

Development and validation of academic interest scale for junior secondary school students in Akwa Ibom State.

Dr (Mrs.) Mfon E. Thompson¹ Prof. (Mrs.) Alice E. Asim Dr Isaac Ubi³

Department of Educational Foundations Akwa Ibom State College of Education, AfahaNsit.

²DepaI tment of Educational Foundations University of Calabar, Calabar -

Nigeria. ³DepaI tment of Educational Foundations University of Calabar, Calabar
Calabar

ABSTRACT

The researchers developed an instrument for measuring academic interest level of Junior Secondary School three (JSS3) students in Akwa Ibom State, Nigeria. A survey research design was adopted. Convenience sampling technique was used to select three urban schools and two rural schools for the final phase (validation) of the study. From each of the five schools, 40 JSS3 students were selected through simple random sampling technique to form the sample. At the initial stage of item construction, 60 items were generated and pretested on 50 students from the population. The scores were subjected to item mean and discrimination analyses which led to the selection of 40 items. The scale with 40 items was administered to 400 students from the population. Items with corrected item-total correlations of 0.7 and above were selected into the final version of the scale. The psychometric properties of the Academic Interest Scale (AIS) were established using test-retest, Cronbach alpha and split-half for reliability, while convergent and discriminant validities, itemtotal correlations, and communalities of items were examined for construct validity. Findings revealed that the scale is valid and reliable. It was recommended that the scale be used in measuring junior secondary school students' academic interest.

Keywords: Development, Validation, Academic-interest, Scale.

INTRODUCTION

Interest is an affective attribute that compels an individual to be fully involved in any activity. In the school setting, interest in academic activities ensure full participation. Lack of interest may lead to poor academic performance by the students. Observably, the education sector seems to be facing decay in terms of output, most products of second my schools nowadays seem to be sub-standard, compared to those of the time past. A good number of students, show lack of academic interest by preferring to engage in self-pleasured activities like abuse of usage of social media, devotion to sport and other vices that distract them from school work. Affirmably, Skinner, Furrer, Marchard and Kindennan (2008) asserted that when students are not interested in their learning, they are not likely to be engaged. This development has become one of the great challenges faced by the educational stakeholders in the 21 century.

By definition, the Oxford Advanced Learners' Dictionmy (2006) defines interest as 'a feeling one has when he/she wants to know or learn more about a thing or somebody'. Harackiewicz and Hulleman (2010), described interest as a feeling that makes one to be preoccupied with an action, a person or thing. Simply put, to be interested in an activity or object means to have a liking for it. On the other hand, the Collins English Dictionary (I-e edition) defines academic as relating to things done in institutions of learning, most especially things that have to do with studying and reasoning more than things that have to do with body movement. The benefits of academic engagements cannot be exhausted by listing, as its influence is felt by all humans. Academics improve critical thi1Wäng skills, problem solving skills and even decision- making skills to mention but a few. Students that are doing well academically have high self-esteem, low levels of depression and anxiety, and are less likely to abuse drugs. Adults who have succeeded academically are more likely to be employed, less likely to engage in crimes, and are more active citizens and charitable volunteers.

Academic interest as a construct is defined by

Schunk, Pintrich and Meece (2008), as a trait that has a lot to do with educational achievements. Kpolovie (2010) added that academic interest is a very strong trait that influences a person's feeling towards schooling. As a trait, it plays a vital function in enhancing success in school and guides learners' attitude in school. Wien students develop interest for academic work or exhibit adequate intellectual curiosity, they are bound to be more successful in school than when they exhibit lack of interest. Nevertheless, not being gifted academically does not mean that one cannot succeed in life as there are other areas of giftedness like creativity, psycho-social and kinesthetics (ftpaya, 2001). The Government of Nigeria, fully aware of this, has prescribed, in its National Policy on Education (2014), a Universal Basic Education of nine years. This comprises of a mandatory six- years primary education and three- years junior secondary education. It is believed that before the end of the junior secondary school level, students must have been taught foundational subjects that will enable them process additional knowledge and skills. The policy also indicated that after these foundational levels of education, students can be

sorted and directed to:

1. Senior secondary school
11. Technical college
111. An out-of-school vocational training center
- IV. An apprenticeship schemes.

This will be possible, using the results of examination given to ascertain academic ability. Unfortunately, this has not actually been achieved. The reason may not be far from the fact that there may not be a locally- developed appropriate instrument to be used in determining their general academic interest level. In addition to assessing cognitive abilities of learners through the use of tests and examinations, scales or questionnaires can be used to assess the students' affective characteristics of which interest is one. Hence, the purpose of this research was to develop and validate a scale (Academic Interest Scale - AIS) for measuring the general academic interest level of junior second my school students in Akwa Ibom State, Nigeria. However, some popular interest inventories developed earlier like the Strong Vocational Interest Blank, Minnesota Vocational

Interest Inventory and Kuder Preference Record second my school three (JSS3) students in state were mainly used for career assessment and career owned schools in Akwa Ibom State. For easier counselling. The Strong Vocational Interest Blank access, the researchers used convenience has six broad areas (sub-scales); realistic, artistic, sampling technique to select three urban investigative, social, enterprising and schools and two rural schools for the final phase conventional. The Minnesota Vocational interest (validation) of the study. Forty students each invent01Y was developed for skilled but non-were randomly selected from these five schools professionals like carpenters and cooks. It giving a sample size of 200 students. The provided systematic information on the interest academic interest scale developed by the patterns of people in non-professional authors had two major sections; section A and occupations. It was intended as an aid to section B. Section A contained questions on counsellors working with students and others who biodata, while section B was divided into five are contemplating occupations at the semiskilled sub-sections (subscales) that contained items and skilled levels. The Kuder Preference Record developed to measure 'Academic Interest'. The was developed systematically to investigate scale was a 4-point Likert scale where, 4 = very occupations by measuring preferences in ten broad true of me, 3 = true of me, 2 somehow true of areas: out-door, mechanical, computational, me, I = not true of me. Scores on negative items scientific, persuasive, artistic, literary, musical, were reversed prior to the analyses. clerical, and social services. An individual's preference indicates that one likes certain types of At the initial phase of item development, open activities.

The present study considered academic interest variables like interest in class attendance, reading, assessments, academic group work, and teacher-student relationship. The instrument will be useful in secondary schools in Akwa Ibom State, and beyond. It is believed that if students in second my schools are to be assisted in school work, then, their needs must be identified. Such identification can only be possible through the use of an appropriate interest scale. Undoubtedly, an appropriate interest scale can expose the students' educational needs and help stakeholders diversify methods for achievement of the educational goals of the nation.

Research Questions

Two research questions guided the study. These are:

1. How reliable are the subscales of Academic Interest Scale?
2. What are the indices of construct validity of the items of Academic Interest Scale?

Methodology

The study employed a survey design. The population of the study consisted of junior

ended questions were constructed and administered to parents, teachers and students. Experts in Psychology and Measurement were also consulted for items. These assisted in defining academic interest conceptually, and in capturing the common themes emanating from the responses with regard to Interest in class attendance, Interest in reading, Interest in assessments, Interest in academic group work and Interest in teacher/student relationship. The common themes derived formed the five subsections of the Academic Interest Scale. A total of 60 items remained after face validation by experts. The 60-items questionnaire was pretested on 50 junior secondary time students that were not part of the final sample. The scores on the 60 items were subjected to item mean and discrimination analyses which led to the selection of the best 40 items (items with total mean score of 2.25 — 2.75). The scale with 40 items was administered to 400 students from the population, still not part of the final sample. Items with corrected item-total correlations of 0.7 and above composed the final version of the scale. This was administered to 200 JSS3 students (final sample), in order to establish the psychometric properties of the Academic Interest Scale (AIS). Hair, Black, Babin, and Anderson (2010), opined that connected item total correlation coefficient of above 0.6 is appropriate for items in a scale.

Apart from the target scale (Academic Interest Scale), two other scales were used in the study

to help ascertain construct validity of the academic interest scale. The second instrument was the Motivation/Engagement Scale (MES) developed by Maltin in 2011. The scale was normalized with 1,249 junior high school students in Australia aged 9-13 (Fredricks and McColskey, 2012). An adapted form of the instrument (11 items) was used to test for convergent validity with Academic interest scale (AIS). It was used based on the belief that a child that has interest in academics; that is, scores high on AIS, should also score high on the Motivation/Engagement Scale (MES). In confirmation, Renninger, (2000) opined that student that have interest in academics are intrinsically motivated and are engaged with academic activities. The original form of MES has 11 subscales with internal consistency indices of 0.70-0.87.

The third instrument for the study; 'Multidimensional State Boredom Scale' (MSBS), was constructed to assess 'boredom' in the general population of Spain and was later validated by a group of health officers (Alda, Minquez, Montero-Marin, Gili, Puebla-Guedea, Herrera-Mercadal, Navarro-Gil and GarciaCampayo; 2015). The adapted MSBS was used in this study to show evidence of discriminant validity. Cronbach alpha for the original MSBS was 0.89 and 0.75 to 0.83 for the five subscales. The values for item total correlations fell between 0.39 and 0.69 for MSBS.

Results

Research Question One: How reliable are the sub-scales of Academic Interest Scale?

The AIS was administered to 200 JSS3 students, the scores were entered into the SPSS (17) environment. A retest was carried out after two weeks and the two sets of scores correlated for index of stability. Also, Cronbach alpha and Split-half were calculated from the scores to ascertain internal consistency of the academic interest scale. Reliability per sub-scale was also analyzed, the reliability indices are as presented on Table 1. The high reliability coefficients of the entire scale and the subscales confirmed that Academic Interest Scale is reliable.

Table 1
Reliability indices of Academic Interest Scale and its subscales

SIN	Methods	Reliability Indices
1	Cronbach alpha	0.92
2	Test-retest	0.94
3	Guttman Split-half	0.83
	Subscales	Reliability Indices
1	Interest in class attendance	0.82
2	Interest in reading	0.92
3	Interest in assessments	0.90
4	Interest in academic group work	0.62
5	Interest in teacher/student relationship	0.85

Research Question Two: What are the indices of construct validity of the items of Academic Interest Scale?

The scores from the subscales of AIS (IICA, IIR, ILA, IIAGW and 11TSR) were correlated with each other and with the total score. Convergent and discriminant validity indices of academic interest scale were also assessed. Convergent validity was assessed by correlating

the scores on academic interest scale with the scores on motivation/engagement scale (an almost similar scale). For discriminant validity, the scores on academic interest scale were correlated with the scores on multidimensional state boredom scale (an almost dissimilar scale). Connected item total, and communality of each item on the scale were also analyzed. The results are presented in Tables 2, 3, and 4 respectively

Table 2: Inter-correlation matrix of the five subscales of Academic Interest Scale

IICA	IIR	IIAGW	11TSR	TOTAL
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IICA	1					.82
	.72	1				.92
		.82 **	1			.90
IIGW		.42 **		1		.62
11TSR	.64*				1	.85
TOTAL	.82					1
		.92	.90	.62	.85	

Table 3: Convergent and discriminant validity indices of Academic Interest Scale

Correlations	Type of Validity	Indices
Academic Interest Scale Scores with Motivation/ Engagement Scale scores	Convergent	0.96
Academic Interest Scale scores with Multidimensional State Boredom Scale scores	Discriminant	-0.92

Table 4: Corrected item-total correlation coefficients and communalities of items in Academic Interest Scale

S/N	Corrected item-total correlation coefficients	Communalities
1	.76	.75
2	.72	.66
	.71	.65
	.34	.59
		.68 .82 .77 .59 .58 .66 .64
	.57	.57
10	.53 .64	
11	.82 .79	
12	.75 .65	
13	.75 .70	
14	.63 .63	
15	.61 .59	
21	.22	.68

16	19	.84
17	.20	.84
18	.53	.60
19	.50	.60
20	.13	.66

Table 2 presents the inter-correlation matrix of the five subscales of Academic Interest Scale. The inter-correlation between and among the subscales were all significant. Also, each subscale total score con-elated highly with the scale total score. Table 3 presents the convergent and discriminant validities of academic interest scale, while Table 4 presents the corrected item total correlation coefficients and the communalities of each item of academic interest scale. The corrected item-total correlation coefficients ranged between .13 and .82 indicating homogeneity, while the communalities of the individual items were above .4 confirming that the items were related to each other. These results justify academic interest scale to possess high construct validity.

Discussion of findings

The reliability indices of the Academic Interest Scale resulting from different methods and the reliability indices per subscale of the Academic Interest Scale were all high. This implies that the different items on the scale measure the construct (academic interest) under study. However, the reliability of one of the sub-scale (interest in academic group work) was just moderately good, but was still considered appropriate. The result conforms with the recommendations of Clarks and Watson (2002), Kaplan and Saccuzzo (2005) that internal consistency reliability coefficient of 0.80 to 0.90 is excellent reliability Denga (2003) brought it as low as 0.45 for personality test, reason being that personality tests are usually very spurious. Since the scale has high indices of stability and internal consistency, it therefore implies that the scale is reliable.

The inter-correlation matrix of the five subscales of Academic Interest Scale showed

positive correlation between and among subscales. Corrected item-total correlation coefficients and communalities of the items of the scale were appropriate. However, five of the items had connected item-total correlation coefficients of less than .3 but they were still retained in the scale because their communality values were better. The communality value of an item in a scale shows the extent to which that item relates with all other items in the scale. Costello and Osborne (2005) opined that items with communality value less than .4 should be discarded as these items may not be related to other items. In this study, items that had low corrected item-total correlation coefficients (items 5, 16, 17, 20, and 21) still had communalities greater than 0.4. So, in the light of their better communality values, they were retained in the scale.

Construct validity of Academic Interest Scale was further scrutinized by correlating its scores with scores on Motivation/Engagement Scale. The correlation yielded a high positive coefficient (direct relationship). It is believed that students that have interest for academics will be intrinsically motivated and will be engaged with academic activities often. The Academic Interest Scale' scores were also con-elated with scores on Multidimensional State Boredom Scale. The correlation yielded a high negative coefficient (inverse or indirect relationship), proving divergence. It can be interpreted that student who scored high on the Academic Interest Scale scored low on the Multidimensional State Boredom Scale. Invariably, students that have high interest for academics do not necessarily become bored in the class.

Conclusion

The study developed and validated a scale for measuring the general academic interest level of junior secondary school students in Akwa Ibom State, Nigeria. It is evident from the results obtained that the developed Academic Interest Scale is valid and reliable, therefore suitable for use in measuring academic interest level of junior secondary school students in Akwa Ibom State, or any other state in Nigeria.

Recommendations

The following recommendations were made:

1. Since academic interest scale is valid and reliable, it should be used by parents, teachers, and school administrators in measuring academic interest level of students so as to counsel them when necessary.
2. Scale developers should develop more scales for measuring constructs in affective domain.

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