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RESEARCH ARTICLE

Measuring university performance in Tanzania: A comparative analysis of market orientation scales

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Abstract: This study makes a comparison between a well- established tool for measuring market orientation (MKTOR) with a new tool especially designed for measuring university performance, *i.e.*, University MARKOR. Data were collected from 212 private and public universities across Tanzania and were an analyzed using AMOS 22. A response rate of 58.2% was achieved and considered adequate. The findings show that both scales demonstrated good model fit. Consistent with previous studies University MARKOR has demonstrated superior psychometric properties than MKTOR. Strong leadership is needed at universities in order to identify new sources of funding and reduce their dependence on traditional sources such as school fees, subventions and grants. A major contribution of this study is that it is the first ever study in Africa which is pan territorial involving both private and public universities that has tested the robustness of market orientation scales.

Keywords: market orientation, MKTOR, University MARKOR, Tanzania

1 Introduction

In the last few decades, Tanzania has witnessed a mushrooming of high learning institutions thereby increasing competition in tertiary education space. The problem is further exacerbated by China's aggressive policy of attracting foreign students especially in live sciences and the same by India in IT programs. In the aftermath of COVID 19, many private universities (used interchangeably with high learning institutions) will face serious reduction in grants from well-wishers while public universities will experience the same in subventions as resources will be channeled to more pressing problems in the economy.

These developments coupled with an increased number of graduates failing to secure gainful employment have put universities under pressure to deliver programs which are relevant to the local communities on one hand and meet international standards on the other. Unless action is taken by university administrations, this trend is poised to continue and may lead to many universities into financial difficulties as subventions, donations and tuition income will continue to dwindle.

One such action is for universities, both public and private, to realign their missions with best business practices. Universities should ask themselves a fundamental question of their very existence, *i.e.*, what are the needs of their students? This question is best answered by universities being market oriented. Undoubtedly, the impact that market orientation (MO) has on performance is widely acknowledged. Paradoxically, there is a dearth in the literature on Tanzania studies that have examined the relationship between MO and performance in high learning institutions much as embracing MO may address the challenges universities face today. But to be a market oriented university requires testing oneself against widely acceptable tool for measuring MO.

Against this background, the objectives of this study are as follows:

(1) To explore underlying structure of MO scales in universities in Tanzania.

(2) To validate psychometric properties of MO construct in terms of its reliability, convergent and discriminant validity.

(3) To test which of the known MO scales is the best determinant of UP.

In order to meet these objectives, the study sought address three specific questions. These are:

(1) What are the underlying structure of MO scales?

(2) Does the structure of MO scale has sound psychometric properties in terms of reliability, convergent and discriminant validity? If so, which of the two measures has superior psychometric properties than the other?

(3) Is University MARKOR a better predictor of market orientation than MKTOR?

This study makes an important contribution to the literature because to the best of our knowledge, this is the first ever study in Africa to make a comparative analysis between a famous MO scale (MKTOR) and University MARKOR. Furthermore, this is the only known study that has tested the potency of University MARKOR in a pan territorial setting, collecting data from many universities of different sizes and types of ownership.

2 Literature

2.1 Market orientation

In its simplest form, MO is a business philosophy that calls for understanding and fulfilling customer needs at a profit. Studies on MO have covered different settings and across different cultures (Cano et al., 2004; Ellis, 2006; Gupta et al., 2019; Kirca et al., 2005). Despite its wide recognition, in educational setting, Khalifa (2010) is opposed to applying commercial principles in high learning institutions because of fundamental differences in the main objectives of business and education. Whilst the former are established with the sole purpose of maximizing shareholders' value, universities have a social mission which is premised on creating rather than appropriating value for the common good. In the words of Svensson and Wood (2007) in higher learning institutions, the "financial" imperative should not be allowed to rival "academic imperative". If this happens, the use of business language such as "customer is a King" will start to creep into the academia where, as Kings, students will be the drivers of programs and curriculum thereby compromising rigor and standards (Khalifa, 2010).

Four models of MO have been developed and tested in different jurisdictions. These are: MKTOR (Narver & Slater, 1990), MARKOR (Kohli et al., 1993), MORTN (Deshpande and Farley, 1998) and University MARKOR (Niculescu et al., 2003). The first two are widely acknowledged in the literature while the third has not gained much fame although it has been tested in 10 countries and 17 different cities in Japan, USA, Europe and Asia (Deshpande & Farley, 2004). The last is a newly developed scale but is context specific for measuring university performance (UP). However, very little work has been done to test the robustness of University MARKOR against MKTOR and MARKOR outside USA. The current study aims at filling this lacuna by validating which of the two scales (University MARKOR and MKTOR) has superior psychometric properties and can best estimate UP.

For the purposes of this study, we will focus on MKTOR and University MARKOR scales because have more robust psychometric properties (Niculescu et al., 2016; Cano et al., 2004; Makoena, 2019a) are more dynamic (Mavondo & Farrell, 2000) and have been tested across different cultures (Gupta et al., 2003; Ellis, 2006). MKTOR scale seeks to create a superior value to customers (Narver & Slater, 1990) by identifying and satisfying their evolving needs (customer orientation), through continuous assessment of strengths and weaknesses of competitors in the entire value chain (competitor orientation) and by working in unison (inter-functional coordination). MKTOR scale inculcate an organization culture that puts customers as the focal point of all organizational activities.

On the other hand, the choice of University MARKOR was largely influenced by being the only scale so far that has been especially designed to measure MO of universities (Niculescu et al., 2016; Hampton, 2007; Khuwaja et al., 2019). The scale was also found to have superior psychometric properties (Cronbach alpha 0.90, AVE $>$0.50 and CR $>$0.80) compared to MARKOR (Khuwaja et al., 2019; Niculescu et al., 2016). Also leadership was found to be the most important aspect of the scale. In their own words, (Niculescu et al., 2016, p. 79) stated:

"The authors have uncovered evidence that popular scales in the business-to-business sector, such as the MARKOR (Kohli & Jaworski, 1990) and MKTOR (Narver & Slater, 1990) scales – are not appropriate for the assessment of MO in universities. The authors contrast the two established scales against a recently generated scale specifically developed for higher education (Hampton, 2007; University MARKOR). In turn, the results of this comparison suggest that a University-specific scale may be more useful in higher education settings, as it was found to outperform established scales in predicting UP, while exhibiting superior psychometric properties (emphasis)."

University MARKOR is a more behavioural scale that focuses on leadership, intelligence gathering and responding to it. The scale is student centered whose main thrust is at the level where MO is best demonstrated, *i.e.*, the teachers. The measure is multidimensional having three properties namely, administration leadership, advising & mentoring and intelligence generation & responsiveness.

Whether measured by MKTOR or University MARKOR, a typical market-oriented university is the one that identifies the needs of students through meetings with them and their parents during open days or visits to high schools to gather intelligence. This information, together with analysis of the general societal needs and analysis of competitors' strengths and weaknesses in

areas such as fees, access to financial aid, quality of programs, quality of staff, ranking/reputation and location (Shah et al., 2013), is then disseminated within the university for appropriate action.

2.2 Performance

Company performance is the degree to which objectives of an enterprise are met in financial or in market (non-financial) terms. Financial measures can be profitability, return on assets, return on investments or earning per share. In contrast, market performance is an intangible measure typified by customer satisfaction, customer value, customer retention and matching competitors' activities (Ross et al., 2013). Market performance is best operationalized through perceptual (subjective) measures. This can be in form of self-assessment against some defined objectives either in absolute terms or relative to competitors or expectations. Subjective measures are popular (Dawes, 1999; Ketokivi & Schroeder, 2004; Singh et al., 2016; Niculescu et al., 2016; Harris, 2001; Harrison-Walker, 2001) because of the difficulty in obtaining accurate financial data from private equities. Subjective measures are also preferred because of their strong correlation (Dess & Robinson, 1984) and strong degree of convergence (Venkatraman & Ramanujam, 1987) with objective measures. However, subjective measures are vulnerable to common source bias (Meier & O'Toole, 2013; Podsakoff et al., 2003) and may not be suitable for comparison purposes in studies across different countries where accounting and reporting standards are different (Singh et al., 2016).

2.3 Market orientation and performance of universities

The literature is rich on studies that have linked UP and the degree of MO (Muya & Tundui, 2020; Mokoena, 2019b; Sefnedi, 2017; Mokoena & Dhurup, 2017; Mokoena et al., 2015; Niculescu et al., 2016; Zebal & Goodwill, 2012; Ma & Todorovic, 2011; Hemsley-Brown & Oplatka, 2010) and the evidence of a positive relationship between them is overwhelming (Hidayati, 2020; Mokoena, 2019b; Sefnedi, 2017; Mokoena & Dhurup, 2017; Chaudhry et al., 2016; Baber & Upadhyay, 2015; Mokoena et al., 2015; Niculescu et al., 2016; Ross et al., 2013; Zebal & Goodwill, 2012; Ma & Todorovic, 2011; Hemsley-Brown & Oplatka, 2010; Hampton, 2007; Caruana et al., 1998a; 1998b). Despite this unanimity, most studies have limitations such as not being pan territorial (Sefnedi, 2017) covered only specialized universities (Mokoena, 2019a; Mokoena & Dhurup, 2017; Mokoena et al., 2015) used respondents from a single university (Niculescu et al., 2016) hence making generalization difficult. Although a study by Khuwaja et al., (2019) involved more than one university but it focused on one country (Pakistan) and did not make a direct comparison between different MO scales known in the literature. Hence to suggest . . .

". . . the authors of this study confidently recommend UNIVERSITY-MARKOR scale as the more generalizable, authentic, and context-specific tool to measure MO in the both private or public higher education institutions irrespective of the country to be contextually developing or developed . . . is, in our view, too strong a claim."

In Tanzania, the only known study that has linked MO and UP is Muya and Tundui (2020). However, this too had a limitation because it relied on a single measure of performance, namely student retention. Under the circumstances, our hypotheses are based on studies conducted by (Niculescu et al., 2016) and Khuwaja et al., (2019). Against the above background, this study sought to test the following hypotheses:

H1 Market orientation is a multi-dimensional construct with three interrelated sub-dimensions.

H2 University MARKOR has superior psychometric properties than MKTOR in terms of reliability, convergent and discriminant validity.

H3 University MARKOR is a better measure of UP compared to MKTOR and leadership is the most important aspect of the scale.

3 Methodology

3.1 Population and sampling

The population for this study is 6,238 teachers from 50 public and private universities in Tanzania as shown in Table 1:

Table 1 Academic staff in Tanzania universities

University	Male	Female	Total
Public	2,817	991	3,808
Private	1,679	751	2,430
Total	4,496	1,742	6,238

Source: Tanzania Commission for Universities (2020)

Data were collected from 212 members of academic staff where a sample size of 364 was drawn based on the table by Krejcie and Morgan (1970). Questionnaires were mailed as google forms directly to email accounts of respondents because they are better and efficient data collecting instruments (Loomis & Paterson, 2018; Fortson, et al., 2006; Ma & Todorovic 2011; Ross et al., 2013; Vallen et al., 2009). A response rate of 58.2% was achieved and was acceptable (Swoboda et al., 1997; Oreskovick et al., 2012) especially for surveys that are distributed by unknown senders (Willott, 2019).

3.2 Measures

Market orientation was measured by MKTOR and University MARKOR which were adapted from (Narver & Slater, 1990) and (Niculescu et al., 2016) respectively. Measures of UP were adapted from Ross et al., (2013). However, all questions were contextualized by deleting the word "international". Presented in Table 2 is a summary of variable definitions and their sources:

Table 2 Variables, definition and source

Variable Type	Variable	Definition	Source
Dependent Variable	Performance (Satisfy, Growth, Retain)	Students' recruitment, retention and growth	Ross *et al*., 2013, p. 40
MKTOR Independent Variables	Customer orientation	Student/Customer orientation, *i.e.*, Identifying Students' needs and expectations	Niculescu et al., 2016, p. 84
	Competitor orientation	The extent to which the faculty monitors and respond to competition	Niculescu et al., 2016, p. 84
	Inter-functional coordination	Collection and dissemination of information on students' needs and expectations	Niculescu et al., 2016, p. 84
UNIVERSITY MARKOR Independent variables	Advising and Mentoring	The extent to which the faculty assist students to achieve their educational objectives	Niculescu et al., 2016, p. 86
	Administration Leadership	Efforts made by the faculty serve students	Niculescu et al., 2016, p. 86
	Intelligence Generation and Responsiveness	Continuous collection of information about student needs and responding to them	Niculescu et al., 2016, p. 86

Source: Literature review

The research instrument had 48 items divided into three parts: demographic data (9 items); UP (6 items); University MARKOR (15 items) and MKTOR (18 items). Apart from demographic variables, all items were measured by a 5 points Likert scale ranging from "Strongly Agree" to "Strongly Disagree". Common method bias was mitigated by ordering the questions starting with dependent followed by independent variables (Modi & Sahi, 2018; Podsakoff et al., 2003). Harman's single factor test (Podsakoff et al., 2003) showed explained variance was less than 50%, implying the data were free from common method bias.

4 Findings

Our analysis was divided into three steps. These are: (a) to explore underlying structure of MO scales in universities in Tanzania (b) to validate psychometric properties of MO construct in terms of its reliability, convergent and discriminant validity and (c) to test which of the known MO scales is the best determinant of UP.

4.1 Demographics

In Table 3, we present respondents' profiles with respect to gender, age, level of education, teaching experience, ownership and age of the faculty, size of the university measured by the number of students.

The profile shows majority of respondents (68.4%) are young falling in 25-45 age bracket, most of whom (70.3%) are males and 113 (53.3%) have PhDs followed by 85 (40.1%) with Master degree and 14 (6.6%) Bachelor degree. Among the academic staffs, 80 are junior members including Tutorial Assistants and Assistant Lecturers, 117 of them are senior members mostly Senior Lecturers, and Head of Departments. At Management level, 15 respondents are Professors some of whom are Deans and Directors. As for working experience, 87 (41%) had less than 10 years, 98 (46.2%) had between 10 and 20 years and 27 (12.7%) had more than 20 years of experience. In summary, majority of respondents are young, very well educated and relatively senior members of staff with considerable teaching experience. The profile is exciting because it points to dynamic and vibrant leadership which is badly needed in most universities in the continent.

4.2 Exploratory factor analysis

Separate EFA on dependent and independent variables were carried out to determine underlying relationships between measures of the same construct. EFA for MKTOR and University

Table 3 Profile of respondents (n = 212)

Variable	No.	Percentage
Position		
Junior Staff	80	37.70%
Senior Staff/Head of Dept.	117	55.20%
Professors/Deans/Directors	15	7.10%
Gender		
Male	149	70.30%
Female	63	29.70%
Age		
Below 25 years	1	0.50%
25-45 years	145	68.40%
Above 45 years	66	31.10%
Qualifications		
PhD	113	53.30%
Master degree	85	40.10%
Bachelor degree	14	6.60%
Experience		
Less 10 years	87	41.10%
10-20 years	98	46.20%
More than 20 years	27	12.70%
Ownership		
Public universities	153	72.20%
Private universities	59	27.80%
Size		
Less 5,000 students	72	34%
5,000-10,000 students	50	23%
More than 10,000 students	90	42%

MARKOR resulted into different MO structures for the two scales. The results in Table 4 suggests a two-factor solution (MKTOR scale, based on eigenvalues greater than 1) where IFC1 (coordinating use of resources with other departments) and IFC2 (success and failures of recruitment of students communicated to other departments) are loaded in Factor 1 (competitor orientation). In essence, IFC1 and IFC2 are in a way, related to analysis of competitors strengths and weaknesses, hence loading in Factor 1 is no surprise. On the other hand, IFC3 (responsiveness in serving students) and IFC4 (understanding university contribution to creating value for students) loaded in Factor 2 namely, customer orientation. These results are obvious. Serving customers promptly (IFC3) and creating value for money (IFC4) are part of customer orientation.

Table 4 Exploratory factor analysis (MKTOR)

Variable	Factor 1	Factor 2
CUS1	0.174	0.737
CUS2	0.377	0.762
CUS3	0.297	0.780
CUS4	0.287	0.775
CUS5	0.418	0.703
CUS6	0.443	0.689
CUS7	0.736	0.421
COM1	0.753	0.410
COM2	0.722	0.340
COM3	0.802	0.324
COM4	0.770	0.246
COM5	0.675	0.353
COM6	0.727	0.356
IFC1	0.730	0.268
IFC2	0.765	0.273
IFC3	0.317	0.643
IFC4	0.399	0.603

Notes: Extraction Method: Principal Component Analysis; Rotation Method: Varimax with Kaiser Normalization; A Rotation converged in 3 iterations; KMO 0.949; Variance explained 64.95%.

Furthermore, CUS7 (giving attention to servicing students after enrollment) did not load in customer orientation as expected and instead, it loaded in Factor 1 (competitor orientation). This came as a surprise. But it can be argued that an analysis of after sale services (CUS7) is an aspect of competitor strengths and weaknesses. Since the migration of indicators from inter-functional coordination to customer and competitor orientation was logical, original factor labels were maintained as customer orientation and competitor orientation. After these adjustments, inter

functional coordination (IFC) was eliminated as seen in Table 4. This finding differs from past studies that have used a similar MO scale (Mokoena, 2019a; Mokoena & Dhurup, 2017; Mokoena et al., 2015) but is consistent with Ma and Todorovic (2011).

In contrast, University MARKOR maintained its three dimensions as predicted and its internal structure did not change as seen in Table 5. The variables were named as: (a) advising & mentoring, (b) administration & leadership, and (c) intelligence gathering & responsiveness.

Table 5 Exploratory Factor Analysis (University MARKOR)

Variable	Factor 1	Factor 2	Factor 3
AM1	0.100	0.190	0.752
AM2	0.022	0.180	0.764
AM3	0.012	-0.063	0.558
AM4	0.177	0.162	0.745
AM5	-0.303	0.301	0.598
AM6	0.176	0.078	0.706
ADL1	0.110	0.693	0.082
ADL2	0.483	0.586	0.047
ADL3	0.375	0.714	0.118
ADL4	0.103	0.796	0.190
ADL5	0.305	0.723	0.220
ADL6	0.492	0.610	0.140
IG1	0.773	0.294	0.126
IG2	0.859	0.215	-0.001
IG3	0.851	0.185	-0.016
IG4	0.735	0.235	0.188

Notes: Extraction Method: Principal Component Analysis; Rotation Method: Varimax with Kaiser Normalization; Rotation converged in 5 iterations; KMO 0.876; variance explained 61.4%; AM: Advise and Mentoring; ADL: Administration and Leadership; IG: Intelligent Gathering and Responsiveness.

Three factors emerged from the results of EFA on dependent variable (KMO .745, variance explained 79.5%) These were named as: (a) retain, (b) satisfy and (c) grow.

4.3 Measurement models

The second step was to validate psychometric properties of MO construct in terms of its reliability, convergent and discriminant validity. The measures passed *content validity* test because they were adapted from previous studies (see Table 2) with proven psychometric properties. In addition, a pilot study was carried out by asking 10 members of academic staff at the Muslim University of Morogoro to evaluate the research instrument and check for any ambiguities. *Reliability* tests were made to determine internal consistency of the measures. Since the measurement model is reflective, there was no need for multicollinearity check because the indicators are assumed to be highly correlated (Sekaran & Bougie, 2016). We examined the internal reliability (measured by Cronbach alpha) which indicate the extent to which the measuring items (indicators) are holding together in measuring a particular construct (Novick & Lewis, 1967; Nunnally 1978). We also examined indicator reliability by examining the underlying relationship between latent variables and their respective indicators. We computed *indicator reliability index* by squaring regression weights for each latent variable to its respective indicator. The decision rule is that the index should be greater than 0.4. The results show all indicators (except one indicator in MKTOR scale and two in University MARKOR scale) have surpassed the threshold. Those that have failed have fell short by a fraction. We also examined composite reliability which indicates the reliability and internal consistency of latent construct. It is evident from Table 6 that both scales have very good psychometric properties, have attained a high degree of *reliability* and *convergent validity*. In both scales, Cronbach alphas were above 0.75 (threshold 0.7, Nunnally, 1978) and composite reliability coefficients were greater than .80 (threshold 0.7, Hair et al., 2014). *Convergent validity* was achieved where in both scales AVE (Average Variance Extracted) is above the threshold of 0.5 (Hair et al., 2014).

Whilst MKTOR scale failed discriminant validity test because the discriminant value for customer, *i.e.*, the square root of AVE was less than the correlation between customer and competition (Fornell & Larcker, 1981), University MARKOR has achieved discriminant validity by a whisker as shown in Table 7 and 8. Two alternative ways of testing discriminant validity were tried. First, we compared Cronbach alpha against correlation coefficients of latent variables (Zebal & Goodwin, 2012; Gaski, 1986). Second, we tried to use factor loadings to compare against correlation coefficients of latent variables (Sin, et al., 2002; Sin et al., 2005). In both alternatives, MKTOR failed discriminant validity test.

Table 6 Results of measurement models

Model	MKTOR	University MARKOR
Reliability		
Cronbach alpha (> 0.7)	0.913 – 0.936	0.798 – 0.880
Composite Reliability (> 0.6)	0.914 – 0.937	0.802 – 0.882
Convergent validity		
AVE (> 0.5)	0.572 – 0.622	0.509 – 0.652
Discriminant Validity		
Square root of AVE>correlations	failed	passed

Notes: Coefficients in brackets are thresholds for corresponding measures.

Table 7 Discriminant validity test (MKTOR)

	CUSTOM	COMPETE	RETAIN	SATISFY	GROWTH
CUSTOM	0.756	0.821	0.317	0.577	0.576
COMPETE		0.789	0.253	0.385	0.482
RETAIN			0.755	0.56	0.632
SATISFY				0.728	0.666
GROWTH					0.756

Table 8 Discriminant validity test (University MARKOR)

	MENTOR	LEAD	INTEL	RETAIN	SATISFY	GROWTH
MENTOR	0.713	0.461	0.303	0.063	0.329	0.387
LEAD		0.717	0.717	0.183	0.545	0.371
INTEL			0.807	0.272	0.470	0.426
RETAIN				0.749	0.620	0.630
SATISFY					0.705	0.698
GROWTH						0.756

The numbers in diagonal are square root of AVE, *i.e.*, the discriminant value. The rest are correlation coefficients between latent variables, all significant at p value 0.000

Corresponding final measurement models are presented in Figure 1 and 2:

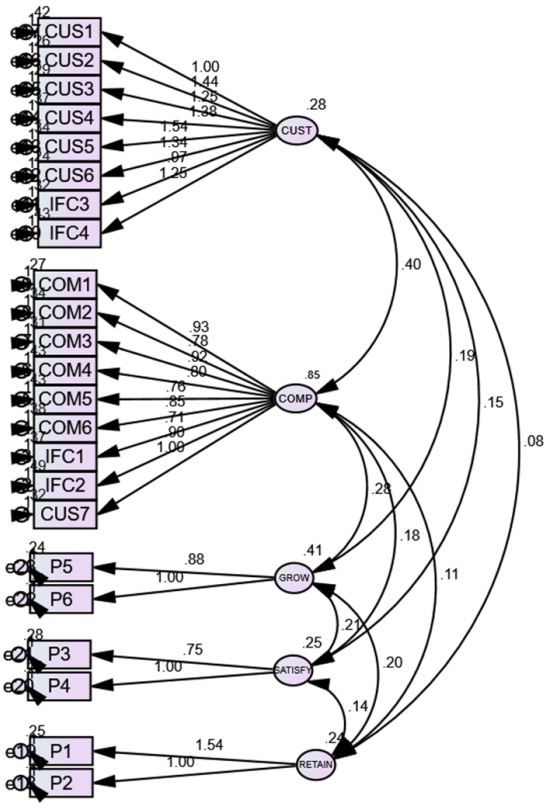

Figure 1 Final measurement model (MKTOR)

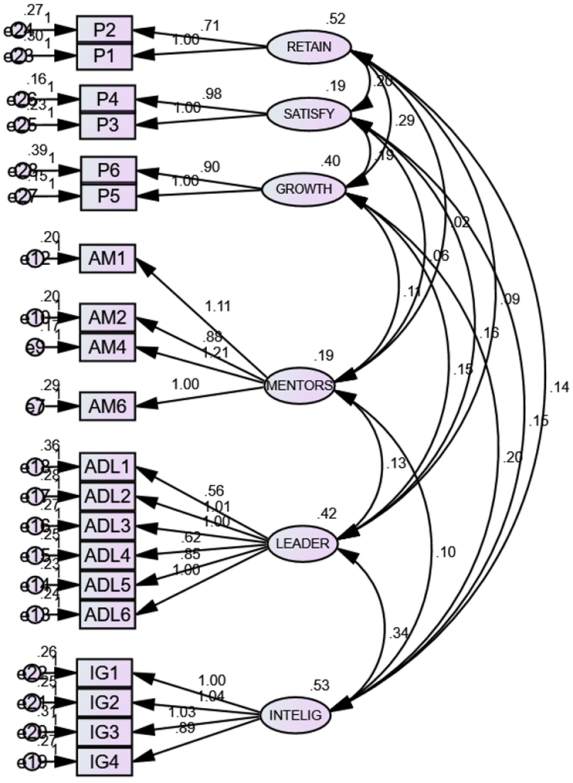

Figure 2 Final measurement model (University MARKOR)

Final measurement model fit indices are presented in Table 9:

Table 9 Final measurement model fit

	MKTOR	University MARKOR
RMR (< 0.08)	0.036	0.032
GFI (> 0.9)	0.992	0.982
AGFI (> 0.9)	0.990	0.975
NFI (> 0.9)	0.991	0.973
RFI (close to 1)	0.989	0.967
PNFI (> 0.5)	0.861	0.794

Notes: Coefficients in brackets are thresholds for corresponding measures.

4.4 Structure models

In the third and the last step, we wanted to know which of the two MO scales is the best determinant of UP. This exercise was preceded by a confirmatory factor analysis where latent variables of MO and UP were collapsed into a composite measure of MO and UP respectively. The results show both measures are strongly linked to performance (MKTOR, β 0.592, p value 0.000) and (University MARKOR, β 0.556, p value 0.000).

Diagrammatically, these are presented in Figure 3 and 4:

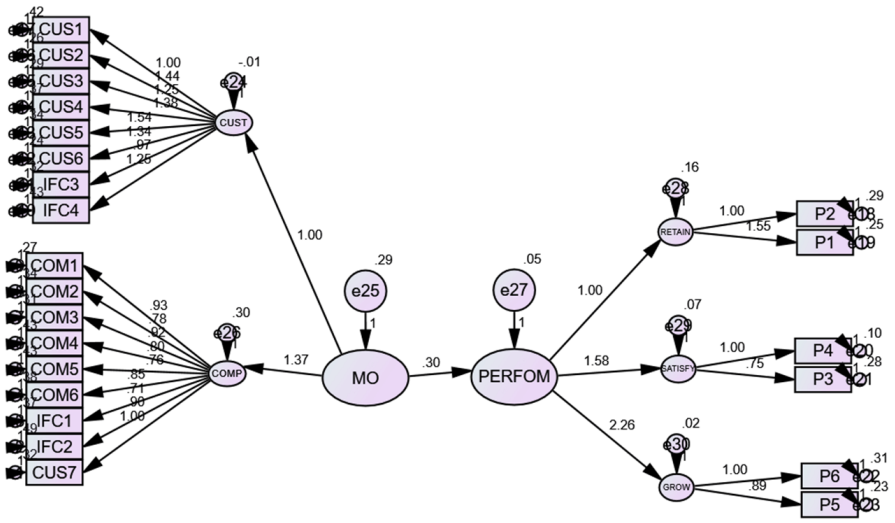

Figure 3 Structure model (MKTOR)

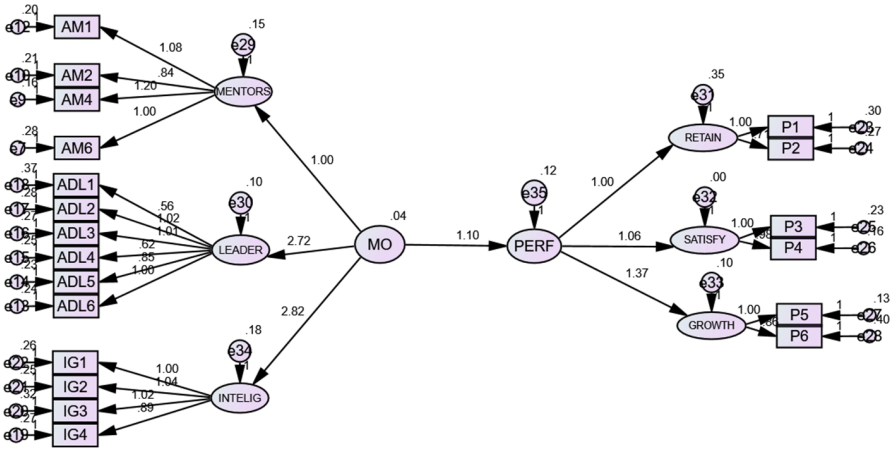

Figure 4 Structure model (University MARKOR)

4.5 Model fit

Since our data are not normally distributed, we employed unweighted least squares method because it is more precise for parameter estimation and can meet the minimum number of

iterations (Mîndrilã, 2010). Following Hair et. al., (2014), in the current study, RMR, GFI, AGFI, NFI, RFI and PNFI were used to check the model fit. Second order SEM resulted into the following (Table 10) comparative model fit indices:

Table 10 Results of structure models

	MKTOR	University MARKOR
RMR (< 0.08)	0.037	0.037
GFI (> 0.9)	0.992	0.975
AGFI (> 0.9)	0.99	0.968
NFI (> 0.9)	0.99	0.964
RFI (close to 1)	0.989	0.958
PNFI (> 0.5)	0.877	0.827

Notes: Coefficients in brackets are thresholds for corresponding measures.

Since our sample is less 250 and unobserved variables are 30, these results have attained an acceptable level of model fitness (Hair et. al., 2014).

4.6 Testing of hypotheses

In testing H1, the results (Table 4 and 5) show that in both scales, MO is a multi-dimension construct although in the case of MKTOR, the results are inconsistent with all previous studies (Mokoena 2019a; Mokoena & Dhurup, 2017; Mokoena et al., 2015; Sefnedi, 2017; Ross et al., 2013). University MARKOR has three variables as expected and the results are consistent with all previous studies (Niculescu et al., 2016; Khuwaja et al., 2019). On the basis of these findings, *H1* is supported as predicted. As for *H2*, Table 6 show that both measures have sound psychometric properties in terms of reliability and construct validity where all coefficients were well above the thresholds. However, since MKTOR failed discriminant validity test (Table 7), University MARKOR is adjudged to have superior psychometric properties than MKTOR. Hence, *H2* is supported. On the last hypothesis, we compared the standardized total effects between MO and UP for both scales. The results show MKTOR β 0.592, p value 0.000) and University MARKOR (β 0.556, p value 0.000) are both correlated with UP. Psychometric properties of both scales are very close in many respects. In the model fit (Table 10), RMR values are exactly the same but MKTOR seem to have stronger properties than University MARKOR and even its relationship with UP seem to be much stronger than University MARKOR. However, since MKTOR failed discriminant validity test, University MARKOR is superior to MKTOR. *H3* is therefore supported. Significantly, the results show that leadership is the most important aspect of University MARKOR (β 0.878, p value 0.000) as was with Niculescu et al., (2016). In addition, the findings show intelligence gathering is the second most important element in the scale (β 0.810, p value 0.000).

5 Discussion and conclusion

There is paucity in the literature on studies that have examined the potency of University MARKOR as a measure of MO in determining UP. Apart from a couple of studies (Hampton, 2007; Niculescu et al., 2016), to the best of our knowledge, studies that have tested suitability of University MARKOR against other known measures of MO outside USA are nonexistent. Consistent with previous studies (Niculescu et al., 2016; Khuwaja et al., 2019), the results show that both scales have sound psychometric properties and as expected, University MARKOR was found to be a better determined of UP.

Looking at the structure of University MARKOR, two implications can be alluded. First, universities should recruit strong faculty members (administration leadership) who will provide the required leadership that will steer the institutions to the next level. A strong faculty (qualifications and experience) will help universities to strike a good balance between internationalization (getting international recognition through joint research and exchange programs, international accreditation with renown bodies, offering co-current qualifications with reputable universities) and contextualization of program of studies to address local challenges. Furthermore, strong faculty will help universities to address their financial needs through commercialization (consultancy services, executive development programs, partnership with employers, staying close to Alumni) and commoditization (patents, start-ups, licenses, incubators) of knowledge (Jacob et al., 2003). In order to nurture this culture, universities should consider groundbreaking innovations as part of academic staff evaluation. The need for having a strong faculty (leadership) is mirrored by the results of this study where respondents are academically very strong, have long teaching experience and are relatively matured. All these are qualities of strong leadership which is badly needed to drive performance in high learning institutions as demonstrated in this study.

The second implication is the need to gather and swiftly respond to intelligence about competition and the needs of the communities surrounding universities. The findings have shown how this is strongly linked with performance. But the larger and perhaps most important question is: what intelligence should universities gather and how should it be used. In view of stiff competition in educational space, intelligence gathering should not only focus on what universities know, but rather on what they are capable of doing. With the advent of *Industry 4.0*, artificial intelligence (AI), Environment, Social and Governance concerns (ESG), most jobs and the relations at work places will drastically change. Future organisations (as university clients) will be less hierarchical, staff will work more as teams, employees' relations will be more pronounced, people will be more health conscious and care more for the environment. Universities, being a place of highest concentration of finest brains in any country, need to develop programs that will keep tabs with these developments and focus more on future occupations and flexible working environment. This is a truly definition of market oriented university which is characterized by strong leadership and responding to intelligence about the operating environment.

This study makes a significant contribution in the literature by testing for the first time in Tanzania and indeed in Africa, a tool which can now be used to improve performance of universities. Good performance will in turn attract funds to reduce dependency by universities on traditional sources. This is important because post-COVID 19, universities will continue to face serious challenges in mobilizing resources through school fees and donations/subventions.

6 Limitations

Like all other studies, the current study has its own limitations. The study did not take into consideration influences of mediating variables. In a complex environment, performance of universities is influenced by many factors including, but not limited to, university national and world-wide ranking, funding, and research capabilities. Another limitation is the cross-sectional nature of the study as it focused on the relationship between the constructs at one point in time. A longitudinal study would help to explain if the observed relationships are true over a period of time. These two are areas which future studies could be directed.

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Conflict of interest

The authors declare no conflict of interest in the authorship and publication of this study.

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