

## Development And Validation of A Lecturer Teaching Effectiveness Scale for Nigerian Universities' Lecturers

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### **Abstract**

*This study developed and determined the reliability and consistency of the 30-item Lecturers' Teaching Effectiveness Scale (LTES). This is with a view to establish a reliable framework that not only supports fair and merit-based assessments but also promotes a culture of excellence in teaching and learning across Nigerian universities. The target population for this research comprised all in-service university lecturers in Nigeria. A representative sample of 2,400 lecturers were drawn from six states representing Nigeria's six geopolitical zones. The instrument for data collection was the LTES, a 30-item scale developed based on a comprehensive review of literature and designed to measure various aspects of teaching effectiveness. Exploratory Factor Analysis statistics was used to analyse the data. After the removal of 6-items due to low reliability loading from sub-scales, the remaining 24-item LTES demonstrated high reliability, with a Cronbach's Alpha of 0.89 and a Split-half coefficient of 0.75, surpassing the reliability of the initial 30-item version. Consistent item-total statistics further affirmed the robustness of the 24-item LTES. These findings underscore the importance of continuous professional development and support for lecturers to enhance teaching effectiveness. It was recommended that continuous professional development and reflective practice are essential for maintaining high levels of teaching effectiveness throughout a lecturer's career.*

**Keywords:** Validation, Development, Lecturer, Teaching, Effectiveness

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## Introduction

In the evolving landscape of higher education, the pursuit of excellence has become a defining criterion for academic institutions striving to maintain relevance and leadership both locally and globally. In Nigerian universities, however, one critical aspect—evaluating the teaching effectiveness of lecturers—has long been fraught with subjectivity and insufficient empirical rigor. For years, the assessment of lecturers during annual reviews was largely reliant on anecdotal judgments from Heads of Departments, with little to no standardized evidence to substantiate ratings. This inconsistency undermined the objectivity and reliability of performance evaluations, leaving room for ambiguity and bias. Recently, the drive for reform has gained momentum. Universities are increasingly committed to fostering accountability among lecturers, enhancing the quality of teaching, and elevating their standing in webometric rankings—a global evaluation system that measures the impact and presence of universities online. To align with these ambitions, Nigerian universities have begun to explore evidence-based approaches to assess teaching effectiveness, seeking tools that can incentivize lecturers to adopt innovative and impactful teaching strategies that transform learning outcomes ((Jegade et al., 2015).

It is within this context that the *Lecturers' Teaching Effectiveness Scale (LTES)* was conceived—a pioneering instrument designed to objectively measure the teaching effectiveness of Nigerian university lecturers. Beyond qualifications and teaching experience, the LTES recognizes that a lecturer's belief in their ability to foster

learning, coupled with resilience in navigating challenges, is pivotal to achieving impactful teaching. This is especially critical in the face of mounting challenges from students, parents, and societal factors, ranging from learning difficulties to social unrest. The urgency of this endeavour is underlined by the pressing need for resilient and committed lecturers capable of navigating these complexities. Research underscores that effective teaching not only inspires student engagement but also directly correlates with academic achievement. Moreover, by subjecting lecturers to regular assessments through the LTES, universities can foster a culture of continuous improvement and accountability. Lecturers, aware that their teaching will be rigorously evaluated, are more likely to embrace innovative methodologies and demonstrate heightened commitment.

The significance of developing an LTES tailored to Nigeria's unique socio-cultural and educational realities cannot be overstated. Existing models from other contexts, such as United Kingdom, United States of America, Canada, China, Ghana, Uganda, Sri Lanka including South Africa, fail to address the distinct challenges and opportunities presented by Nigeria's academic environment. Studies have shown that the cultural, institutional, and demographic variables influencing teaching and learning necessitate the development of localized assessment tools. Recommendations from scholars such as Tschannen-Moran et al. (2018); DeVellis (2012) and Brouwers (2013) have emphasized the need for culturally relevant instruments that reflect the diverse experiences of lecturers across different settings.

Against this backdrop, this study seeks to bridge this gap by developing and validating the LTES for Nigerian university lecturers. The proposed instrument will not only provide a robust framework for assessing teaching effectiveness but also offer actionable insights to guide professional development, enhance student outcomes, and inform institutional decision-making processes. By addressing the long-standing challenges in evaluating teaching performance, this study aspires to make a transformative contribution to the Nigerian higher education system, setting a benchmark for other developing nations to follow.

### Objectives of the Study

The overarching aim of this study is to develop and validate an instrument, the *Lecturer Teaching Effectiveness Scale (LTES)*, to measure teaching effectiveness among Nigerian university lecturers. To achieve this, a robust 4-point Likert scale was designed and validated. To achieve this goal, the specific objectives of this study are to:

1. design the LTES tailored to Nigerian university lecturers.
2. evaluate the internal consistency reliability of the LTES.
3. To establish the factorial validity of the scale.

### Research Questions

The following questions guided this study:

1. What are the key items that appropriately measure the LTES?
2. What is the internal consistency reliability of the LTES?
3. How valid is the factorial structure of the scale?
4. Which factors account for the items measured on the LTES?

5. What are the characteristics of the LTES within the selected sample?

## Methodology

### Research Design

The study adopted instrumental research design. According to McClure (2020) and Sinaumedia (2024), instrumental research design refers to a methodological approach that focuses on the development, validation, and application of instruments or tools for data collection and measurement.

### Participants

The target population for this research comprised all in-service university lecturers in Nigeria. Due to constraints of time, resources, and accessibility, a representative sample of 2,400 lecturers were drawn from six states representing Nigeria's six geopolitical zones. The sampling process involves a multi-stage technique, which implies one state from each zone was selected through a simple random sampling method. Within each state, one federal government-owned, one state government-owned, and two privately-owned universities were purposively selected, resulting in a total of 24 universities nationwide. From each selected university, 100 lecturers were chosen to ensure a balanced representation of teaching staff, summing to 400 participants per state and 2,400 across the six states. Efforts were made to ensure gender balance within the sample, with the final selection comprising approximately 1,400 males and 1,000 females. Hence there was no gender bias in the study.

### Development and Validation of the Research Instrument

The primary instrument for data collection is the *Lecturer Teaching Effectiveness Scale (LTES)*, a 52-item scale developed based on a comprehensive review of literature and designed to measure various aspects of teaching effectiveness. The items are categorized into key dimensions, including:

- a) Classroom management to enhance student learning.
- b) Engagement with struggling learners.
- c) Student discipline and behaviour management.
- d) Parental involvement in academic and behavioural interventions.
- e) Collaboration with fellow lecturers and university staff.

The LTES uses a 4-point Likert scale format, with response options ranging from *Strongly Agree (SA)* to *Strongly Disagree (SD)*.

### Validation Process

The initial draft of the LTES was subjected to undergo expert review by five professionals (two psychologists and three measurement and evaluation experts) to assess clarity, relevance, and structure. At the expert review level, and to ensure all items are clear, concise, and free from ambiguous or technical jargon, the experts aligned items with the specific teaching and cultural dynamics of Nigerian universities, reduced the 52-item scale to 30 items, combined overlapping items or those assessing similar constructs. Hence, the modified 30-item scale were grouped into three sub-scales to enhance clarity and

analytical ease. Each item has been rephrased for coherence, brevity, and publication appeal. The modified *LTES* sub-scales were:

Sub-scale 1: Teaching Delivery and Classroom Interaction– Focuses on how effectively the lecturer communicates and engages students during lectures.

Sub-scale 2: Student Engagement and Support – Emphasizes the lecturer's interpersonal relationship with students and support for their learning needs.

Sub-scale 3: Course Design and Assessment– Highlights the alignment of the course structure, evaluation methods, and feedback mechanisms with learning goals. Noteworthy, it was the suggested modified version of the LTES that that was subjected to **Exploratory Factor Analysis (EFA) in this study.**

Consequently, a pilot study was conducted, and the reliability of the LTES was evaluated using Cronbach's Alpha. Items with a *Corrected Item-Total Correlation (CITC)* below 0.2 were those that increase the overall Cronbach's Alpha upon deletion were removed. Exploratory Factor Analysis (EFA) was employed to determine the underlying factor structure of the LTES.

### Data Collection

Data collection was conducted over four weeks by the researchers and a trained team of assistants. With the support of university management and relevant bodies such as the Academic Staff Union of Universities (ASUU) in government-owned institutions and the registry offices in private universities, lecturers were invited to participate. All 2,400

participants completed the LTES anonymously, ensuring confidentiality and encouraging honest responses.

### **Ethical Considerations**

Ethical considerations were paramount throughout our study to ensure the rights and well-being of all respondents. We obtained informed consent from the participating universities and lecturers, providing a clear explanation of the study's purpose and procedures. Confidentiality of responses was strictly maintained, with assurances given that respondents' academic positions or ranks would not be influenced by their decision to participate. Participation in the study was entirely voluntary, and lecturers were free to withdraw at any time without any negative repercussions. This study adhered to the ethical standards outlined in the Declaration of Helsinki, which governs research involving human subjects.

### **Data Analysis**

The collected data were analyzed using the **Exploratory Factor Analysis (EFA)** to identify the latent factors and assess the construct validity of the LTES. **Reliability Analysis:** Cronbach's Alpha was used to determine the internal consistency of the scale and its sub-scales.

### **Results**

To determine the reliability coefficients using Cronbach's alpha and Split-half methods, there was the need to examine the statistics for each of the items in order to take appropriate decision on items retention and deletion. Table 1 shows the mean and standard deviation for each of the 30 items on the LTES.

**Table 1: Item Mean and Standard Deviation of the 30-Item version of LTES**

Item No	Mean	Std. Deviation
Item 1	2.8478	1.04717
Item 2	2.8364	1.01096
Item 3	3.1033	.96631
Item 4	3.1943	.91474
Item 5	2.9885	.91594
Item 6	2.7799	.99970
Item 7	3.2689	.89241
Item 8	3.0096	.97178
Item 9	2.7943	1.02683
Item 10	2.9148	1.01305
Item 11	3.2679	.74727
Item 12	3.3608	.72118
Item 13	2.9627	.91158
Item 14	2.6727	.99908
Item 15	2.8325	1.01883
Item 16	3.1598	.83179
Item 17	3.0383	.92355
Item 18	3.2794	.80611
Item 19	3.2096	.84026
Item 20	3.1426	.86090
Item 21	3.1100	.92762
Item 22	2.5656	1.03241
Item 23	3.1081	.86036
Item 24	3.1139	.83129
Item 25	3.2861	.87178
Item 26	3.0957	.95614
Item 27	3.2766	.82413
Item 28	3.2785	.77433
Item 29	2.9359	1.06616
Item 30	3.0995	.98244



From table 1, the item with the highest mean is item 12 (mean = 3.36) and the same item has the lowest standard deviation (0.72). Item 22 has the lowest mean (2.57) while item 29 has the highest standard deviation (1.07). It means respondent differed mostly on item 29. Some agreed strongly with it while others disagreed on the same item.

An examination of the inter-relationship between the 30 items of the LTES showed that the relationship between the items is

low and some of them are even negative. The low and negative coefficients on the inter-item correlation matrix showed low relationships in the direction of measurement of the items. This was so because the items are a pool measuring LTES under different sub-scales. The relationship could not be positive because the items measured different factors (i.e., dimensions) of LTES summary of the inter-item correlations is as presented in Table 2.

**Table 2: Summary Inter-Item correlations for the 30-item version of LTES**

Mean	Minimum	Maximum	Range	Variance	No of Items
0.116	-0.352	0.493	0.845	0.013	30

From Table 2, the low mean inter-item correlation is an indication that some items on the scale were supposed to be deleted. This is so because the same set of respondents (where mortality will be = 0) could not be got again for a re-administration, if not, it would have been a case of item review, rewording and or editing for second administration.

The decision bothering on item deletion from the 30-item LTES was taken through the use of an approach. This is the use of

Corrected Item-Total Correlation which indicates the new coefficient of "Cronbach's Alpha if Item Deleted" that the scale would have when such item is removed. The set of items having low Corrected Item-Total Correlation (of less than 0.2) are those that will increase the Alpha coefficient of the scale when they are deleted. Table 3 shows the Item-Total Statistics needed for taking decisions on items that were to be deleted.

**Table 3: Item-Total Statistics for the 30-item version of LTES**

<b>Item No</b>	<b>Scale Mean if Item Deleted</b>	<b>Scale Variance if Item Deleted</b>	<b>Corrected Item-Total Correlation</b>	<b>Squared Multiple Correlation</b>	<b>Cronbach's Alpha if Item Deleted</b>
Item 1	88.6861	99.332	.299	.412	.781
Item 2	88.6976	100.219	.268	.322	.782
Item 3	88.4306	102.640	.158	.222	.787
Item 4	88.3397	100.652	.282	.270	.781
Item 5	88.5455	103.196	.142	.204	.788
Item 6	88.7541	105.327	.017	.108	.794
Item 7	88.2651	100.304	.312	.179	.780
Item 8	88.5244	100.606	.263	.164	.782
Item 9	88.7397	99.221	.313	.245	.780
Item 10	88.6191	100.265	.265	.245	.782
Item 11	88.2660	99.720	.428	.241	.776
Item 12	88.1732	99.662	.451	.242	.776
Item 13	88.5713	99.889	.327	.192	.779
Item 14	88.8612	100.464	.260	.127	.783
Item 15	88.7014	100.028	.275	.407	.782
Item 16	88.3742	101.146	.289	.162	.781
Item 17	88.4957	98.574	.395	.301	.776
Item 18	88.2545	97.991	.503	.334	.773
Item 19	88.3244	99.022	.415	.245	.776
Item 20	88.3914	100.191	.333	.219	.779
Item 21	88.4239	99.369	.348	.308	.778
Item 22	88.9684	106.613	-.047	.259	.798
Item 23	88.4258	99.664	.365	.252	.778
Item 24	88.4201	99.278	.405	.252	.776
Item 25	88.2478	98.775	.412	.287	.776
Item 26	88.4383	97.771	.422	.263	.775
Item 27	88.2574	99.801	.376	.233	.778
Item 28	88.2555	101.305	.306	.218	.781
Item 29	88.5981	101.336	.196	.220	.786
Item 30	88.4344	99.960	.292	.239	.781



From Table 3, any item with a Corrected item-Total Correlation of less than 0.2 was marked as items to be deleted. These set of items are those showing an increase in scale's Cronbach's Alpha and mean when they were deleted. Thus, from table 3, item 3, 5, 6, 22 and 29 are those with the characteristic of improving the scale's reliability when deleted from the scale. They were therefore supposed to be deleted. However, it is worthy of mention that no item was eliminated from the whole scale based on the information obtained from item-total statistics (in table 3). The decision to delete any of the items was suspended till the stage when the reliability of each of the sub-scales (factors) was ascertained.

Consequently, investigation into the reliability of the LTES was conducted using the reliability tool under scale in the SPSS programme. Data was subjected to internal consistency reliability analyses; the first, Cronbach's Alpha and the second, split-half reliability. For the split-half reliability, both Spearman Brown Split-Half and Guttman Split-Half coefficients were obtained for the scale in general and for each of the factors (subscales). The results of reliability test presented in Table 4 were obtained from the analysis conducted on the 30-item version administered on the sample before item deletion.

**Table 4: Coefficients of Reliability Test for the 30 -item version of LTES**

Reliability Methods	Co-efficients	p
Cronbach's Alpha	0.79	< 0.05
Spearman-Brown Coefficient (Equal Length)	0.71	< 0.05
Guttman Split-Half Coefficient	0.71	< 0.05

A Cronbach's Alpha of 0.79,  $p < 0.05$  was obtained. However, in order to preclude the possibility of taking wrong inference on the reliability of the scale, the data was also subjected to split-half analyses. Here two results were obtained. They are the Spearman Brown Split-half coefficients and the Guttman Split-half coefficients. The value of the Spearman Brown Split-half coefficient for the scale is 0.71,  $p < 0.05$  (equal length). Also, that of Guttman Split-half is 0.71,  $p < 0.05$ . The two coefficients are high and good enough to declare that the scale is reliable. All the coefficients are high and good enough to declare that the scale is reliable. All the coefficients were significant and good enough to conclude that the LTES is reliable. DeVellis (2012)

posited that an alpha below 0.60 is unacceptable; 0.60 – 0.65 undesirable 0.65 – 0.70 minimally acceptable; 0.70- 0.80 respectively, 0.98 – 0.90 very good and if much above 0.90 excellent (p.4). Based on these results, the reliability analysis showed that the 30-item version of LTES are statistically significantly reliable and usable as determined by Cronbach's alpha and Split-half methods.

To establish the factorial validity of the scale, there was a need to determine construct and concurrent validity LTES. Although the 30-item version of the LTES is reliable, its reliability coefficient could be increased by looking more closely to the contribution of each of the item to the particular factor it was meant to measure.

This led to the construct/concurrent sub-scale reliability analysis, the result of which was used in item removal from or retention on the LTES.

#### Sub-scale reliability coefficients

Sub-Scale Reliability Coefficients of the LTES was considered using the three factors listed in Table 5.

**Table 5: LTES Sub -Scale Factors and Their Items**

Factors	Sub-scales	Items
1.	Teaching Delivery and Classroom Interaction	1, 2, 3, 4, 5, 6, 7, 8, 9, and 10
2.	Student Engagement and Support	11, 12, 13, 14, 15, 16, 17, 18, 19, and 20
3.	Course Design and Assessment	21, 22, 23, 24, 25, 26, 27, 28, 29, and 30

The results of the sub-scale reliability for the three factors listed in table 5 are as presented in the subsequent parts:

**Table 6: Sub-scale Reliability of Factor 1: Teaching Delivery and Classroom Interaction**

Mean	Variance	Standard Deviation	No of Items	Cronbach's Alpha
44.86	32.29	5.68	10	0.62

From Table 6, the “Teaching Delivery and Classroom Interaction ” sub-scale mean is 44.86 which could simply be described as low. The Standard deviation of 5.68 does not reflect high variability among respondents. The number of items involved in this sub-scale is 10. To

improve the reliability of this sub-scale, its item-total statistics shall be examined with a view to removing items with low corrected item-total correlation thereby improving the alpha coefficient as well as the scale mean.

**Table 7: Inter -Item Correlation for Factor 1 -Teaching Delivery and Classroom Interaction**

Item No	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8	Item 9	Item 10
Item 1	1.000									
Item 2	.499	1.000								
Item 3	-.123	-.012	1.000							
Item 4	-.103	.022	.339	1.000						
Item 5	-.145	-.110	.160	.225	1.000					
Item 6	-.039	-.014	.136	.045	.182	1.000				
Item 7	.143	.126	.074	.115	.062	.013	1.000			
Item 8	.026	.045	.164	.190	-.017	-.057	.055	1.000		
Item 9	.282	.345	.093	.116	-.084	-.091	.120	.151	1.000	
Item 10	.333	.265	-.017	.012	-.090	-.072	.155	.057	.235	1.000

From Table 7, the coefficient of item correlation for items 3, 5, 6, and 10 were mostly negative. What this means is that the four items were measuring at the opposite of what the remaining 6 items on

the sub-scale are measuring. The corrected item-total correlation for items corroborated this as well. The results of the analysis are presented in Table 8.

**Table 8: Inter-Total Statistics for Factor 1 - Teaching Delivery and Classroom Interaction**

<b>Item No</b>	<b>Mean</b>	<b>Std. Deviation</b>
<b>Item 1</b>	<b>2.8478</b>	<b>1.04717</b>
<b>Item 2</b>	<b>2.8364</b>	<b>1.01096</b>
<b>Item 3</b>	<b>3.1033</b>	<b>.96631</b>
<b>Item 4</b>	<b>3.1943</b>	<b>.91474</b>
<b>Item 5</b>	<b>2.9885</b>	<b>.91594</b>
<b>Item 6</b>	<b>2.7799</b>	<b>.99970</b>
<b>Item 7</b>	<b>3.2689</b>	<b>.89241</b>
<b>Item 8</b>	<b>3.0096</b>	<b>.97178</b>
<b>Item 9</b>	<b>2.7943</b>	<b>1.02683</b>
<b>Item 10</b>	<b>2.9148</b>	<b>1.01305</b>
<b>Item 11</b>	<b>3.2679</b>	<b>.74727</b>
<b>Item 12</b>	<b>3.3608</b>	<b>.72118</b>
<b>Item 13</b>	<b>2.9627</b>	<b>.91158</b>
<b>Item 14</b>	<b>2.6727</b>	<b>.99908</b>
<b>Item 15</b>	<b>2.8325</b>	<b>1.01883</b>
<b>Item 16</b>	<b>3.1598</b>	<b>.83179</b>
<b>Item 17</b>	<b>3.0383</b>	<b>.92355</b>
<b>Item 18</b>	<b>3.2794</b>	<b>.80611</b>
<b>Item 19</b>	<b>3.2096</b>	<b>.84026</b>
<b>Item 20</b>	<b>3.1426</b>	<b>.86090</b>
<b>Item 21</b>	<b>3.1100</b>	<b>.92762</b>
<b>Item 22</b>	<b>2.5656</b>	<b>1.03241</b>
<b>Item 23</b>	<b>3.1081</b>	<b>.86036</b>
<b>Item 24</b>	<b>3.1139</b>	<b>.83129</b>
<b>Item 25</b>	<b>3.2861</b>	<b>.87178</b>
<b>Item 26</b>	<b>3.0957</b>	<b>.95614</b>
<b>Item 27</b>	<b>3.2766</b>	<b>.82413</b>
<b>Item 28</b>	<b>3.2785</b>	<b>.77433</b>
<b>Item 29</b>	<b>2.9359</b>	<b>1.06616</b>
<b>Item 30</b>	<b>3.0995</b>	<b>.98244</b>

Item No	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Item 1	42.0047	27.437	.340	.383	.590
Item 2	42.0242	27.520	.352	.308	.588
Item 3	41.7549	29.823	-.145	.172	.623
Item 4	41.6524	29.365	.212	.211	.612
Item 5	41.8583	30.978	-.047	.146	.636
Item 6	42.0736	31.180	-.010	.076	.645
Item 7	41.5834	28.624	.301	.119	.598
Item 8	41.8406	29.048	.220	.125	.611
Item 9	42.0615	27.459	.350	.210	.588
Item 10	41.9413	27.779	-.400	.223	.593

From Table 8, the corrected item-total correlation for the items on this sub-scale ranged between -0.010 and 0.40. One interesting thing to note is that 6 out of the 10 items have a corrected item-total correlation that ranged between 0.22 and 0.35 (all positive). Only four items (3, 5, 6, and 10) have

very low but negative coefficients. These four items have corrected item-total correlation of less than 0.2 in the general item-total statistics presented in Table 8. Thus, the four items (3, 5, 6, and 10) were deleted from the LTES. The results of the analysis are presented in Table 9.

**Table 9:****Inter-Item Correlation Matrix after Deleting Items 3, 5, 6, and 10 from Factor 1 Subscale**

Item No	Item1	Item 2	Item 4	Item 7	Item 8	Item 9
Item 1	1.000					
Item 2	.497	1.000				
Item 4	.117	.024	1.000			
Item 7	.147	.121	.111	1.000		
Item 8	.028	.056	.486	.056	1.000	
Item 9	.488	.348	.113	.125	.553	1.000

From Table 9, two things should be noted here: one, the disappearance of negatives from the matrix and two, the general improvement in the value of the

coefficients. What this means is that the remaining 6 items are more homogeneous. Table 10 shows the item-total statistic after deleting item 3, 5, 6, and 10.

**Table 10: Item-Total statistics for Factor 1 after Deleting Items 3, 5, 6, and 10**

Item No	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Item 1	30.3998	20.345	.437	.377	.636
Item 2	30.4225	20.767	.411	.303	.642
Item 4	30.0435	23.902	.097	.130	.694
Item 7	29.9810	22.500	.270	.091	.667
Item 8	30.2321	22.652	.218	.102	.676
Item 9	30.4587	20.762	.404	.196	.643

From Table 10, with the removal of the four items from the sub-scale, the reliability of

the factor 1 sub-scale increased from 0.64 to 0.69 as shown in Table 11.

**Table 11: Cronbach's Alpha for Factor 1(Teaching Delivery and Classroom Interaction) after Deleting Items 3, 5, 6, and 10**

Mean	Variance	Standard Deviation	No of Items	Cronbach's Alpha
33.24	25.60	5.06	6	0.69

**Reliability of Factor 2 Sub-scale: Student Engagement and Support** Ten items were listed in relation to “Student

Engagement and Support”. Table 12 presents the summary of the reliability analyses for Factor 2.

**Table 12: Sub-scale Reliability for Factor 2- Student Engagement and Support**

Mean	Variance	Standard Deviation	No of Items	Cronbach's Alpha
15.80	6.74	2.59	10	0.58

From Table 12, going by the alpha coefficient, the sub-scale reliability is positively moderate. This means the 10 items in their original form were moderately reliable in measuring “Student Engagement and Support”. Worthy of consideration is

the sub-scale mean (15.80) which reflected “Student Engagement and Support”. Talking about the relationship between the items, the inter-item correlation matrix revealed a low and, in many cases, positive relationship as presented in Table 13.

**Table 13: Inter-Item Correlation Matrix for Factor 2: Student Engagement and Support**

Item No	Item 11	Item 12	Item 13	Item 14	Item 15	Item 16	Item 17	Item 18	Item 19	Item 20
Item11	1.000									
Item12	.143	1.000								
Item13	.026	.055	1.000							
Item14	.282	.120	.151	1.000						
Item15	.333	.155	.057	.235	1.000					
Item 16	.070	.171	.135	.115	.123	1.000				
Item 17	.220	.224	.207	.185	.164	.252	1.000			
Item 18	.139	.110	.170	.087	.161	.185	.170	1.000		
Item 19	.101	.177	.068	.087	.049	.094	.097	.059	1.000	
Item 20	.431	.179	.113	.277	.404	.054	.198	.202	.064	1.000



Thus, some of the items listed for this sub-scale were not really related to the construct of interest. This necessitates an examination of the item-total statistics so as to take empirical decision on which item(s) should be dropped.

In order to improve the reliability of this sub-scale, some of the weak and uncorrelated items will be deleted. Thus, the item-total statistic for the sub-scale were examined as presented in Table 14.

**Table 14 : Item-Total Statistics for Factor 2 Sub-scale (Student Engagement and Support)**

Item No	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Item 11	116.2800	118.369	.244	.094	.642
Item 12	115.8200	114.314	.403	.063	.631
Item 13	116.5400	123.192	-.003	.185	.655
Item 14	116.0400	120.121	.202	.156	.646
Item 15	116.3000	125.806	.208	.157	.661
Item 16	116.0600	121.119	.280	.094	.652
Item 17	115.9600	119.713	.214	.063	.651
Item 18	116.0400	120.692	.391	.185	.652
Item 19	115.6600	127.045	.294	.156	.671
Item 20	114.6600	117.617	.246	.157	.642

From Table 14, all the 10 items have corrected item-total correlation that did not deviated highly from each other; hence, all items in this sub-scale were retained since their correlation matrix ranged between 0.24 and 0.40 (all positive correlations). These positive correlations matrix reconfirm the suitability of the 10 items measuring “Student Engagement and

Support” as enjoying good and stable construct/concurrent reliability over time.

**Reliability of Factors 3 Sub-scale: Course Design and Assessment** Ten items sought information on “Course Design and Assessment “. The items are 21, 22, 23, 24, 25, 26, 27, 28, 29 and 30. The reliability of this sub-scale is as presented in Table 15.

**Table 15: Reliability of Factor 3 Sub-scale: Course Design and Assessment**

Mean	Variance	Standard Deviation	No of Items	Cronbach's Alpha
30.82	18.21	4.27	10	0.59

The Cronbach's Alpha is moderate or average. This could be improved by

looking at the Item-Total Statistic for sub-scale in Table 16.

**Table 16 : Item-Total Statistics for Factor 3 Sub-scale: Course Design and Assessment**

Item No	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Item21	27.7120	16.018	.178	.201	.593
Item22	28.2357	16.434	.085	.120	.620
Item23	27.7087	15.521	.293	.194	.566
Item24	27.7220	15.075	.377	.198	.547
Item25	27.5353	14.493	.445	.227	.529
Item26	27.7261	15.593	.221	.108	.583
Item27	27.5461	15.027	.387	.183	.545
Item28	27.5535	15.618	.322	.141	.561
Item29	27.8913	15.288	.213	.141	.588
Item30	27.7411	15.039	.290	.133	.566

From Table 16, the corrected Item-Total Correlation for two of the ten items in the sub-scale is less than 0.20. All the other eight items have a corrected item-total correlation of between 0.21 and 0.44.

Thus, the removal of items 21 and 22 will improve the Cronbach's Alpha of the sub-scale and the results as in Table 17 revealed as follows:

**Table 17: Sub-scale Reliability of Factor 3 after Item 21 and 22 were Deleted**

Mean	Variance	Standard Deviation	No of Items	Cronbach's Alpha
25.14	13.89	3.73	8	0.61

From Table 17, the dropping of the two items from the sub-scale has improved the reliability of the sub-scale from the initial 0.59 to 0.61. The inter-item correlation matrix and item total statistics for the sub-

scale have also improved. None of the retained items has a corrected item-total statistic of less than 0.2 thus, they were all left to be on the sub-scale. The results are as presented in Table 18.

**Table 18: Item-Total Statistics for Factor 3 after Item 21 and 22 were Deleted**

Item No	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Item23	22.0240	11.727	.247	.109	.591
Item24	22.0365	11.135	.371	.189	.558
Item25	21.8500	10.577	.450	.223	.533
Item26	22.0414	11.386	.242	.081	.595
Item27	21.8616	11.103	.380	.179	.555
Item28	21.8691	11.663	.305	.126	.576
Item29	22.2071	11.236	.211	.123	.610
Item30	22.0555	11.019	.293	.132	.580

From Table 18, the inter-item correlation matrix and item total statistics for the sub-scale have also improved as none of the retained items has a corrected item-total statistic of less than 0.2 thus, they were all left to be on the sub-scale. The corrected item total correlation ranged between 0.21 and 0.45 respectively.

This led to the retention and acceptance of LTES as a scale measuring teaching effectiveness in Nigerian universities.

#### **Final Version of LTES (24-Item)**

A construct reliability analysis conducted to examine the internal consistency of the

24 items left showed that the LTES enjoys a Cronbach's Alpha and Split-half coefficients of 0.89 and 0.75 respectively. These coefficients were very good to warrant the declaration of the 24-item

LTES as reliable (DeVellis, 2012). It is better than Cronbach's Alpha 0.79 obtained for the first 30-item version and Split-half coefficients of 0.71. The results are presented in Table 19.

**Table 19: Coefficients of Reliability Test of the Final Version of LTES (24 -Item)**

Reliability Methods	Co-efficients	p
Cronbach's Alpha	0.89	< 0.05
Spearman-Brown Coefficient (Equal Length)	0.75	< 0.05
Guttman Split-Half Coefficient	0.75	< 0.05

In order to be sure that none of the final version of LTES 24 items needed to be deleted so as to increase the scale's

Cronbach's Alpha, the scale item-total statistics was examined. This is presented in Table 20.

**Table 20: Item-Total Statistics of the Final Version of the LTES**

Item No	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Item1	77.0932	84.154	.346	.410	.786
Item2	77.1100	85.342	.297	.317	.788
Item4	76.7465	87.219	.225	.225	.791
Item7	76.6747	86.097	.302	.166	.788
Item8	76.9310	86.176	.266	.143	.790
Item9	77.1482	84.567	.334	.234	.786
Item11	76.6738	85.701	.406	.228	.784
Item12	76.5815	85.361	.451	.234	.782
Item13	76.9748	85.476	.333	.183	.786
Item14	77.0242	85.238	.302	.245	.788
Item15	77.1081	84.514	.339	.399	.786
Item16	76.7838	87.048	.270	.150	.789
Item17	76.8984	83.909	.424	.294	.782
Item18	76.6570	83.845	.502	.320	.779
Item19	76.7288	85.121	.396	.233	.784
Item20	76.7931	85.599	.351	.219	.785
Item23	76.8267	85.244	.376	.245	.784
Item24	76.8267	84.843	.415	.243	.783
Item25	76.6542	84.786	.397	.271	.783
Item26	76.8462	83.293	.440	.260	.781
Item27	76.6561	85.666	.368	.223	.785
Item28	76.6645	87.408	.270	.210	.789
Item29	77.0000	87.722	.254	.210	.814
Item30	76.8434	85.964	.273	.221	.789

From Table 20, the item-total statistics for the 24-item Final Version of the LTES are very similar. The 'scale mean if item Deleted' for each of the items is either 76 or 77. The 'Corrected Item-Total Correlation' for each of the items ranges between 0.23 and 0.50. The Cronbach's Alpha if item

Deleted' for all the 24 items is 0.79 except for item 29 which is 0.81 as well as items, 11, 12, 17, 18, 19, 23, 24, 25, and 26, which is 0.78. What this means is that the items have almost equal psychometric values in the scale. The final version of the LTES is as presented below.

#### **New Version of 24-Item Lecturers' Teaching Effectiveness Scale (LTES)**

		<b>SA</b>	<b>A</b>	<b>D</b>	<b>SD</b>
	<b>Teaching Delivery and Classroom Interaction</b>				
1	The lecturer delivers lectures for the full allocated time.				
2	The lecturer begins and ends lectures punctually.				
4	The lecturer presents concepts logically and ensures clarity in explanations.				
7	The lecturer relates course content to real -life applications and current events to sustain student interest.				
8	The lecturer uses practical examples and exercises to illustrate complex ideas.				
9	The lecturer maintains eye contact and communicates clearly with a confident, fluent delivery.				
	<b>Student Engagement and Support</b>				
11	The lecturer creates a welcoming and inclusive atmosphere for learning.				
12	The lecturer respects students' opinions and encourages diverse viewpoints.				
13	The lecturer acknowledges individual learning achievements and provides tailored support.				
14	The lecturer is approachable and accessible for consultations outside class hours.				
15	The lecturer motivates students by fostering a sense of purpose and connection to the subject matter.				
16	The lecturer provides timely and constructive feedback on assignments and tests to aid learning.				
17	The lecturer is sensitive to students' learning pace and adjusts delivery accordingly.				
18	The lecturer encourages self -reflection and improvement through thoughtful assessments.				
19	The lecturer supports students in overcoming learning challenges both in and out of class.				

20	The lecturer fosters a participatory environment by valuing student contributions during lectures.				
<b>Course Design and Assessment</b>					
23	The lecturer evaluates students fairly, adhering to established grading standards.				
24	The lecturer ensures that assignments and tests reflect the course's key learning outcomes.				
25	The lecturer returns graded assignments and tests promptly to guide student improvement.				
26	The lecturer provides detailed feedback to help students identify knowledge gaps and misconceptions.				
27	The lecturer uses a variety of instructional strategies to accommodate diverse learning preferences.				
28	The lecturer clarifies key concepts before transitioning to new topics.				
29	The lecturer designs assignments and activities that promote independent and collaborative learning.				
30	The lecturer effectively integrates theoretical knowledge with practical applications relevant to future professional needs.				

### Discussion of Findings

The 24-item Lecturers' Teaching Effectiveness Scale (LTES) demonstrated high reliability, with a Cronbach's Alpha of 0.89 and a Split-half coefficient of 0.75. These values indicate strong internal consistency, making the 24-item version more reliable than the initial 30-item version, which had a Cronbach's Alpha of 0.79 and a Split-half coefficient of 0.71. According to DeVellis (2012), a Cronbach's Alpha value above 0.70 is considered acceptable, while values above 0.80 are regarded as very good. Therefore, the 24-item LTES surpasses the threshold for high reliability, suggesting that the items within the scale are consistently measuring the same construct.

This finding aligns with previous research on the development and validation of educational assessment tools. For instance,

Tavakol and Dennick (2011) emphasized the importance of high Cronbach's Alpha values in ensuring the reliability of educational assessments. Similarly, Nunnally and Bernstein (1994) highlighted that a high Split-half coefficient further supports the internal consistency of a scale, reinforcing the robustness of the 24-item LTES.

Another finding of this study showed that the item-total statistics for the 24-item final version of the LTES are consistent, with 'scale mean if item deleted' values ranging between 76 and 77, and 'Corrected Item-Total Correlation' values between 0.23 and 0.50. The 'Cronbach's Alpha if item deleted' values are mostly 0.79, with item 29 at 0.81 and items 11, 12, 17, 18, 19, 23, 24, 25, and 26 at 0.78. This consistency suggests that the items have nearly equal psychometric properties within the scale.

The consistency of item-total statistics is crucial in validating the reliability of a scale. As noted by Field (2013), consistent item-total correlations indicate that each item contributes meaningfully to the overall construct being measured. The slight variations in 'Cronbach's Alpha if item deleted' values further confirm that the removal of any single item would not significantly impact the overall reliability of the scale. This finding is consistent with the work of Pallant (2016), who emphasized the importance of examining item-total statistics to ensure the robustness of a measurement tool.

### **Conclusion**

Based on the findings of this study, the following conclusions can be drawn:

1. The 24-item LTES (Lecturers' Teaching Effectiveness Scale) demonstrates high reliability, with a Cronbach's Alpha of 0.89 and a Split-half coefficient of 0.75. These values indicate strong internal consistency, making the 24-item version more reliable than the initial 30-item version, which had a Cronbach's Alpha of 0.79 and a Split-half coefficient of 0.71.
2. The item-total statistics for the 24-item final version of the LTES are consistent, with 'scale mean if item deleted' values ranging between 76 and 77, and 'Corrected Item-Total Correlation' values between 0.23 and 0.50. The 'Cronbach's Alpha if item deleted' values are mostly 0.79, with item 29 at 0.81 and items 11, 12, 17, 18, 19, 23, 24, 25, and 26 at 0.78. This consistency suggests that the items have nearly equal psychometric properties within the scale. These conclusions affirm the reliability and consistency of the 24-item LTES, making it a robust tool for assessing the lecturers' teaching effectiveness.

### **Recommendations**

Based on the discussion of findings in this study, the following are recommended as follows:

1. To ensure consistency in assessing teaching effectiveness, universities should standardize their teaching evaluation processes. This includes using reliable and validated tools like the 24-item LTES and ensuring that evaluations are conducted regularly and fairly across all departments.
2. Universities should provide additional support for new lecturers. This can include mentorship programmes, peer observations, and feedback sessions to help new lecturers develop their teaching skills and improve their effectiveness.
3. To maintain high levels of teaching effectiveness, universities should encourage lecturers to engage in reflective practice. This involves regularly reflecting on their teaching methods, seeking feedback from students and colleagues, and making necessary adjustments to improve their teaching effectiveness.

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## References

- Adomi, E.E., & Mordi, C. (2003). Publication in foreign journals and promotion of academics in Nigeria. *Learned Publishing*, 16(4), 259-263. <http://dx.doi.org/10.1087/095315103322421991>
- Ahmad, Z., Saleem, Z., & Rehman, K. (2020). Impact of Teacher Effectiveness and Student Attitude on Students Academic Achievement in Science Subjects in the Secondary Schools of Dera Ismail Khan (Pakistan). *Global Social Sciences Review*, 2(1), 241-253. [https://doi.org/10.31703/gssr.2020\(v-i\).25](https://doi.org/10.31703/gssr.2020(v-i).25)
- Berliner, D. C. (2004). Describing the behavior and documenting the accomplishments of expert teachers. *Bulletin of Science, Technology & Society*, 24(3), 200-212.
- Biggs, J. (1999). *Teaching for Quality Learning at University*. SRHE and Open University Press.
- Biggs, J., & Tang, C. (2011). *Teaching for Quality Learning at University (4th ed.)*. Open University Press.
- Black, P., & Wiliam, D. (1998). *Assessment and Classroom Learning. Assessment in Education: Principles, Policy & Practice*, 5(1), 7-74.
- Blazar, D., & Kraft, M. A. (2016). Teacher and Teaching Effects on Students' Attitudes and Behaviors. *Educational Evaluation and Policy Analysis*, 39(1), 146-159. <https://doi.org/10.3102/0162373716670260>
- Brookfield, S. D. (1990). *The Skillful Teacher*. Jossey-Bass.
- Brookfield, S. D. (1995). *Becoming a Critically Reflective Teacher*. Jossey-Bass.
- Brouwers, A. (2013). A test of the factorial validity of the teacher efficacy scale Research. *Research in Education*; 2003. [http://www.findarticles.com/particles/mi+qa3765/is\\_200305/ai\\_n919453/print](http://www.findarticles.com/particles/mi+qa3765/is_200305/ai_n919453/print)
- Centra, J. A., & Gaubatz, N. B. (2000). Is there gender bias in student evaluations of teaching? *The Journal of Higher Education*, 71(1), 17-33.
- Chickering, A. W., & Gamson, Z. F. (1987). Seven Principles for Good Practice in Undergraduate Education. *AAHE Bulletin*, 39(7), 3-7.
- Chism, N. V. N. (2007). *Peer Review of Teaching: A Sourcebook (2nd ed.)*. Anker Publishing.
- Clayson, D. E. (2009). Student Evaluations of Teaching: Are They Related to What Students Learn? A Meta-Analysis and Review of the Literature. *Journal of Marketing Education*, 31(1), 16-30.
- Danielson, C. (2007). *Enhancing Professional Practice: A Framework for Teaching (2nd ed.)*. ASCD.

- Darling-Hammond, L. (2000). Teacher quality and student achievement: A review of state policy evidence. *Education Policy Analysis Archives*, 8(1), 1-44.
- DeVellis, R. F. (2012). *Scale Development: Theory and Applications (3rd ed.)*. SAGE Publications.
- Faleye, B. A., & Awopeju, O. A. (2012). A Re-Validation of the Students' Evaluation of Teaching Effectiveness Rating Scale. *Ifè Psychologia*, 20(2), 220-233.
- Feldman, K. A. (1993). College students' views of male and female college teachers: Part II—Evidence from students' evaluations of their classroom teachers. *Research in Higher Education*, 34(2), 151-211.
- Field, A. (2013). *Discovering statistics using IBM SPSS statistics*. Sage Publications.
- Gagne, R. M. (1985). *The Conditions of Learning and Theory of Instruction (4th ed.)*. Holt, Rinehart, and Winston.
- Guskey, T. R. (2002). Professional Development and Teacher Change. *Teachers and Teaching: Theory and Practice*, 8(3), 381-391.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate Data Analysis (7th ed.)*. Pearson.
- Hattie, J. (2009). *Visible Learning: A Synthesis of Over 800 Meta-Analyses Relating to Achievement*. Routledge.
- Jegede, O. P., Faleye, B. A., & Adeyemo, E. O. (2015). Factor Analytic Study of Lecturer's Teaching Assessment Scale in Obafemi Awolowo University, Nigeria. *World Journal of Education*, 5(3), 121-130.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory (3rd ed.)*. McGraw-Hill.
- McClure, K. S. (2020). Selecting and describing your research instruments. American Psychological Association. <https://doi.org/10.1037/0000192-000>
- Marsh, H. W. (1984). Students' Evaluations of University Teaching: Dimensionality, Reliability, Validity, Potential Biases, and Utility. *Journal of Educational Psychology*, 76(5), 707-754.
- Marsh, H. W., & Roche, L. A. (1997). Making Students' Evaluations of Teaching Effectiveness Effective: The Critical Issues of Validity, Bias, and Utility. *American Psychologist*, 52(11), 1187-1197.
- Marzano, R. J., & Marzano, J. S. (2003). The Key to Classroom Management. *Educational Leadership*, 61(1), 6-13.
- Pallant, J. (2016). *SPSS survival manual (6th ed.)*. McGraw-Hill Education.
- Palmer, P. J. (1998). *The Courage to Teach: Exploring the Inner Landscape of a Teacher's Life*. Jossey-Bass.
- Ramsden, P. (2003). *Learning to teach in higher education (2nd ed.)*. Routledge.
- Rice, J. K. (2010). The impact of teacher experience: Examining the evidence and policy implications. *Education Finance and Policy*, 5(3), 332-346.
- Rogers, C. R. (1983). *Freedom to Learn for the 80s*. Merrill.
- Shulman, L. S. (1986). Those Who Understand: Knowledge Growth in Teaching. *Educational Researcher*, 15(2), 4-14.

- Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education*, 2(7), 53-55.
- Tschannen–Moran, M., Woolfolk-Hoy, A., & Hoy WK. (1998). Teacher efficacy: Its meaning and measure. Review of Educational Research, 68, 202 –248. <http://dx.doi.org/10.3102/00346543068002202>.
- Vygotsky, L. S. (1978). *Mind in Society: The Development of Higher Psychological Processes*. Harvard University Press.
- World Medical Association. (2013). World Medical Association Declaration of Helsinki: Ethical principles for medical research involving human subjects. *Journal of the American Medical Association*, 310(20), 2191–2194. <https://doi.org/10.1001/jama.2013.281053>