Development and Validation of Teacher Motivation Scale for Basic and Secondary Schools in Kwara State, Nigeria

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Abstract

Motivation is the inner drive that propels the action of an individual. In every organization, motivation of workers cannot be underestimated because the productivity of such an organization is largely dependent on how workers contribute their quota to the achievement of the organization goals. Some factors such as incentives and allowance, recognition, praise, promotions, in-service training, etc. are needed to be put in place in order to boost workers' morale toward the realization of the organization goals. Considering the importance of motivation to the survival of any organization, the study developed a scale to measure teacher motivation in basic and secondary schools in Kwara State. The sample consisted 408 basic and secondary school teachers in Kwara State. An instrument titled "Teacher Motivation Scale" (TMS) was used to collect data for the study. Content validity of the instrument was ensured through expert judgement. Content Validity Index (CVI) was found to be .80 while the reliability of the instrument was determined by the ordinal alpha coefficient of .89. Exploratory factor analysis was used to determine the number of factors of the instrument while confirmatory factor analysis was applied to determine the fitness of the model as well as correlation and agreement tests of the instrument. The study showed that nine factors underline the scale. It was also revealed that construct validity of the scale was achieved and that the model fit satisfied the established benchmark. Finally, the hypothesized model was consistent with empirical data. It was therefore recommended that stakeholders intending to measure teacher motivation should endea your to use the nine-item scale developed in this research.

Keywords: Teacher, Motivation, Basic Schools, Scale Development, Construct Validity

Introduction

Motivation is the inner drive that propels the action of an individual. In every organization, motivation of workers cannot be underestimated because the productivity of such an organization is largely dependent on how the workers are motivated to contribute their quota to the development of the organization goals. Motivating factors such as incentives and allowance, recognition, praise, promotions, inservice training e.t.c. are needed to be put in place in order to boost worker's morale toward giving their best to the achievement of organizational goals.

Education system is not left out of the trend of motivation as there are many personnel (administrators, teachers, students, janitors, e.t.c.) working for the survival of the system. All personnel in the system of education are in fact necessarily needed to be motivated because the success of all other sectors of the nation largely

depends on the nation's education system because it is from the education sector that manpower such as accountants, doctors, lawyers, bank workers, e.tc.are produced.

One of the key players, if not the most essential player, in the educational system is the teacher. He is so significant because he is the one that helps to deliver the content of curriculum which in turn equips the students with the right type of knowledge, skills and attitude which will make such students useful citizens for themselves and the nation at large. More so, it is popularly said that "teachers are future builders", this statement is correct because teachers are the ones that modify the behaviour of students to a good one.

To achieve the above-mentioned functions of teachers, there are some measures that are needed to be put in place such as provision of learning facilities, instructional materials, recruitment of qualified teachers, giving

teachers opportunity to engage in in-service training, giving teachers promotion, paying of salary as and when due and giving allowance, letting teachers have access to loans and other welfare packages, making of rules and regulations to control the conduct of both the students and teachers and involving teachers in decision-making in school, etc.

Teachers are the key player to achieve the aims, goals and objectives of education because they are the tripod stand that carries all other factors that will help to achieve these stated goals. They are the ones that implement the curriculum and ensure that the goals of education are achieved. The quality and commitment of these teachers are needed for them to carry out their responsibilities. A teacher is the facilitator of learning activities and ensures that learning takes place, and teaches their students the right knowledge and values. Teachers are essential for developing the future of students. Teachers need to be motivated as they play important role in the promotion of teaching and learning excellence. Motivated teachers tend to implement the curriculum in the rightful way. A motivated teacher is the one that will do their best for the betterment of students' academic achievements, students' behaviour and school effectiveness.

If teachers need to be motivated, it means their motivation level needs to be determined or measured. To measure teacher's motivation, an instrument needs to be developed to carry out this assignment. Most of the scales used in measuring teacher motivation are not standardized. It is as a result of the dearth of standardized instrument to measure teacher motivation that this study was carried out to develop and validate an instrument to measure teacher motivation.

Statement of the Problem

Teachers are the cornerstone of every student's success. The academic performance of the students depends, to a great extent, on the effectiveness of the teachers. Teachers ensure that teaching and learning take place, implement the curriculum which also ensure the effectiveness of the school. It was observed that teachers are not motivated in carrying out their

responsibilities. And this lack of motivation has manifested in the unwillingness of teachers to participate in school activities, such as poor implementation of curriculum, absenteeism from school without genuine reason, not punctual in schools, preparation of unsuitable lesson plan or note, missing lesson periods, leaving school before the stipulated time a teacher is supposed to leave a school and so on. These unpalatable behaviours on the part of the teachers, which, if care is not taken, can be detrimental to the success of the school. This showed that there is a need to devise a means of measuring teacher motivation. Measuring teacher motivation is a very complex issue as what motivates a teacher varies across space and time. It is against this background that this study was carried out to develop a scale to measure teacher motivation in basic and senior secondary schools in Kwara State.

Conceptual Discour se Motivation

The term motivation is derived from a Latin word, 'Emovere', which means to move into action. Hence, motivation simply implies the cause and why of human behaviour (Yusuf, Amali, Yusuf, & Bello, 2013). McInerney and McInerney (2010) described motivation as internal state that instigates, arouses, directs, and sustains/maintains behaviour. Motivation refers to the inner drive that makes human beings want to put in some actions in the accomplishment of an organizational goal (Durosaro, 2002).

Motivation, therefore, is the inner drive or external force that propels the action of an individual. Motivation involves all the reasons which cause a person to act including the negative ones like fear along with the more positive motives such as money, promotion or recognition (Aldair, 2009). According to Marques (2010), motivation is what people need to perform better and can only work if the right person with the right skills has been placed in charge of the task at hand.

Motivation is an important factor in education organizations as it enhances staff productivity and performance (Fasasi, Etejere & Oyeniran,

2016). Slavin (2006) viewed motivation as what gets one going, keeps one going and determines where one is going. Therefore, motivation can be described as the process of stimulating a person to take action in order to achieve certain goals (Yusuf et al, 2013).

According to Fasasi, et al (2016) Motivation can be intrinsic (internal) or extrinsic (external). Intrinsic motivation refers to motivation driven by an interest or enjoyment in the task itself, and exists within the individual rather than relying on external pressures or a desire for reward. Intrinsically motivated workers are likely to perform their duties willingly. They have the zeal to give their best in attaining the goals of an organization. On the other hand, extrinsic motivation refers to activities in the environment which influence an individual to engage in a kind of behaviour. It comes from outside of the individual. Rewards in the form of money or grades and threat of punishment as a result of bad behavior are examples of extrinsic motivation. Competition is also an extrinsic motivator because it encourages the performer to win and to beat others, not simply to enjoy the intrinsic rewards of the activity. A cheering crowd and the desire to win a trophy are also extrinsic incentives.

Motivation is related directly to the source of the behaviour, and how behaviour can be directed, or its intensity improved once it is directed. The reason for this is that human beings are by nature action-oriented and their actions can be influenced by various means and methods (Keskin, 2007).

Teacher

A teacher is the person whose occupation is teaching (Advanced English Dictionary). According to Abimbola (2009) teaching involves giving instructions to somebody on knowledge, skills and attitudes with the intention that the person will be able to know the information or do something. Thus, a teacher is the person that passes knowledge, skills, moral and value to the learner(s). Mbise cited in Zombwe (2008), defines a teacher as a person who has knowledge, skills and special training in teaching and educating. The researcher also stresses that a teacher must be a person who is

capable of creating behavioural changes in terms of cognitive, psychomotor as well as affective domains of learners.

In education, the role of teachers is of special importance and is contributory in producing renowned persons (Sastry, 2009). In the view of UNESCO (2006), teachers are the most important factor in determining the quality of education that children receive. The teacher provides for the learners' knowledge, skills and values that enhance their intellectual growth and development. The development of a nation depends upon the quality of its education, and the quality of education depends considerably on the quality of the teachers as well as on the interaction of collective internal and external forces that intervene in the fulfillment of the purpose of the schools. Teachers are effective when they are able to form desirable behaviour among the students. The formation of desirable behaviour in the student is closely linked to the motivation levels of the teacher as well as the teacher's attitude and behaviour. Low motivation levels in the teacher who is in a critical position in the education and schooling process has a negative impact on the achievement of high standards in education (Ibrahim, 2009).

Teacher Motivation

Teacher motivation is both the internal and external factors that encourage a teacher to perform their task to the optimal level. Teacher's motivation is related to what makes the teachers happy, satisfied, dedicated, and committed so that they put in their best performance in teaching the students (Nayana and Begum, 2017). Teacher motivation has to do with teachers' attitude to work. Teacher motivation could therefore be referred to as those factors that operate within the school system which if not made available to the teacher could hamper performance, cause stress, discontentment and frustration all of which would subsequently reduce classroom effectiveness and student quality output. This implies that teacher motivation includes factors that cause, channel, sustain and influence teachers' behaviour towards high management and academic achievement standards in schools (Ofoegbu, 2004).

According to Kothary commission "the destiny of a nation is being shaped in the classrooms". This statement in Kothary's commission report indicates that teachers are the ones who shape the future of a nation in terms of giving the nation a knowledgeable and skillful manpower needed for the growth and development of such nation. Teachers can only give this product only if they are motivated and committed towards their work of teaching students.

Amos and Loko (2015) are of the opinion that teachers' motivation is directly linked to the desire to take part in the pedagogical process and interest in sharing their knowledge with the students. A motivated teacher is the one that prepares himself before the class, knowing that prior preparation prevents poor performance. He also chooses the best teaching methodology to teach his students, the success and academic performance of the students is his number one goal.

According to Nyakundi (2012), teacher motivation plays an important role in the promotion of teaching and learning excellence. Most importantly, teachers that are motivated are likely to inspire students to learn. While teacher motivation is crucial to the improvement of the teaching and learning process, many teachers are not encouraged because of a number of factors that has to do with their condition of service.

Purpose of the Study

To guide this study and explore the problem, the following research objectives were raised:

- To determine the number of dimensions' underlying teacher's motivation scale;
- 2. To find out the factor structure of the scale:
- 3. To determine the construct validity of the scale:
- 4. To find out if the hypothesized model is consistent with empirical data.

Research Questions

1. How many dimensions underlie teacher motivation scale?

- 2. What is the factor structure of the scale?
- 3. To what extent is the scale measuring teacher motivation?
- 4. To what extent has the hypothesized model consistent with empirical data?

Methodology

The design adopted for this study was scale development research type of non-experimental design. The study used simple random sampling technique. Two samples were used for the study; N₁ was used for the parallel analysis while N₂ was used for the exploratory factor analysis. The sample comprised of $N_1 = 480$ and $N_2 = 406$ participants drawn from teachers of various cadres in both basic and senior secondary schools in Kwara State. A self-developed instrument was used for data collection named "Teachers Motivation Scale" (TMS) with content validity index (CVI) of 0.80, and ordinal alpha reliability coefficient of 0.89. Data obtained were analyzed using Parallel Analysis (PA), Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). Data collected were further analysed to determine the reliability and structural validity of TMS. EFA was used to determine the dimensionality of the scale using R-programming language version 3.4.0. and Smart PLS 3.2.8. Confirmatory factor analysis was carried out using Mplus 7 programme package. This was carried out in order to substantiate the appropriateness of the model that was developed in EFA stage. In order to establish the fit of the model, values of chisquare ($\chi 2 \ge 1$), Probability level (p ≥ 0.05), Degree of freedom(Df \geq 1), Tucker-Lewis index (TLI ≥ 0.95), adjusted goodness of fit index (AGFI ≈ 1), goodness of fit index (GFI < 0.95), Normed fit index (NFI \geq incremental fit index (IFI ≥ 0.90) comparative fit index (CFI ≥ 0.90), Root mean square residual (SRMR ≤ 0.08) and root-mean-square error of approximation (RMSEA ≤ 0.06) were determined (Kline, 2005). Consequently, thirtyfour items eventually formed the TMS.

Results

Research Question 1: How many dimensions' underlie teacher motivation scale?

To determine the number of factors that underline the Teacher Motivation Scale, the responses to the scale were subjected to parallel analysis as suggested by Reckase (2009). The implementation of the Parallel Analysis procedure involves the generation of a large number of matrices (at least 500) of random data, with each matrix having the same number of variables and subjects as the real data set under assessment. Then, each of the randomly-generated data is a factor analyzed and the mean of the resulting eigen values obtained and

thereafter compared with the eigen values of the matrix from the real data to determine the factors underlying the real data (Horn, 1965). A factor is retained if its eigenvalue is found greater than the mean of the eigenvalues from its randomly generated counterpart (Lesdema & Valero-Mora, 2007). The extracted factor(s) provide evidence for evaluating the number of dimensions underlying the test under study. In this study, parallel analysis implemented in psych package (Revelle, 2018) was used. The result of the parallel analysis of the scale is presented in Table 1 and Figure 1.

Table 1: Parallel analysis showing the number of dimensions underlying the Teacher Motivation Scale

			Real data		Simulated	Simulated	
	Real data		Eigenvalue	Factor	data		data
Factor	Eigenvalue	factor			Eigenvalue	Factor	Eigenvalue
1	8.08	25	-0.27	1	0.69	25	-0.03
2	3.31	26	-0.33	2	0.6	26	-0.05
3	2.41	27	-0.39	3	0.56	27	-0.08
4	1.5	28	-0.44	4	0.53	28	-0.09
5	1.41	29	-0.49	5	0.49	29	-0.11
6	1.2	30	-0.57	6	0.44	30	-0.12
7	1.1	31	-0.61	7	0.41	31	-0.15
8	1.03	32	-0.67	8	0.38	32	-0.16
9	0.88	33	-0.69	9	0.36	33	-0.18
10	0.85	34	-0.74	10	0.32	34	-0.2
11	0.7	35	-0.76	11	0.3	35	-0.22
12	0.58	36	-0.76	12	0.27	36	-0.24
13	0.49	37	-0.79	13	0.24	37	-0.25
14	0.47	38	-0.79	14	0.22	38	-0.27
15	0.41	39	-0.8	15	0.19	39	-0.29
16	0.35	40	-0.83	16	0.17	40	-0.31
17	0.29	41	-0.83	17	0.14	41	-0.33
18	0.18	42	-0.85	18	0.12	42	-0.35
19	0.07	43	-0.86	19	0.1	43	-0.37
20	0.04	44	-0.87	20	0.07	44	-0.4
21	0.01	45	-0.89	21	0.05	45	-0.42
22	-0.04	46	-0.9	22	0.03	46	-0.44
23	-0.1	47	-0.92	23	0.02	47	-0.46
24	-0.17	48	-0.94	24	0	48	-0.48

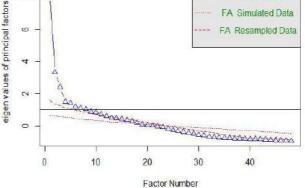
Table 1 shows the analysis of the number of factors that underlie the Teacher Motivation Scale based on the suggestion of parallel analysis. In Table 1, column 1 represents the factors of the scale and the randomly generated

data set. In all, there are 48 items (representing the total number of items in the real data set (i.e., the Teacher Motivation Scale (TMS)) and randomly generated test. Column 2 and 3 represent the eigenvalue of the real and

randomly generated data sets respectively. Table 1 and figure 1 show that there were 18 factors of the real data set with eigenvalue greater than or equal to the eigenvalue of the generated data set. Table 2 and Figure 2 showed that only nine factors can be interpreted from the TMS. This is because of the fact that out of the 18 factors that were identified in Table 1, nine of the factors had more than three items loaded on to them while nine factors had less than three items loaded on to them. Therefore, the nine factors that had less than three items were removed from the list. This made nine factors to be interpretable from the TMS.

FA Actual Data FA Simulated Data FA Resampled Data

Parallel Analysis Scree Plots



Research Question 2: What is the factor structure of the scale?

The factor structure of the scale as presented in Table 2 and Figure 2.

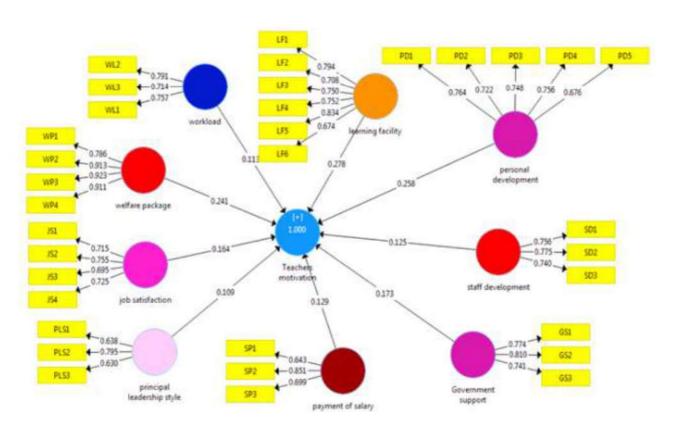


Figure 1

Table 2: Item Reliability

	GS	JS	LF	PS	PD	PLS	SD	WP	WL
GS1	0.774								
GS2	0.81								
GS3	0.741								
JS1		0.715							
JS2		0.755							
JS3		0.695							
JS4		0.725							
LF1									
LF2									
LF3									
LF4									
LF5									
LF6									
PD1					0.764				
PD2					0.722				
PD3					0.748				
PD4					0.756				
PD5					0.676				
PLS1						0.638			
PLS2						0.795			
PLS3						0.63			
SD1							0.756		
SD2							0.775		
SD3							0.74		
SP1				0.643					
SP2				0.851					
SP3				0.699					
WL1									0.757
WL2									0.791
WL3									0.714
WP1								0.786	
WP2								0.913	
WP3								0.923	
WP4								0.911	

Key: GS – Government Support, TM - Teachers Motivation, JS – Job Satisfaction, LF- Learning Facility, PS - Payment of Salary, PD - Personal Development, PLS - Principal Leadership Style, SD - Staff Development, WP - Welfare Package, WL-Workload

The results provided in Table 2 and Figure 2 showed that the TMS has nine factors and that the items were well-loaded on the factors. All the item loadings are between 0.63 and 0.86.

Research Question 3: To what extent is the scale measuring teacher motivation?
Table: 3 Construct Reliability and Validity
To determine the construct validity of the scale, both convergent and discriminant validity must be met. Furthermore, to determine the convergent validity, three conditions must be satisfied. These are; indicator reliability, composite reliability of each construct and the Average Variance Extracted. Hair et al (2010),

opined that indicator reliability is assessed by their respective factor loading on the underlie construct. Hair et al (2010) also suggested that an item is considered reliable if its factor loading is greater than 0.7 is the standard but loading of 0.4 is acceptable as well. The results provided in Table 2 showed all the items used in the TMS satisfy this condition. This suggests that items measure the sub-construct adequately. It can therefore be said that the unidimensionality of the construct is achieved.

Furthermore, a construct is said to be reliable when it returned a value of 0.6 or above reliability coefficient for predictive model (Nunnally and Bernstein, 1994). Several measures of reliability exist, for example,

Cronbach Alpha, composite reliability, also called reliability omega among others. For this study, the composite reliability was adopted instead of Cronbach Alpha because Cronbach Alpha tends to underestimate scale reliability when the scales are not essentially tauequivalent (Meyer 2010). This indicates that the items measuring the subconstruct are highly correlated. The final criterion of convergent validity, average variance extracted (AVE) is a measure that indicates the amount of variance in an item that is explained by the underlying construct (Fornell and Larcker, 1981). More importantly, Nunnally and Bernstein (1994) recommended a minimum value of 0.4 for estimated average variance extracted (AVE) to be considered substantial.

Table 3: Convergent Validity

-	Cronbach's		Composite	Average Variance		
Sub-constructs	Alpha	rho_A	Reliability	Extracted (AVE)		
Government support	0.668	0.667	0.819	0.602		
Job Satisfaction	0.695	0.698	0.814	0.522		
Learning Facility	0.847	0.852	0.887	0.568		
Payment of Salary	0.571	0.593	0.778	0.542		
Personal						
Development	0.785	0.787	0.854	0.539		
Principal Leadership						
Style	0.478	0.496	0.731	0.479		
Staff Development	0.632	0.633	0.801	0.573		
Welfare Package	0.906	0.91	0.935	0.783		
Workload	0.628	0.633	0.799	0.57		

The information provided in the Table 3 showed that all the factors are reliable. The value AVE were all greater than 0.5. This result showed that the convergent validity of the instrument is ensured.

Table 4: Hetero-Trait Mono-Trait Ratio (Discriminant Validity)

Construct	GS	TM	JS	LF	PS	PD	PLS	SD	WP	WL
Government support										
Teachers motivation	0.888									
Job Satisfaction	0.658	0.748								
Learning Facility	0.436	0.776	0.386							
Payment of Salary	0.505	0.796	0.362	0.335						
Personal Development	0.723	0.869	0.417	0.443	0.482					
Principal Leadership Style	0.533	0.851	0.647	0.362	0.756	0.397				
Staff Development	0.498	0.699	0.419	0.278	0.707	0.304	0.651			
Welfare Package	0.499	0.676	0.1	0.301	0.405	0.667	0.299	0.265		
Workload	0.323	0.682	0.526	0.537	0.295	0.304	0.534	0.301	0.146	

Key: GS – Government Support, TM - Teachers Motivation, JS – Job Satisfaction, LF- Learning Facility, PS - Payment of Salary, PD - Personal Development, PLS - Principal Leadership Style, SD - Staff Development, WP - Welfare Package, WL - Workload

The discriminant validity of the scale is measured with Hetero-Trait Mono-Trait Ratio method. In this method, the correlation between the construct must be less than 0.9. The information provided in table 4 showed that all the values of correlation between the factors are less than 0.9. This showed that the discriminant validity of the instrument is achieved. This is

evidence that all the construct or latent variable in the model are different or distinct from each other.

Research Question 4: To what extent has the hypothesized model consistent with empirical data?

The results of CFA conducted showed the model fit indices of $X^2 = 12975.897$, DF = 561 and P-value of 0.000. CFI = 0.933, TLI = 0.923 and RMSEA = 0.065. These therefore showed that the model fit indices for the factors are good. As shown in Figure 3

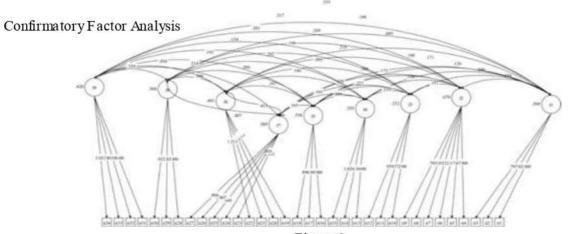


Figure 3

Discussion of Findings

The result shows that there are 9-factors that underlie the TMS. Furthermore, the findings of this study showed that the construct validity of the scale is achieved. This means that all the items adequately measure the construct. The result of discriminant validity showed that the constructs are distinct from each other. Also the AVE showed that the construct explains about 50% of the variance observed in the indicators. Based on the CFA conducted, it was evident that the model is adequately fit. The implication is that the model is consistent with empirical data.

Conclusion

The analysis conducted in this study showed that the TMS is a valid and reliable scale in measuring teacher motivation. The scale contained nine factors such as government support, job satisfaction, learning facility, payment of salary, personal development, principal's leadership style, staff development, welfare package and workload with which teacher motivation can be measured.

Recommendations

It is therefore recommended that any researcher or practitioner intending to measure teacher motivation should endeavour to use the ninefactor scale developed in this study.

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