

STRUCTURAL EQUATION MODELING OF STUDENTS' ACADEMIC SELF-EFFICACY ON TEST ANXIETY IN ONITSHA NORTH LOCAL GOVERNMENT AREA OF ANAMBRA STATE

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Abstract

Test anxiety is a significant barrier to learning and performance among students during evaluation. Therefore, knowing the factors that can predict test anxiety would help in the prevention of this negative experience. This study focuses on structural equation modeling of students' academic self-efficacy on test anxiety in secondary schools in Onitsha North Local Government of Anambra State. Three research questions and one hypothesis guided the study. The data for the study was collected from two hundred and fifty secondary school students (150 females and 100 males) using random sampling techniques. Two instruments were adopted and used in the study-Gaumer and Noonman academic self-efficacy scale and Westerside test anxiety scale. Pooled CFA was performed for the two construct, the fitness indexes were computed for the overall constructs. The modified Pooled CFA constructs has a ChiSq/df value of 1.837 less than 5.0, therefore the Parsimonious fit was achieved. The TLI, CFI, AGFI and GFI values 0.900, 0.922, 0.916 and 0.945 are higher than 0.9 and RMSEA value 0.058 is less than 0.08. The structural equation model fit was assessed using a variety of indicators and tests indicating a good fit. The TLI, CFI and IFI values of 0.938 0.952 and 0.954 obtained are respectively consistent in suggesting that the hypothesized model represented an adequate fit to the data (values above 0.90 being indicative of good fit). Similarly, the proposed model has a value of 0.046 for its Root Mean Square Error of the Approximation (RMSEA) (which should be less than 0.08), implying that the model has acceptable fit indices. The ratio of Chi-square to degrees of freedom is 1.523 within the recommended fit of less than 5. The results of the study also indicated that academic self-efficacy has no significant effect on test anxiety. The researchers recommended among others that teachers should attend workshops on how to control test anxiety during examination.

Keywords: Test anxiety, Academic self-efficacy and Structural equation modeling with Amos Statistical Technique.

Introduction

Almost everyone feels nervous or experiences some anxiety when faced with a test or an exam. It is unusual to find a student who does not approach a big test without a degree of anxiety. Many students experience some nervousness or apprehension before, during, or even after an examination. It is perfectly natural to feel some anxiety when preparing for and taking a test. Too much anxiety about a test is commonly referred to as test anxiety. According to Mowbray (2012), test anxiety is very common among students. It can interfere with their studies, and many may have difficulties in learning and remembering what they need to know for a test. Further, too much anxiety may affect students' performance. Many students have difficulties in demonstrating what they know during the test.

Test anxiety can also be labeled as anticipatory anxiety, situational anxiety or evaluation anxiety. Some anxiety is normal and often helpful to stay mentally and physically alert. When one experiences too much anxiety,, however, it can result in emotional or physical distress, difficulty concentrating, and

emotional worry. Inferior performance arises not because of intellectual problems or poor academic preparation, but because testing situations create a sense of threat for those experiencing test anxiety; anxiety resulting from the sense of threat then disrupts attention and memory function. According to Akbary-Boorang and Aminyazd (2009), researchers suggest that between 25 and 40 per cent of students experience test anxiety. Students with disabilities and students in gifted education classes tend to experience high rates of test anxiety. Students who experience test anxiety tend to be easily distracted during a test, experience difficulty in comprehending relatively simple instructions, and have trouble organizing or recalling relevant information (Asadullapoor, Fati & Gharaee, 2010). Therefore, knowing the factors that can predict test anxiety would aid in the prevention of this negative experience among secondary school students.

Test anxiety is conceived as the hyper-arousal condition that results in physiological, emotional and intellectual changes that prevent the effective use of the previously learned information, while taking an examination. It is composed of "worry" which is a cognitive anxiety related with performance and "emotionality", the arousal of autonomic nervous system in evaluative situations (Akbary-boorang & Aminyazdi, 2009). Anxiety is defined by (Asadullapoor, Fati, & Gharaee, 2010) as feeling that undesirable and unclear like when person predicts a danger situation. Extreme level of anxiety impends individual's mental and physical health and also has a negative effect on their personal, social, familial, occupational, and educational performance (Zahrakar, 2008). One of the broadest research areas in recent years has been test anxiety and its dimensions. It is a kind of anxiety which turn out especially during examination. Test anxiety has been overwhelmingly identified as a two-factor construct, consisting of the cognitive (often referred to as "worry") and emotional (or affective) components. Test anxiety is an undesirable reaction toward evaluation. It's the most important problem that is faced by the students in their education worldwide (Khosravi & Bigdeli, 2008). Test anxiety is a psychological condition in which students experience extreme distress and anxiety in test situations. A little anxiety during exams is required that will help students to get motivated and learn. Mounting up so much of anxiety will not help the student to perform rather it will influence the academic performance negatively (Coon & Mitterer, 2009). The psychological symptoms that build up in students before a test includes restlessness, unusual body movements, difficulty in concentrating, insomnia, fatigue, muscle contraction, abdominal pain, and tremors (Porto, 2013). These symptoms have negative consequences on student lives and professional growth (Ferreira, Almondes, Braga, Mata, Lemos & Maia, 2014).

Academic self-efficacy refers to individuals convictions that they can successfully perform given academic tasks at designated levels. A similar definition also expressed by Honicke and Broadbent (2016) as academic self-efficacy refers to students' perceptions of their competence to do their classwork". Students make reliable differentiations between their self-efficacy judgments across different academic domains which, collectively, form a loose hierarchical multidimensional structure Academic self-efficacy is grounded in self-efficacy theory (Bandura, 2001). According to self-efficacy theory, self-efficacy is an individual's confidence in their ability to organize and execute a given course of action to solve a problem or accomplish a task (Turgut, 2013). Self-efficacy theory suggests that academic self-efficacy may vary in strength as a function of task difficulty—some individuals may believe they are most efficacious on difficult tasks, while others only on easier tasks. Furthermore, self-efficacy is believed to be situational in nature rather than being viewed as a stable trait (Rosen, Glennie, & Bozick, 2010). Students make reliable differentiations between their self-efficacy judgments across different academic domains which, collectively, form a loose hierarchical multidimensional structure. Self-efficacy is different from self-esteem or self-concept as it is a task-specific evaluation whereas self-esteem and self-concept reflect more general affective evaluations of self (Nasa & Sharma, 2014). Two general categories of academic expectancy beliefs have been postulated. Academic outcome expectations are a student's beliefs that specific behaviors will lead to certain outcomes (e.g., "If I do homework my grades will improve"). Academic efficacy expectations are a student's beliefs in their ability to perform the necessary behaviors to produce a certain outcome (e.g., "I have enough motivation to study hard for this test"). Understanding the difference between these two forms of expectancy beliefs is important as "individuals can believe that a certain behavior will produce a certain outcome (outcome expectation), but may not believe they can perform that behavior (efficacy expectation).

Structural equation modeling (SEM) includes a diverse set of mathematical models, computer algorithms, and statistical methods that fit networks of constructs to data. In the statistical sense, Structural Equation Modeling refers to a set of equations with accompanying assumptions of the analyzed system, in which the parameters are determined on the basis of statistical observation. Thus, structural equations refer to equations using parameters in the analysis of the observable or latent variables (Joreskog and Sorbom, 1993). In the latter case of variables, their examples could be such theoretical constructs as: intelligence,

alienation, discrimination, and socialization, motives of human behavior, personal fulfillment, aggression, frustrations, conservatism, anomie, satisfaction, or attitudes. In the economic sense, these can also be: prosperity of a geographic region, social-economic status, satisfaction from purchased products, approval of products, and improvement of economic conditions. All in all, the measurement of such latent constructs is conducted indirectly, mostly with the use of a set of observable variables and via observation of the causal effects in SEM between respective latent variables. The structural equation modeling technique permits the researcher to check and examine a complete model generating goodness-of-fit statistics and assessing the overall fit of the complete model (Kline. 2010). The next feature of structural equation modeling allows the expansion of statistical estimating by the researcher through assessing and estimating terms of error for observed variables. In the traditionally and conventionally employed multivariate processes, such as multiple regression modelling, the error rate of variables measurement and the between variables residuals or their observed variables, i.e., indicators, are null (Byrne, 2009).

The issue is, does academic self-efficacy significantly predicts test anxiety using structural equation modelling approach? Three research questions and one hypothesis at .05 level of significant guided the study.

Research questions

1. What are the models fit indices of the initial and modified CFA model of the two constructs?
2. What are standardized regression weights, construct validity, discriminant validity and reliability of the modified CFA model of the two constructs?
3. What are the model fit indices of the initial and modified SEM model of the two constructs.

Hypothesis

Academic self-efficacy has no significant effect on students' test anxiety

Literature Review

Academic efficacy

Academic self-efficacy refers to a student's confidence in his/her abilities to successfully perform academic activities at a desired level. Academic self-efficacy refers to personal judgments of one's capabilities to organize and execute courses of action to attain designated types of educational performances. Academic self-efficacy can be defined as person's belief that he can successfully achieve at a desired level on an academic task or a specific goal (Amiri-Majd & Shahmoradi, 2008). In that way, the concurrent reduction in academic self-efficacy can influence social and emotional self-efficacy beliefs (Gaumer & Noonan, 2018). The Increase in academic self-efficacy may act as a resilience factor to lessening symptoms of depression. As Bong and Skaalvik (2003) stated that academic self-efficacy has a significant effect on test performance. Thus, it may be useful as an intervention to increase flexibility for at-risk populations like secondary school students. Prior studies have shown that academic self-efficacy positively associated with academic achievement (Mu-Hsuan, 2018). The students with a strong academic self-efficacy generate a greater interest in academic activities through establishing demanding goals and acting towards achieving them (Roick & Ringeisen, 2017). As such, academic self-efficacy affects performance by influencing effort, persistence and perseverance. In addition, Boekaerts and Cascallar (2006) indicated that highly efficacious students experienced less stress, resulting in less health problems and a better adjustment to the higher education environment.

Test anxiety

Test anxiety refers to conditions of worry during examination. Mowbray (2012) described test anxiety as a state of anxiety or ill-feeling experienced by the student during or before or after test situations or examination. This feeling of nervousness or ill-feeling of a result of the test, he described simply as anxiety over test. The author also posited that a feeling of uneasy or change in heartbeat are usually experienced by test takers during or before an examination and this in most cases affects the performance of these students.

In line with this view, Lowe and Ang (2012) agreed to the aforementioned definition of test anxiety, they also defined test anxiety as a physiological condition which makes people react aggressively to stress, anxiety, and discomfort during and/or before taking a test. They further explained that test anxiety is both physiological and psychological misnomer that is evident among test takers and was of the opinion that test takers experience a diverse range of feelings like sweats on palms, constant heartbeats during test, loss of memory, nervousness, and inability to eat as a sign to show anxiety before/during an examination. Test anxiety creates significant barriers to learning and performance among students and in most cases create a problem in the evaluation and this wide gap is the essence of this study on test anxiety. According to

Bonaccio and Reeve (2010), test anxiety is a combination of mental over-arousal, tension possessing mind symptoms, along with worry, and fear of failure, that occur mostly to test takers before or during the examination. This definition of test anxiety also complies with the submission of the authors above that test anxiety deals with a feeling of dread, fear, worry, and other negative feelings which affect the mind during test situations. The above definitions suggest that test anxiety is a negative feeling about examinations showed by test takers during the examination which is possible to suggest lots of issues that concerns evaluations in education. Study by Cayubit (2007) revealed that academic self-efficacy negatively predicted test anxiety. Similarly, using multiple linear regression approach by Barrows, Dunn and Lloyd (2013) found out that examination grades could be predicted by test anxiety and self-efficacy level, and that self-efficacy moderated the effects of anxiety.

Structural Equation Modelling

Structural equation modeling is a strong statistical methodology that combines statistical data and qualitative causal assumption to assess and evaluate the causal associations. Structural equation modeling can effectively replace multiple regression, covariance analysis, time series analysis, factor analysis, and path analysis. One of the characteristics that makes structural equation modeling the preferred model compared to methods of conventional multiple regressions is its typically piecemeal nature in generating separate and individually distinct coefficients. The structural equation modeling technique permits the researcher to check and examine a complete model generating goodness-of-fit statistics and assessing the overall fit of the complete model (Kline, 2010). The next feature of structural equation modeling allows the expansion of statistical estimating by the researcher through assessing and estimating terms of error for observed variables. In the traditionally and conventionally employed multivariate processes, such as multiple regression modelling, the error rate of variables measurement and the between variables residuals or their observed variables, i.e., indicators, are null (Byrne, 2009). However, this sort of assumption does not look realistic because the gauged variables usually have some measurement errors, even if small. Consequently, biased coefficients are expected to result from the utilization of these kinds of measurements, which is usual in conventional multivariate methods. Nevertheless, Structural equation modelling enables the researcher to apply terms of measurement error to the process of estimation, which, ultimately, contributes to the improvement of the structural path coefficients reliabilities.

Another feature of structural equation modeling, which distinguishes it from other available models, is its ability to allow the researcher to incorporate both observed (manifest) and unobserved (latent) variables into the process of the same analysis. As a result, the incorporation provides a stronger analysis of the suggested model as well as a better evaluation of the study (Williams, Vandenberg & Edwards, 2009). Furthermore, SEM has the ability to assist researchers in two more ways, i.e., handling complicated data (with non-normality and multicollinearity) and use of modelling of graphical interfaces. Concisely, the important characteristics that make SEM more preferred in comparison with other available conservative multivariate methods, such as multiple regression modelling, is its ability to allow researchers to model the mediator variables to check and test the models with multiple dependent and independent indicators; to model mediator factors, and to analyse whole systems of indicators that enable the researcher to simultaneously establish models with a more realistic nature that need simultaneous analysis.

Structural equation modeling has two-step procedure, first of which concerns the measurement model also known as Confirmatory Factor Analysis (CFA) validating the construct and the second step is about the assumed structural model testing. The first step, measurement model, deals with the relationships between unobservable (latent) and observable (measurement) factors (Hoyle, 2012). In other words, the measurement model concerns one part or all parts of an SEM relating to the unobservable variables and their indicators. The main function of CFA is to remove or constraint all redundant items in each construct. Redundant items refer to item(s) with factor loading of less than 0.5 or items which are highly correlated to each other. In case of item(s) with factor loading of less than 0.5, the item(s) need to be dropped from the model to achieve unidimensionality state (Kline, 2010). However, items which are highly correlated to each other should be either constrained or dropped from the model.

CFA processes need the number of items in each construct must be at least four items to avoid identification problem where fitness indexes value could not be generated. In order to avoid identification problem for several constructs in the model, pooled CFA conducted to remove all items with factor loading of less than 0.5. In pooled CFA, the fitness indexes are not computed for each construct but for the overall constructs. However, confirmatory factor analysis is utilized for primary operation of the measurement model. Therefore, it can be easily said that the CFA model is a pure measurement model containing ungauged covariance between each of the possible latent variable pairs. The outcome from this procedure is

goodness of fit values applicable to further enhance the measurement scales level, that is, indicator variables, through gauging the related latent constructs (Schumacker, & Lomax, 2004). If the measurement model's goodness of fit measures are satisfactory, i.e., where the measurement model can provide the required data with a goodness of fit, then it can be concluded that the indicators' targeted constructs can be measured adequately. However, if the measurement model is not able to provide a sufficiently powerful fit to the data, it can be then concluded that, at least some of the observed factors are unreliable. In this situation, prior to structural model analysis, it is required to refine the scales of the measurement a new. Otherwise, moving to the structural model will not be of any use unless the model is confirmed as a valid model with satisfactory results. Based on the literature, the researchers hypothesized that academic self-efficacy has no significant effect on students' test anxiety.

Method

The population of the study was made up of 3,267 SS 2 Secondary School Students in Onitsha North Local Government Area of Anambra State (Onitsha North Local Education Authority, 2019). The data for the present study were collected from 250 secondary school students (150 females and 100 males) in Onitsha North Local Government Area of Anambra State which was obtained from ten schools using random sampling techniques. Two instruments were adopted and used in the study -Gaumer and Noonman academic self-efficacy and Westerside test anxiety scale. The Gaumer and Noonman academic self-efficacy questionnaire has 13 items with 5 likert scale ranges from 1(not very like me) to 5 (very like me) with Cronbach alpha of 0.86. In the same vein, Westerside test anxiety scale has 10 items with 5 likert scale. The likert scale ranges from 5 (always true) to 1 (never true) with a Cronbach alpha of 0.84. The participants (students) filled out the questionnaires in their regular classroom hour and the questionnaires were collected back immediately by the researchers.

The data analysis were carried out using maximum likelihood estimation techniques in Amos Statistical Technique.

Results

The first step in structural equation modeling is to perform a confirmatory factor analysis. In order to avoid identification problems for constructs in the model, pooled CFA was conducted to remove all items with factor loadings of less than 0.5. In pooled CFA, the fitness indexes were computed for the overall constructs.

Research question 1: What are the models fit indices of the initial and modified CFA model of the two constructs.

Table 1: Initial Pooled CFA Model Fit

Parsimonious Chisq/Df 3.398	Incremental Fit			Absolute Fit		
	TLI	CFI	AGFI	GFI	RMSEA	
		0.88	0.693	0.99	0.45	0.788 0.098

Table 1 shows the fitness indices of all latent constructs in the model. All constructs have a ChiSq/df value of less than 5.0; therefore the Parsimonious fit was achieved. The two constructs also have TLI, CFI, AGFI and GFI values of lower than 0.9 and RMSEA value of greater than 0.05. Therefore, Incremental and Absolute fitness not achieved. Based on the above, item with lower loadings were deleted from the model and the model was reruned to improve CFA model fit.

Table 2: Modified Pooled CFA Model Fit

Parsimonious Chisq/Df	Incremental Fit			Absolute Fit	
	TLI	CFI	AGFI	GFI	RMSEA
1.837		0.900	0.922 0.916	0.945	0.058

Table 2 shows the fitness indices of all latent constructs in the model after pooled CFA was conducted. All constructs have a ChiSq/df value of less than 5.0; therefore the Parsimonious fit had been achieved. They also have TLI, CFI, AGFI and GFI values of higher than 0.9 and RMSEA value of less than 0.05. Therefore, Incremental and Absolute fitness also had been achieved. It can be concluded that all fitness required in modelling had been achieved.

Research question 2: What are the standardized regression weights, construct validity, discriminant validity and reliability of the modified pooled CFA model for the two constructs?

The regression weights were all significant and standardized regression were above .05 recommended.

Table 3: Regression Weights of modified CFA model

			Estimate	S.E.	C.R.	P	Label
Q19	<--	academicefficacy	.615	.080	7.724	***	par_1
Q18	<--	academicefficacy	.712	.070	10.210	***	par_2
Q16	<--	academicefficacy	.723	.077	9.328	***	par_3
Q15	<--	academicefficacy	.748	.069	10.801	***	par_4
Q13	<--	academicefficacy	.565	.072	7.794	***	par_5
Q21	<--	academicefficacy	.673	.087	7.745	***	par_6
Q3	<--	testanxiety	.542	.102	5.306	***	par_7
Q5	<--	testanxiety	.543	.096	5.673	***	par_8
Q6	<--	testanxiety	.785	.102	7.688	***	par_9
Q7	<--	testanxiety	1.007	.097	10.372	***	par_10
Q10	<--	testanxiety	.662	.106	6.241	***	par_11

Table 3 shows that academic efficacy was measured by 6 items, item 19 has an estimate of .615 (S.E=.80, CR=7.724, p-value<.05), item 18 has an estimate of .712 (S.E=.70, CR=10.210, p-value<.05), item 16 has an estimate of .723 (S.E=.077, CR=9.328, p-value<.05), item 15 has an estimate of .748 (S.E=.069, CR=10.801, p-value<.05), item 13 has an estimate of .565 (S.E=.072, CR=7.794, p-value<.05), while item 21 has an estimate of .673 (S.E=.069, CR=10.801, p-value<.05). Table 3 also indicates that test anxiety was measured by 5 items, item 3 has an estimate of .542 (S.E=.102, CR=5.306, p-value<.05), item 5 has an estimate of .543 (S.E=.096, CR=5.673, p-value<.05), item 6 has an estimate of .785 (S.E=.102, CR=7.688, p-value<.05), item 7 has an estimate of 1.007 (S.E=.097, CR=10.372, p-value<.05), while item 10 has an estimate of .662 (S.E=.106, CR=6.241, p-value<.05),

Table 4 Standardized Regression Weights model

			Estimate
Q19	<--	academicefficacy	.519
Q18	<--	academicefficacy	.659
Q16	<--	academicefficacy	.611
Q15	<--	academicefficacy	.691
Q13	<--	academicefficacy	.523
Q21	<--	academicefficacy	.520
Q3	<--	testanxiety	.585
Q5	<--	testanxiety	.510
Q6	<--	testanxiety	.554
Q7	<--	testanxiety	.784
Q10	<--	testanxiety	.550

Table 4 shows the standardized regression weight of the each of the indicators/ items in the two construct of study. The standardized regression weight is the factor loadings of each indicator on the construct of measurement. Academic efficacy was measured by 6 items, loadings of the 6 items range from .519 to .691. all the items loadings are above .5 as recommended. This indicator good evidence of construct validity of test anxiety was achieved. Furthermore, Academic efficacy was measured by 6 items, loadings of the 6 items range from .510 to .84. all the items loadings are above .5 as recommended

The Convergent Validity was achieved since all the items in a measurement model are statistically significant must be above .50. From the last measurement model, all fitness indexes meet the required level. Therefore, the construct validity was achieved. The correlation between the two latent constructs academic self-efficacy and test anxiety was estimated to be 0.19 which is less than 0.85 as recommended. The measure indicates that the relationship between the two constructs is not strong. In other words, discriminant validity was achieved and the two constructs are not redundant. In term of reliability, the value of Cronbach Alpha (0.86 and 0.84) which are greater than 0.60 recommended. The internal reliability was achieved the required level. The value of AVE for all (academic self efficacy=0.52, test anxiety= 0.55) constructs are greater than 0.50. The required level was achieved. The composite reliability was achieved the required level.

From the Confirmatory Factor Analysis (CFA) that had been conducted, all redundant items in each construct were removed from the model. By conducting initial CFA and modified pooled CFA, the model fitness has been achieved, therefore a more precise and accurate estimation can be made in further analysis.

Research question 3: What are the models fit indices of the initial and modified SEM model of the two constructs.

Table 5: Initial Model Fit Statistics of the Hypothesized SEM model

Parsimonious Chisq/Df	Incremental Fit			Absolute Fit	
	TLI	CFI	AGF1	GFI	RMSEA
1.837	0.900	0.922	0.945	0.945	0.058

Table 5 shows the fitness indices of all latent constructs in the model. All constructs have a ChiSq/df value of less than 5.0; therefore the Parsimonious fit was achieved. The two constructs also have TLI, CFI, AGFI and GFI values of above 0.9 and RMSEA value of less than 0.08. Therefore, Incremental and Absolute fitness was achieved. Though the model fit was achieved but it was not excellent. Based on the above, modification was carried out to improve the model fit.

The modified model fit statistics are presented in Table 6 for interpretation and discussion

Table 6: Modified Model fit statistics of the hypothesize SEM model

Measure	Estimate	Threshold	Interpretation
GFI	0.955	>0.90	Excellent
TLI	0.930	>0.90	Good
CFI	0.952	>0.90	Acceptable
IFI	0.954	>0.90	Excellent
RMSEA	0.046	<0.08	Excellent
CHIN/DF	1.553	<5	Excellent

The model fit was assessed using a variety of indicators and tests, more famous being the goodness-off Fit index (GFI), comparative fit index (CFI), the incremental fit index (IFI), the Trucker Lewis Index (TLI), root mean square error of approximation (RMSEA) and Chi-square and degree of freedom. Table 6 shows that Goodness-of-Fit Index (GFI) has a value above 0.90 indicating a good fit. The TLI, CFI and IFI values of 0.930, 0.952 and 0.954 are respectively consistent in suggesting that the hypothesized model represented an adequate fit to the data (values above 0.90 being indicative of good fit). Similarly, the proposed model has a value of 0.046 for its Root Mean Square Error of the Approximation (RMSEA) (which should be less than 0.08), implying that the model is an acceptable fit. The ratio of Chi-square to degrees of freedom is within the recommended fit of less than 5. Thus, all the tests and measures, taken together supported the

structural model and indicated that the model has a good level of fit. Therefore, the hypothesized model proposed in the study fits the sample data satisfactorily.

The standardized residual were also examined to determine if there is any item that is redundant in the model. The result below shows that all standardized residual covariance are below 2 as recommended.

Table 7: Standardized Residual Covariance for the Final model

	Q10	Q7	Q6	Q5	Q3	Q21	Q13	Q15	Q16	Q18	Q19
Q10	0										
Q7	-0.149	0									
Q6	-0.571	0.243	0								
Q5	0.637	-0.238	0.108	0							
Q3	0.898	-0.041	-0.446	0.064	0						
Q21	0.426	0.457	0.15	1.852	0.626	0					
Q13	0.947	0.494	-1.148	-1.257	-0.605	-0.723	0				
Q15	-0.642	-0.828	-1.045	0.179	-1.796	-0.277	0	0			
Q16	1.124	1.193	1.377	-0.187	-0.301	-0.192	0.923	1.222	0		
Q18	0.93	-0.484	-0.68	-0.594	-0.622	-0.511	0.292	-0.377	0.017	0	
Q19	-0.39	-0.584	-1.153	0.519	-1.021	1.575	-0.852	-0.393	-1.822	0.871	0

Table 7 shows standardized residual covariance of the various across the two latent variables in the study. The standardized residual covariance of indicators of latent variable is the residual correlation/covariance is the difference between the values of the indicators and values predicted by estimated model. The residual is helpful in interpreting model fit. Courtesy looks at standardized residual covariance of the various indicators across the two latent variables in the study are below 2.0 as recommended. The implication is that model fit was achieved through standardized residual covariance of the various indicators across the two latent variables in the study.

Hypothesis: Academic self-efficacy has no significant effect on student test anxiety

Table 8: The regression weight of Academic self-efficacy on significant student test anxiety

Dependent variable	independent variable	estimate	SE	CR	p-value	Remark
Test anxiety	academic efficacy	0.105	0.080	2.11	0.192	NS

From data in the table 8, the estimate indicates that for every one unit increase of academic self-efficacy test will result to increase in test anxiety by 0.105. The p-value 0.192 is more than .05. This indicates that academic self-efficacy is not a significant predictor of test anxiety.

Discussion and Conclusions

The present study looked into how students' belief in their capacity to succeed academically would affect their levels of anxiety when they are taking tests using structural equation modelling approach. The results of the study indicate that academic self-efficacy has no significant effect on test anxiety. This finding differs from a study by Cayubit (2007) which revealed that academic self-efficacy negatively predicted test anxiety. Using multiple linear regression approach Barrows, Dunn and Lloyd (2013) found out that exam grade could be predicted by test anxiety and self-efficacy level, and that self-efficacy moderated the effects of anxiety. The differences in findings could possibly be due to the fact that in SEM a confirmatory factor analysis must be performed to ensure that only valid and reliable measures are used in analysis which leads to more valid results unlike linear regression approach. Further, almost everyone feels nervous or experiences some anxiety when faced with a test or an examination. In fact, it is unusual to find a student who doesn't approach a big test without a degree of anxiety. Many students experience some nervousness or apprehension before, during, or even after an examination. It is perfectly natural to feel some anxiety when preparing for and taking a test. Based on the findings, researchers should investigate other variables that may cause test anxiety.

Recommendations

Based on the findings of the study, the researchers recommended the following:

1. The school counselors should guide the students on how to improve their academic self-efficacy as it helps to reduce test anxiety during examination.

2. Students should improve their level of academic self-efficacy through good study habit and timely preparation to reduce test anxiety when taking examination
3. The school principals should organize workshops and seminars for students on how academic self-efficacy influence test anxiety during examination
4. Teachers should improve the level of academic self-efficacy of students through effective teaching to reduce students level of anxiety when taking examinations
5. Examination Bodies should be aware that exam grade could be predicted by test anxiety and self-efficacy level, and that self-efficacy moderated the effects of anxiety.

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