in the study The population of the study included all senior secondary school students (SSIII) who were identified as individuals suffering from the problem of public speaking anxiety by administering the Students’ Public Speaking Anxiety (PSAS) in Senior Secondary Schools Kauru, Kauru local of Kaduna state. SS3 were chosen as the population of the study due to the fact that senior secondary school (SSIII) is the last level of secondary school education in which the students are heading to tertiary education. The population can be viewed in the table2 below:

Table1: Distribution of Population of the study by School

S/N	Name of School	Number of students
1.	Gov. Sec. Sch Kauru (Kauru West)	115
2	Gov. Sec. School Kagadama (Kauru East)	76
Total	2	191

Source: Researcher’s Survey (2022)

Forty (40) students were selected as the sample size for the study. This is in line with Charitaki (2015) who states that the sample size of thirty or more is suitable for experimental research. The sampling technique used by the researchers is simple random so as to draw equal number of participants (20) each from the two chosen. Personal Report of Public Speaking Anxiety Survey (PRPSAS) adapted from Hayaramae (2016) was used for data collection. It is in a Likert form on five (5) points from SA to SD. The instrument was validated by experts. A pilot study was conducted and Chronbach Alpha was used to analyse the data gathered and it was found to have reliability of .84 which was considered good enough for the study in line with Williams (2021). The researchers used two treatment packages: Metacognitive regulation treatment (Adapted from Scanlon 2020) and systematic desensitization treatment package (Adapted from Yusuf, 2019 and Dubord 2011) for the treatment of public speaking anxiety. Both the two groups’ treatments lasted for ten (10) weeks.

The entire processes are in three phases which are the pretreatment phase, treatment phase and post treatment phase. Metacognitive regulation package adapted from Scanlon (2020) and Efklides (2009) and Systematic Desensitization package adapted from Dubord (2011) and McLeoud (2021), were used for treatment which lasted for ten (10) weeks focusing on elimination of the problems of public speaking anxiety. Data were gathered before and after the treatment. Paired t-test and ANCOVA were employed to test the hypotheses as Statistics Solutions, 2021 recommends.

Results

The results of the study are presented in mainly to test the hypotheses of the study.

H01: There is no significant effect of metacognitive regulation on cognitive component of public speaking anxiety among Senior Secondary School students in Kauru, Kaduna State, Nigeria.

Table 2: Pretest - posttest Mean Score of Cognitive Component of Public Speaking Anxiety among Senior Secondary School Students to Metacognitive Regulation Treatment

Variables	N	Mean	SD	df	t-value	p
Pretest	20	53.10	4.95134	19	16	.000
Posttest	20	28.70	6.80634			

p <.05 Sign at 19 df

Table 2 shows a significant effect of metacognitive regulation on cognitive component of public speaking anxiety among secondary school students. This is vindicated by the 70 mean of 53.10 for pretest and 28.70 for posttest, $t=16.87$ and $p= .000$ which is less than 0.05 level of significance. Thus, the null hypothesis is rejected.

Table 3: Pretest - posttest Mean Score of Cognitive Component of Public Speaking Anxiety among Senior Secondary School Students Subjected to Systematic Desensitization Treatment

Variables	N	Mean	SD	df	t-value	p
Pretest	20	53.500	8.31929	19	7.767	.000
Posttest	20	33.1500	5.76080			

p<.05 Sign at19 df

Table3 reveals a significant effect of systematic desensitization on cognitive component of public speaking anxiety among 14x5=70 secondary school students. This is vindicated by the 70 mean of 53.50 for pretest and 33.150 for posttest, $t=7.76$ and $p= .000$ which is less than 0.05 level of significance. Thus, the null is rejected.

Table4: Groups Descriptive Statistics for Adjusted Means

Group	Means	Std Error	95% confidence	
			Lower Bound	Upper Bound
Metacognitive Regulation	79.24	3.114	72.93	58.50
Systematic Desensitization	93.205	3.114	86.89	99.51

Table 4: ANCOVA Result of differential effects of metacognitive regulation and systematic desensitization on Cognitive Component of Public Speaking Anxiety among Senior Secondary School students

Source	Sum of Square	Df	Mean Square	F- value	P-value
Corrected Model ^a	2565.795	2	1282.898	6.711	.003
Intercept	7292.926	1	7292.926	38.149	.000
Prettest Scores	330.770	1	330.770	1.730	.196
Group	1892.942	1	1982.942	9.902	.003

Error	7073.180	37	191.167
Total	307029.00	40	
Corrected Total	9638.975	39	

F- Calculated <.05 Sign at 39 df

Table 4 shows a significant differential effect of metacognitive regulation and Systematic Desensitization on cognitive component of public speaking anxiety among participants. This is vindicated by the mean scores of 79.24 for group of students who were exposed to metacognitive regulation treatment (group 1), 93.205 for students who were exposed to Systematic desensitization treatment (group2), $F= 9.902$, $p= .000$ at .05 level of significance and 39 degree of freedom. The post hoc paired comparison reveals differential effect of the two treatments on the participants in favour of systematic. This provides a premise for rejection of the null hypothesis.

Summary of Findings

The following are the summary of findings from the test of hypotheses:

1. There is significant effect of metacognitive regulation on Cognitive component of public speaking anxiety among Senior Secondary School students with ($t=16.875$, $P=.000$).
2. There is significant effect of systematic desensitization on Cognitive component of public speaking anxiety among Senior Secondary School students with ($t=7.767$, $P= .000$).
3. There is a significant differential effect of metacognitive regulation and systematic desensitization on Cognitive Component of Public Speaking Anxiety favour of systematic desensitization among Senior Secondary School students with ($F=9.902$, $P= .000$, Mean scores of group 1=79.24, group2= 93.205).

Discussion of Findings

The study found that a significant effect of metacognitive regulation exists on Cognitive Anxiety of public speaking among Senior Secondary School students. It agrees with the study of Tsiriotaski e'tal (2016) where participants in the experimental group showed notable lower mean values of cognitive anxiety and other three factors of anxiety. This findings is in line with Muhammad (2021), Taghizadeh e'tal (2016), Bichon (2015), Tan and Ton (2016) who all found metacognitive regulation effective in treatment of Cognitive Anxiety of public speaking among Senior Secondary School students. More so, the study reveals that significant effect of systematic desensitization exists on Cognitive of public speaking among Senior Secondary School students. This agrees with the findings of Hopf and Ayres (2009). Kumar (2017), Niles, e'tal (2015) also found systematic desensitization effective in the treatment of cognitive anxiety of public speaking.

It was found in this study that significant difference in the effect of metacognitive regulation and systematic desensitization on Public Speaking Anxiety in the favour of systematic desensitization among Senior Secondary School students. This result disagrees with the findings of Charles e'tal (2018), who found a differential effect of metacognitive regulation and systematic desensitization on Cognitive component of Public Speaking Anxiety of students in favour of systematic desensitization. Nevertheless, Nordahl e'tal (2016) found some difficulties with the use of systematic desensitization. This was so because they used a population including persons with severe post -traumatic stress disorder.

Conclusion

In line with the findings of the study, the researcher concludes that metacognitive regulation and

systematic desensitization are significantly effective in reducing cognitive components of public speaking anxiety of secondary school students. The researcher also concludes that preference should be given to systematic desensitization techniques in the treatment of cognitive component of public speaking anxiety of students.

Recommendations

From the conclusion of the study, the following recommendations were put forward:

1. Educational psychologists and counsellors should use metacognitive regulation and systematic desensitization to treat cognitive components of public speaking anxiety of students.
2. Preferences should be given to systematic desensitization techniques than metacognitive in treatment of cognitive component of public speaking anxiety.

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