

**A HANDBOOK
ON
EVALUATION RESEARCH**

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Edited by
Joseph O. Obemeata
Eugenia A. Okwilagwe

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Chapter One

Developing and Validating Academic Environmental Scale for Nigerian Students (AESFNS)

E.A. Okwilagwe

Introduction

Several scholars have, from different perspectives, looked at the university environment with reference to their intrinsic worth as places of teaching and learning. Some of these studies according to Gaff, Crombag and Chang (1976) concentrated on degree programme and such measures as the number of students, the size of the university and geographical locations among others. These scholars contend that looking at the academic environment from the view point of formal superficial categories as these, which are only useful for describing the general shape of Universities are hardly sufficient in presenting an understanding of the delicate inner workings of the institutions.

While each of these earlier studies have been shaped by the individual scholar's perception of what a university environment is, Gaff, Crombag and Chang (1976) contend that, to understand how universities function as environments for learning, it is important to determine how they impinge on students' learning. Research efforts by Frazer, (1993 and 1994) and Onocha, (1995) were, therefore, geared towards ascertaining the learner's own perception of what their learning environment is, and should be. Other scholars, Theall and Franklin (2001) and Gaubatz (2000) positively support students' evaluation of learning environments because of the potential of such evaluation in influencing teaching and learning. This is because, as observed by Gaff, Crombag and Chang (1976) and Winteler (1981), the academic environment is the department or discipline in the institution in which students study and learn. They further asserted that the department is the academic "home to both the students and faculty members since it plays a key role in the life of the students and faculty." In two earlier studies on students' perceptions of their environment, Pace (1960 and 1972) claimed that since students are reporting what is personal to them, as they perceive it, their perceived environment is the real

environment.

The Nigerian university environment, as in any other university anywhere should be seen as a place where learning is facilitated. There does not, however, seem to be, from literature search a conscious effort to systematically analyse the qualities of the learning environment as it affects the learner.

The purpose of this study is to develop a valid and reliable instrument for measuring the quality and efficiency of learning environment from the Nigerian student's perception. This would help to overcome the dearth of valid and reliable local measuring instruments in the area. It hopes to serve as an impetus for many Nigerian university management in introducing systematic evaluation of the learning environment in their respective universities to ensure quality of teaching and learning.

Method

Subjects

The subjects consisted of 71 undergraduate students from the University of Ife who were in their final year of study in 1999. These students who were majors from five departments, Economics, Mathematics, Physics, Biochemistry and Social Studies were represented in about equal proportions. However, five students who failed to complete the questionnaire were dropped from the analysis. The students were aged between 21 and 26 years old.

Scale Development

The dimensions of AESFNS were developed from the knowledge of the works of Gaff, et al (1976); and Ramsden (1979). They are also closely related to the Moos 1974 classification as cited in Frazer (1993 and 1994). The pool of items that formed the scale were however developed by this researcher.

An initial pool of 35 items were developed and were subjected to both content and construct validity. To establish content validity, five experts in the area of educational evaluation examined the extent to which the items measured the construct of the dimensions of the scale, as well as if these items adequately covered the relevant aspect of the construct so measured. Their advice, also, gave rise to the restructuring and polishing

of some of the items or outright deletion of some items and the generation of new ones. The items were again given back to these experts for final screening after which they were found to be suitable.

After this initial content validity, the pool of items were printed and then administered to the target subjects. To establish construct validity for the scale, the responses were then coded and factor analysed using the exploratory factor procedure. Of the seven factors that were extracted six were retained. For each sub-scale the items high in corrected item-total correlations were selected to form the final version of the AESFNS.

Data Analysis

To evaluate construct validity and reliability of the AESFNS the following procedures were employed:

1. Construct validity of the AESFNS were investigated factorically using the Principal-component analysis of the 35 items. Accompanying this procedure was the orthogonal rotation of the factor matrices with varimax. The initial communality estimates were the squared multiple correlation. To determine the number of factors to be extracted, factors with eigen-values or roots up to and greater than one were extracted. The interpretability of the factors were, however, determined using their final solution
2. The reliability of the AESFNS was determined using the Cronbach coefficient alpha. The psychometric properties of the scale as reported in Table II ranged from 0.53 to 0.77 for the dimensions.

Results and Discussion

The factors that were found to best approximate simple structures in terms of achieving easy interpretation, were six-factor solution, and they accounted for 51.6% of the total variance in academic environment. The criterion of .39 and above was used for determining the significant loadings of the factor structure matrix. With this criterion, 8 of the 35 items loaded highly on factor one, while 6 items loaded on two, 4 items on factor three, 3 items on factor four. Three items each loaded on factors five, six and seven respectively. The dimension entitled “Relevance of subject matter to vocation” was dropped from the scale, as suggested by Butler (1968)

because it consisted of two items. Eight of the items failed to load significantly on any factor. The correlation among the factors were high, ranging from .004 to .77. The factor structure of the AESFNS is presented in Table 1.

The resulting factor structure of the AESFNS is very similar to those of Gaff et al (1976), Ramsden (1979), and Moos (1974) except for some dimensions not represented in the scale. The slight difference in the dimensions of the present study as against those of earlier studies may be attributed to cultural differences. In the Gaff et al study, the original instrument developed from American background was modified to suit the European environment. After modification it consisted of 10 sub-scales. However, Ramsden (1979) reported that after analysing the instrument for use in a British university, eight significant factors were isolated.

The first factor, "Commitment Expected from Students/Commitment to Teaching of Lecturers" consists of eight items measuring the extent of students' commitment to learning as well as the lecturers commitment to improving teaching. A sample item from this subscale is "students are expected to be very committed in their work" The second factor, "Personal Attention to Students", reflects the frequency and quality of academic and social Relationship between Students and lecturers. A typical item on this sub-scale is "If a student seems to be doing poorly, this department counsels and guides to help the student stay in school" The third factor with four items measures the "Extent of Relationships between Students and Lecturers" including other faculty members and the understanding shown to them. A sample item in this dimension is, "There is often no room for students' interaction with lecturers outside this faculty."

The fourth factor, "Freedom in Students' Learning", measures the amount of discretion possessed by students in choosing and organising academic work. A typical item in this sub-scale is "Lecturers frown at irregularity in student's attendance at their class." The fifth factor, "Academic Guidance", consists of three items which focus on the degree of direction given to students learning. A typical item in this dimension is "Students' works are closely supervised by lecturers." The sixth factor, "Respect for Students", consists of three items which measure the degree to which students ideas and their persons are valued by their lecturers. A sample item in this sub-scale is "Lecturers in this department are prepared to take students' suggestions into account when planing their courses."

From the results found to be measuring each factor. Table II presents the internal consistency reliability for each of the sub-scales. The Commitment Expected from the Students/Commitment to Teaching of Lecturers, and Personal Attention to Students sub-scales had the highest coefficients. The Relationships with Students, Freedom in Students' learning, Academic Guidance and Respect for Students sub-scales however had modest reliability coefficients.

The development of AESFNS no doubt represents a significant contribution to the understanding of learning environment in tertiary institutions in Nigeria vis-a-vis their counterparts in developed nations of the world most especially in Europe. An indepth understanding of the learning environment of Nigerian students should lead to a better rapport between students and their teachers. It should also lead to the development of new strategies of enhancing and improving the learning environment in order to make it a conducive atmosphere for qualitative and efficient learning and teaching.

Table 1
AESFNS Sub-scale

1. Commitment from Students/ Commitment to Teaching of Lecturers	<i>Factor</i>	<i>Structure</i>	<i>Eigen</i>	<i>Values Matrix</i>		
1. Students are to be very committed.	75	07	03	04	-03	-02
2. Attainment of set goals easy to know	47	02	-05	20	43	33
3. Absolute dedication to course work	55	-03	04	21	-38	34
4. Submission of assignments on schedule	65	-12	05	20	06	16
5. Clear information on course assignment	51	26	30	03	13	-10
6. Confident in facing vocation due to courses offered	50	03	13	20	-27	-16
7. Innovative teaching.	51	20	35	-21	07	12
8. Punctuality to lectures by lecturers	70	22	61	10	15	-18

2 Personal Attention to Students

9. Accessibility to Information	08	57	53	-01	-12	06
10. Lecturers are approachable	33	61	29	-08	-32	02
11. Discusses career plans and ambitions	21	53	-10	30	21	02
						3.2
12. Faculty members influences intellectual development.	23	58	-01	13	17	-04
13. Counsels and guide poor students	28	77	16	-03	10	-00
14. Courses rich in practical vocational requirements.	10	55	07	02	16	09
						3.2

3. Relationships with Students

15. No room for interaction with lecturers	06	-05	70	08	-05	-20
16. Sensitive to students needs, interest and aspirations.	13	16	55	09	18	-05
17. Little contact with lecturers outside classroom	03	04	52	45	16	-08
18. Free hand in course selection	09	07	70	-06	04	12
						2.6

4. Freedom in Learning

19. Irregularity at lectures frowned at	32	03	-03	77	-01	18
20. Late submission of assignment penalised	09	15	17	61	-02	-34
21. No time to concentrate on courses of interest	40	08	09	50	12	-34
						2.0

5. Academic Guidance

22. Discuss academic problems	34	30	07	03	51	15
23. Close supervision of students' work	17	37	22	-09	67	12
24. Valuable feedback on examinations	-10	04	10	11	71	14
						2.0

6. Respect for Students

25. Students suggestions on courses value	02	00	20	05	28	47
26. No room for personal problems	-31	26	28	29	03	39
27. Commitment to teaching gives a feeling of great worth	31	36	20	2	-02	45

2.0

NB: The decimal points are omitted.

* Items paraphrased

Table 2

Internal Consistency Reliability Coefficients for AESFNS Sub-Scale N=66)

AESFNS Sub-Scales	Number of Items	Internal Consistency (Coefficient Alpha)
1. Commitment Expected from the Students/ Commitment to Teaching of Lecturers	8	.77
2. Personal Attention to Students	4	.75
3. Relationships with Students	4	.65
4. Freedom in Students' learning	3	.66
5. Academic Guidance	3	.63
6. Respect for Students	3	.53

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Appendix

The Scale of Academic Environment for Nigerian Students (AESFNS)

Instructions: This instrument measures your perception about your academic environment. You are therefore, required to answer each statement by putting a tick (✓) as appropriate in the space provided in front of each statement. Please, be frank as possible. There are no right or wrong answers.

SA	=	Strongly Agree
A	=	Agree
U	=	Uncertain
D	=	Disagree
SD	=	Strongly Disagree

A. Commitment Expected from the Student/ Commitment to Teaching of Lecturers

SA A U D SD

1. Students are expected to be very committed in their work.

--	--	--	--	--
2. Students find it easy to know whether they are attaining set goals of the courses.

--	--	--	--	--
3. Lecturers demand absolute dedication to their courses.

--	--	--	--	--
4. Students are expected to submit their assignments on schedule.

--	--	--	--	--
5. Clear information is often given with regards to course assignments and tests.

--	--	--	--	--
6. The courses offered can make me confident in facing the demands of my vocation.

--	--	--	--	--
7. Lecturers in this department are innovative in their teaching

--	--	--	--	--
8. Lecturers here have a culture of punctually to their lectures.

--	--	--	--	--

B. Personal Attention to Students

9. Students are accessible to information in this department.

--	--	--	--	--
10. Lecturers here are highly approachable on academic matters

--	--	--	--	--
11. I often discuss career plans and ambitions with a faculty member.

--	--	--	--	--

12. At least one faculty member here has had a strong impact on my intellectual development.

13. If a student seems to be doing poorly, this department counsels and guide to help the student stay in school.

14. The courses offered in this department are rich with the practical issues required in my vocation.

C. Relationships with Students

15. There is often no room for students' interaction with lecturers outside this faculty.

16. Most faculty members here are sensitive to the interests, needs and aspirations of students.

17. There is very little contact between lecturers and students outside the classroom.

18. Students are allowed a free hand in course selection in this faculty.

D. Freedom in Students' Learning

19. Lecturers frown at irregularity in student's attendance at their class.

20. Failure to submit course assignments on time attracts penalty on students.

21. There is often no time for students to concentrate on courses of their interest.

E. Academic Guidance

22. I often discuss my academic problems with my lecturers.

--	--	--	--	--

23. Students works are closely supervised by Lecturers.

--	--	--	--	--

24. Lecturers here often give valuable feedback on examination.

--	--	--	--	--

F. Respect for Students

25. Lecturers in this department are prepared to take student's suggestions into account when planning their courses.

--	--	--	--	--

26. Faculty members here have no time for student's personal problems.

--	--	--	--	--

27. The lecturer's commitment to their teaching in this department gives me a feeling of great worth.

--	--	--	--	--

Personal Information

Name Date

Department/Course of Study

University

Year or Part