

A Preliminary Generalization of the Morrow TQM Scale in Nigerian and American Culture

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Abstract

Increasing interest is being directed towards demonstrating the cross-cultural generalization of the three-factor model of Total Quality Management (TQM). The purpose of this study was to further validate the Morrow TQM Scale in the Nigerian culture. A total of 320 (160 men and 160 women) workers were used to assess the reliability and structural validity of the new translation. The results of exploratory factor analysis, Test-retest reliability, Cronbach alpha measure of internal consistency and convergent structures of the Nigerian data and American TQM data indicates that the TQM Scale is a valid measurement in the Nigerian culture. Comparative analysis of the findings of the Nigerian and American TQM studies attempted a preliminary cross-cultural generalization of TQM Scale. Overall, the emic-etic implications of these results are discussed.

Introduction

In recent years, Total Quality Management (TQM) has occupied a central position in the organization behaviour literature (Nnedum, 2001; Egwu and Nnedum, 2004). TQM is a Japanese management style, which promotes employee empowerment in the workplace. So far, TQM is viewed as an approach to improving the competitiveness, effectiveness, and flexibility of a whole organization (Oakland, 1993), or a quality system philosophy about doing things right first and always

(Crosby, 1979); which adds nothing to the cost of a company product or service (Deming, 1986) while at the same time ensuring teamwork, customer satisfaction, and continuous improvement of services (Morrow, 1997; Nnedum, 2001; Egwu and Nnedum 2004). Ramsey and Roberts (1992) define TQM as people focused management system that aims at continual increase in customer satisfaction at continually lower real cost; while Mullins (1993) states that TQM is a management system in which the organization strives to achieve total customer satisfaction through continuous process of improvement of people. Juran (1989) sees TQM as concerned with standard for continuous improvement with commitment to customers' satisfaction. Collard (1989) insist that TQM is about attitudinal change from top-down management to bottom-up approach. Nnedum (2001) define TQM as a cooperative form of doing business that relies on the talents and capacity of both labour and management to continually improve quality and productivity, using teams; and conceptualized TQM as a strategic approach to producing the best products and services through a process of continuous improvement of every aspect of operation. However, there is a dearth of empirical research on the implementation of TQM principles in the Nigerian culture. (Egwu and Nnedum 2004; Nnedum, 2001)

The literature suggests three (Morrow, 1997) several factors as criteria of TQM measures. However, the available research has very limited application in the field of cross-cultural behaviour. Morrow, (1997) developed a Total Quality Management Scale (TQMS) and evaluated the implementation of TQM principles in a sample of full-time employees in the United States. There appears to be a resurgence of interest in the underlying attitudinal structures or dimensionality of the Morrow TQM Scale (Nnedum, 2001; Egwu and Nnedum 2004). Nevertheless, more research is needed to fully establish the construct validity and cross-cultural relevance of TQMS. The three-factor model of Total Quality Management continues to be useful instrument in the area of TQM implementation (Morrow, 1997; Nnedum, 2001). Factor 1 –

customer orientation (four items) represents the idea that customers meet with workers regularly and gives them feedback on the quality of their work. Workers must also have a good understanding of their customers, that is, customer's needs, demand and desires. It is recognized that the purpose of all efforts is to make improvement and to serve the customers better (Nnedum, 2001). Appreciation of internal as well as external customer is fundamental for long-term organizational success (Deming, 1986). Maintaining close relationship with customers and regularly seeking feed back from them are core TQM practices (Morrow, 1997). The second factor-continuous improvement (four items) deals with workers commitment to continuous improvement; such as; "I am committed to continuous improvement in my work" (Morrow, 1997). Factor 3 has four items, which focus is on the concept that the organization has embraced the team concept (Morrow 1997). The essence of teamwork is the value, which is attached to collaboration for individual and organizational success (Nnedum, 2001). It appears that since Paulo Marrow constructed the total Quality management scale, the TQMS has been used worldwide. TQM practitioners in Nigeria are increasingly recognizing the significance of this model as well (Nnedum, 2001; Egwu and Nnedum, 2004). It is apparent that Total Quality Management Scale is one of the most well-developed and systematically used measures of TQM principles implementation in the organizational behaviour and cross-culture research literature (Nnedum, 2001). Clearly, the three-factor model represent discernible constructs that can be used for understanding culture specific behaviour (Nnedum, 2001; Egwu and Nnedum, 2004). Nevertheless, when the test is used outside the normative culture, it may be essential to examine its applicability, because TQM is both contextually and culturally defined (Nnedum, 2001; Egwu and Nnedum, 2004). In Nigeria and around West Africa, empirical studies on TQM are scarce. Thus, there appear to be a dearth of empirical study on the validity of the TQMS in Nigerian ethnico-linguistic cultures. Although the TQMS has often been used in recent studies (Nnedum, 2001; Egwu and Nnedum, 2004). Such studies seldom described translation procedures. It is plausible that inappropriate translation

may contaminate the data and contribute to spurious validity in the research findings. Furthermore, with a serious consideration of the “emic” and “etic” translation problems, it is necessary to investigate the construct validity of the TQMS in Nigerian culture. The major purpose of the present study was to further explore the construct validity of the TQMS (Morrow, 1997; Nnedum, 2001) in a sample of industrial workers in Nigeria. The following factors were predicted for the TQMS: Teamwork, customer orientation and continuous improvement. The present study also explores the structural validity of the scale—the structural loading of the TQMS in Nigerian data and compared with the American (Morrow, 1997) study data. It is expected, therefore, that a core measure of TQM would structurally converge to indicate common generic antecedents across cultures in accordance with equivalent in measurement theory (Schrieschein and Neider, 2001). Studies have confirmed the discriminant validity of the scale on contextual variables in Nigeria (Nnedum, 2001; Egwu and Nnedum, 2004).

Studies also indicate that TQM-driven private organizations performed better than TOM-driven public organizations (Nnedum, 2001). The literature has shown that contextual variable such as national culture can affect the perceived relevance of TQM implementation in an organization (Benson, Seraph & Schroeder, 1991; Nnedum, 2001; Egwu and Nnedum, 2004). It is plausible that contextual variables such as the national culture will affect the successful implementation of TQM. The study predicts mean differences in TQM scores of the Nigerian and the American samples. It is possible that change processes activities that require rapid response to variation in customer demand and changes in technology are somewhat more successful in high TQM centric cultures than in Low TQM driven culture because of the important role of culture and environmental factors in TQM implementation (Collard 1989, Idam, 2004). This study will add to the construct validity of the Nigerian version of the three-factor model. In addition, most of the studies on TQM

radiate from western industrialized societies. There is a dearth of psychological tests for assessing TQM implementation in Nigerian particular and Africa in general.

In geo-political entities where the test development had been slowed by lack of funds and commitment, borrowing, or adapting psychological test cross-culturally is the most common practice (Nnedum, 2001). This serves the practical purpose of providing usable assessment techniques within a short time frame. However, the exclusive reliance on western developed test has raised the question of their cross-cultural relevance (Nnedum, 2001; Egwu and Nnedum, 2004). Accordingly, this study pose some questions about the cross-cultural application of TQM Scale: Do TQMS represent a more fundamental aspect of human experience during change processes in the workplace across cultures? If the scale is multidimensional in the new populations as in the normative culture (Nnedum, 2001; Egwu and Nnedum 2004); does the results reveal university of TQM application in the Nigerian context? If the scale is internally consistent, (Egwu and Nnedum 2004); does the results prove the existing theory? The response to these questions, essentially go to the heart of the content and construct validity of the measure. The present study also seeks to explore these issues.

Furthermore, to demonstrate the measurement utility of the Nigerian version of TQM Scale several psychometric criteria need to be met. First, each item of the TQM Scale should represent the universal content of TQM principles. This will highlight the ability of a particular construct to operate in a consistent way across cultures. Second, each factor should be internally consistent. Third, the pattern of factor loadings of the subscales should be consistent with both their rational placement and factor loadings obtained in the original data.

Methodically, an exploratory factor analysis with oblique transformation of data to determine if the Nigerian version of TQM Scale reveal the three-factor structure will

be performed. If the indigenous factors that emerge are indeed comparable to those obtained in the original data, then a strong case for generalization can be made. This may identify the universal aspects of human experience and provide an opportunity for creating a cohesive understanding of the structure and process of psychological functioning (Kerlinger, 1986; schrieshein and Neider 2001). Also, a one-month test-retest reliability and Cronbach alpha measure of internal consistency will be performed. If their coefficient alpha is above 0.70 decision rule (Morrow, 1997), then the instrument is reliable.

Convergent validity of the instrument can be established between American TQM score and Nigerian TQM score line with TQM theory (Benson, Seraph, and Schroeder, 1991; Schrieshein and Neider, 2001). Overall, it is of particular interest to find evidence supporting the three-factor model in language that do not share a common experiential history with English. Therefore, if such culture would develop and apply constructs identical to western-based ones, then existing evidence of the unity of human organizational behaviour across culture should have been established. Thus, successfully translating the TQM Scale into Nigerian languages is not only theoretically significant but also creates a powerful tool for cross-cultural research on TQM.

METHOD

PARTICIPANTS

Data were collected from 320 full-time employees and executives drawn from randomly selected (16) sixteen (eight private (50%) and eight public (50%)) organizations that have implemented Total Quality Management Programme for at least two years. Sample distribution of participants indicates that 57.2% were from private sector; while 42.8% were from public sector. Of these, 25.1% were from chemical industries; 21.9% were from banking industries; 12.1% were from

confectionary firms; 64% were from innovation and development institutes; 8.0% were from Technological Research Centre; 8.0% were from service organizations while 18.5% were from the petroleum industry. Geographically, 45% (147) were from Jos; 18.75% (60) were from Abuja; 20.31% (65) were from Kano; 2.5% (08) were from Awka; 7.5% (24) were from Nnewi; and 5 % (16) were from Enugu all in Nigeria. Of these, 50% (160) were managerial executives, 50% (160) were labour employees, 53% were men, while 47% (152) were women; 54.06% (173) were from the private sector while 45.94% (147) were from the public sector. Their age ranges from 18 to 56 years with a mean age of 41.6 years.

MEASURES

The Total Quality Management Scale (Morrow, 1997) consisted of 15 change process characteristics that are teamwork, customer orientation, continuous improvement and a control variable termed TQM experience. Morrow (1997) reported a Cronbach alpha measure of internal consistency for the scale to include: teamwork 0.81; customer orientation 0.69; continuous improvement 0.74 and the TQM experience 0.83, respectively.

The Nigerian version of the TQM Scale was prepared through a careful translation process. First, six Nigerian bilingual researchers translated the original TQM Scale (2 native Igbo; 2 native Hausa and 2 native Yoruba speakers) separately. The researchers then compared their translations of the items and reached a consensus on each. The items translated into Igbo, Hausa and Yoruba languages were back translated into English by six bilingual professional (6 native English speakers) to ensure the accuracy of translation (Brislin, 1976; Zhou, Schriesheim and Beck, 2001). A review of the Nigerian version by 30 judges (15 men and 15 women) who included (5) civil servants, (5) university professors; (10) industrial workers; and (10) post graduate students; revealed a consensus between and among the experts about the

item variables identified as basic and suitable determinants of TQM orientation. A preliminary qualitative item analysis of the data carried out to determine the content validity of the test items, in addition to the ratings of the judges, necessitated some mild restructuring of the items. Consequently, some modifications were made on 3 items that workers had difficulty understanding. Thus, the original five-point response scheme was changed to a seven-point response framework anchored (1) “strongly disagree” to (7) “strongly agree” because Nigerian workers tend to culturally appreciate a more elastic continuum of response scheme than a less rigid frame work response (Egwu and Nnedum, 2004). However, in accordance with Morrow’s (1997) implementation of TQM study, the instruction in the present questionnaire read. “Below are sentences that suggest how people in this organization might feel. For each sentence, indicate the extent to which you agree or disagree by circling the appropriate number”.

PROCEDURE

We solicited cooperation from several TQM driven organizations in Jos, Kano, Abuja, Awka, Enugu and Nnewi cities of Nigeria. After we received their consent to participate in the study, we traveled to the various organizations and obtained the consent of the workers in each of the chosen organizations. In each of the randomly selected organizations, the questionnaires were administered individually to selected workers in their various departments or work units during break hours. Participants from Abuja and Nnewi were tested twice at 4 week interval.

RESULTS

The overall Cronbach alpha reliability of the Nigerian version of TQM Scale was 0.81, indicating the scale to be reliable in this sample. Table 1a below presents the four-week interval test-retest and alpha reliabilities separately by subscales, for the Nigerian version of the TQM Scale. These results are consistent with American data

(Morrow, 1997) as in table 1b. Results of the four-week test-retest correlation coefficients of TQM main scale were significantly high 0.85 at $P \leq 0.00$. In addition, results of the test-retest for the sub-scale were teamwork 0.79; customer orientation 0.95; continuous improvement 0.85; and TQM experience 0.71, respectively.

TABLE IA

Test-retest, Cronbach alpha reliabilities, Standard Deviation, Mean and Inter Correlations of Nigerian TQM study variables.

Scale		4 week test-retest	Cronbach Alpha	SD	Mean	Inter Correlations			
						1	2	3	4
TQM Main Scale		0.85**	0.81	±0.97	5.59				
1	Teamwork	0.79**	0.74	±0.86	5.49				
2.	Customer orientation	0.95**	0.77	±0.88	5.81	0.75**			
3.	Continuous improvement	0.85**	0.83	±0.91	5.56	0.744**	0.65**		
4.	TQM Experience	0.71**	0.52	±0.44	4.31	0.29*	0.37*	0.41*	

* Indicates Correlation ≥ 0.05 are statically significant at $p \leq 0.01$ (2-tailed)

** Indicates Correlation ≥ 0.05 are statically significant at $p \leq 0.001$.

TABLE IB

Cronbach Alpha Reliabilities, Standard Deviation, Mean and Inter Correlation of American TQM Study (Morrow, 1997).

Scale		Cronbach Alpha	SD	Mean	Inter Correlations			
					1	2	3	4
1	TQM exposure	0.84	±0.92	2.51				
2.	Customer focus	0.69	±0.75	3.05	0.06*			
3.	Continuous improvement	0.74	±0.68	3.36	0.06*	0.45		
4.	Teamwork	0.81	±0.87	2.59	0.06*	0.49	0.57	

Correlation ≥ 0.06 are statistically significant at $p \leq 0.01$ (2-tailed)

Source: Morrow, (1997:3699) *The Measurement of TQM Principles and Work Related Outcomes.*

UNDERLYING STRUCTURE OF THE TQM-SCALE

To determine if the three factors could be recovered in this data set, an exploratory factor analysis with oblique transformation was conducted. Six factors emerged. Four factors have Eigen values greater than one. Of these, one factor have bipolar loadings greater or equal to ± 0.50 . Thus, only variables that loaded significantly on one dimension were considered (Morrow, 1997). The decision rule indicated that only three factors could be extracted. The summary of results of the three factors was presented in Table 2a below.

TABLE 2a**Factor Analysis of TQM principals items by factor Nigerian TQM study.**

Code	Nigerian TQM-Revised items by subscale loading	Varimax factor loadings			communality
		Factor 1	Factor 2	Factor3	
C ₁	Our customer meets with us regularly	<u>.60*</u>	.10	-.2	.64
C ₂	People in our work unit have a good understanding of who our customers are	<u>.59*</u>	.11	-.08	.61
C ₃	Our customer gives us feedback on the quality of our work	<u>.78*</u>	-.26	.03	.86
C ₄	People in our work unit maintain close contact with our customer	<u>.60*</u>	.13	-.15	.64
I ₁	People in our work unit understand the concept of continuous improve met	.09	<u>.69*</u>	.18	.73
I ₂	People in our work unit have accepted the goals of continuous improve met	.12	<u>.79*</u>	-.05	.76
I ₃	I am committed to continuous improvement in my work	-.23	<u>.61*</u>	.09	.66
I ₄	People in our work unit really believe we can improve our work continuously.	.01	<u>.77*</u>	-.04	.84
T ₁	Our organization uses teams to solve problems	.17	-.07	<u>.79*</u>	.84
T ₂	Our organization has embraced the team concept	.10	-.11	<u>.73*</u>	.80
T ₃	Many work problem are now being solved through meetings	.11	-.03	<u>.62*</u>	.68
T ₄	During team meetings, we make an effort to get all team member's opinion and ideas before making a decision.	.12	-.14	<u>.66*</u>	.70
	Eigen values	4.23	1.62	1.20	
	Percentage of variance	35.3	14	10	

$N = 320$; $P \leq .0001$; $C =$ Customer orientation; $I =$ Continuous improvement; $T =$ Teamwork.. $h^2 =$ the sum of square of the factor loadings of each item, that is, the proportion of the total variance that is common factor variance. The number with asterisks indicate pure high loading above ± 0.50

TABLE 2b

**Factor Analysis of TQM Principles Items by Factor for American TQM Study
(Morrow, 1997)**

Item	Factor 1: Teamwork	Factor 2: Customer	Factor 3: Continuous Improvement
1. Teams used to solve problems.	<u>0.72</u>	0.11	-0.00
2. Team concept embraced.	<u>0.72</u>	-0.00	0.11
3. Team meeting solving problems	0.85	0.01	-0.03
4. Team member input valued	<u>0.75</u>	0.08	0.04
5. Meet regularly with customers	0.09	<u>0.72</u>	-0.10
6. Co-workers understand customers			
7. Customers provide feedback	-0.04	<u>0.55</u>	0.26
8. Close contact with customers	0.06	<u>0.73</u>	-0.07
9. Unit understands continued improvements.	-0.02	<u>0.79</u>	0.06
10. Unit accepts commitment to continued improvement	0.26	0.02	<u>0.64</u>
11. Personal commixed to continued improvement.	0.30	-0.00	<u>0.65</u>
12. Boss believe in continued improvement	-0.19 0.18	0.09 -0.05	<u>0.69</u> <u>0.67</u>
Eigen value	4.69	1.24	<u>1.06</u>
Percentage of variance	39.0	10.4	<u>8.8</u>

*Factor loading of ± 0.35 or larger served to define factor and are underlined.

Order of item presentation is based on conceptual affiliation. Items were widely distributed throughout the survey.

Source: Morrow, (1997: 370) the Measurement of TQM Principles and Work Related Outcomes.

Factor analysis is a statistical techniques based upon examination of the clusters of items responses derived from their inter connections. Factors describe the sub-structure of items which tends to be answered in the same pattern. That is, items in each factor are highly Interco related.

As is evident from Table 2a, factor one has an Eigen value of 4.23, which explains 35.3 percent of the total variance. Similarly, factor two has Eigen value of 1.62, which explains 14 percent of the total variance. At the same time, factor 3 has Eigen value of 1.20, which explains 10 percent of the total variance also. However, factor four has bipolar loadings and was rejected in accordance with the decision rule (Morrow, 1997). Thus, the three factors categories were considered of primary importance in Nigerian study because they accounted for 59 percent of the total variance.

Originally, the items in the TQM Scale clustered under six factor loadings. Thus, the original 15 items were reduced to six categories. However, the remaining three categories which accounted for only forty-one (41) percent of the variance were ignored. As expected, item of the control measure: TQM experience has bipolar loading and were among the ignored categories. Finally, it was evident that all the 12 items with significantly high pure loadings clustered on the three TQM factors: customer orientation as factor 1; continuous improvement as factor 2; and teamwork as factor 3 respectively. Further explication indicate that the results of the factor analysis of the Nigerian Version of TQM scale showed that the communality (h_2) for the 12 items ranged from .61 to .88. Of the six factors that emerged three core criteria or factors with pure high loading confirmed that TQM Scale is a three-factor measure. The items and subscales for the scale are similar to their normative counter

parts. Interestingly, this pattern of loadings was also found to emerge in a sample of American employee (Morrow, 1997) as presented in Table 2b.

COMPARATIVE ANALYSIS OF NIGERIAN AND AMERICAN TQM DATA.

In general the emerging results strongly indicate the preliminary generalizability of scores obtained with TQM scale in Nigerian culture. Specifically, the response pattern for each TQM item measure in the Nigerian data were distributed from 1 to 7, with a theoretical midpoint of 4.0. Similarly, responses for each TQM item measure in the American data were also distributed from 1 to 5, thus capturing the full range of 1 to 5 response format having a theoretical midpoint of 3.0 (Morrow, 1997). It is plausible that Nigerian participants respond more favourably to an “elastic” or more “probable” response scheme than American sample. Conversely, American participants tend to respond more favourably to a “rigid” or less elastic response scheme (Morrow, 1997). In addition, the means for the three TQM subscales measures in Nigerian data as shown in table 1a, were clustered above the 4.00 theoretical midpoint with means ranging from 5.49 (team work) to 5.81 (customer orientation). Equally, the standard deviations were exceptionally large ranging from ± 0.86 (teamwork) to ± 0.91 (continuous improvement). Conversely, the means for the three TQM subscales measures in American data, as shown in table 1b, converged somewhat near the 3.00 theoretical midpoint with means ranging from 2.59 (teamwork) to 3.36 (continuous improvement); and the standard deviation were “neither exceptionally small nor large”, that is, from ± 0.68 to ± 0.87 (Morrow, 1997). One possible psychometrical implication of the findings is that in both samples none of the response scheme measures were structurally restricted in range, suggesting that the higher theoretical midpoint value for the Nigerian data in relation to the American data, were as expected, in accordance with the principles of Item Response

Theory (Kerlinger, 1986; Scandura, Williams and Hamilton, 2001). Methodologically, the test-retest reliability values of the Nigerian data for the three measures were quite high ranging from 0.79 (teamwork) to 0.95 (customer orientation). Also, the Cronbach alpha measures of internal consistency were significantly high in both samples, suggesting the scale items to be universally dependable and consistent in Nigerian culture. Furthermore, the intercorrelations of the three TQM measures were either “exceedingly high” or “statistically positive” and significant in the Nigerian data than in the normative American data (Morrow, 1997). The obvious high intercorrelations among the three measures indicated that the three TQM measures were significant and positively related to each other both in the Nigerian and the American data suggesting that measures for the three subscales are “psychometrically distinct’ but “mutually reinforcing’ and collectively sharing same antecedents (Morrow, 1997).

Furthermore, a comparative analysis of tables 2a and 2b indicates structural invariance in the factor loadings of the Nigerian and American data. One plausible implication of the latter findings is that workers attitude to TQM implementation in Nigerian is similar to that of their American counterpart. Suggesting similarity and universality in the workers experiences of TQM implementation strategies in the workplace across cultures. In essence, factor loadings of each item in the Nigerian data is statistically comparable with the loadings of the American data. Also, the factor structural matrix is categorically similar in both data samples. The obvious similarities in the findings of both data samples attempted to generalize cross cultural relevance of the TQM scale, since the factors that emerged in the Nigerian population are indeed statistically comparable to those obtained in the original normative data (Morrow, 2007). Thus, one consistent trend in this body of work is that there were no significant, structural or psychometrical variation on any of the subscales or TQM items measures between the Nigerian and the American data. However, tables 2a and 2b indicate that the ordinal spatial clustering of the factor

structures were slightly altered in the Nigerian population. That is, in Nigeria sample, factor 1 is customer orientation, factor 2 is continuous improvement and factor 3 is teamwork; whereas in the American sample, factor 1 is teamwork, factor 2 is customer focus and factor 3 is continuous improvement (Morrow, 1997). The data suggest that in Nigerian organization, employees are more concerned with their customer needs, desires, wants or interest more than anything else. This pattern of ordinal special clustering had been found in other countries (Dean and Bowen, 1994; Stahl, 1995; Fisher, 1992). It is plausible that the reversal in the ordinal position of the subscales item factor loadings reflected the paradigmatic change in the comparative perception of customer need from “customer focus” on excellent services (Morrow, 1997) in American to “customer centric” orientation (Nnedum, Ezeokana and Egwu, 2005) in Nigeria with regards to organizational customerization of products and services. Further comparisons of the mean values of the Nigerian data and American data on TQM implementation revealed statistically high TQM principles implementation in both cultures.

DISCUSSION

Overall, the pattern of results clearly indicate the empirical reliability and construct validity of the Nigerian version of the TQM Scale. The 4-week interval test-retest reliabilities of the factors and scale clearly confirm the stability of the TQM measure in Nigerian sample. It is plausible that Nigerian and American workers experience similar pro-active response to corporate innovative strategy and change management initiatives like TQM implementation. Cronbach alpha measure of internal consistency, mean, standard deviation values and factor loadings found in the Nigerian sample were consistent with the original values in American sample (Morrow 1997). This finding suggests that the TQM Scale is a stable measure of TQM orientation in Nigerian culture. It also reveals cultural universalism of TQM orientation across geo-political entities. Structurally, the Nigerian version can be

considered as same with the American version. It is apparent that a factor analytic construction of TQM Scale would lead to an identical composition like that composed by Morrow (1997) as the 3 items restructured and later excluded by decision rule were only control variable filler items.

In the present study, TQM Scale is appropriate without any serious modification for use in Nigeria. The results are consistent with the findings of the TQM validation studies in other countries (Morrow, 1997; Nnedum 2001; Dean and Bowen, 1994; Stahl, 1995; Fisher, 1992). Therefore, it can be argued that TQM Scale is a valid measure of Total Quality management in Nigerian culture. The results also provide strong support for Morrow's TQM's Scale. It is plausible that the findings of this study may be the result of the particular data set, therefore, further research is recommended to fully establish the cross-cultural universality of TQMS and to establish the network of association, in which the TQM Scale exists (Anastasi, 1998; Nnedum and Egwu, 2004).

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