A COMPARATIVE ANALYSIS OF MARKOR AND MKTOR SCALES OF MARKET ORIENTATION ON UNIVERSITY PERFORMANCE AMONG UNIVERSITIES OF TECHNOLOGY IN SOUTH AFRICA.

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-Abstract-

In recent years organisational performance has become one of the most important aspects, both in profit and non-profit sectors. Higher Education institutions (HEIs) are not an exception to this notion although they are faced with a myriad of market-oriented challenges that militate against their performance. The purpose of the study is to conduct a comparative content and empirical analysis on market orientation scales in performance of Universities of Technology (UoTs) in South Africa. This study is premised within a post-positivism cross-sectional quantitative research design and adopted a non-probability convenience sampling method out of a total of 1250 questionnaires that were conveniently distributed among the six participating UoTs in South Africa, only 507 were usable for analysis. The content analysis was undertaken through a literature review while the statistical analysis of the collected data included descriptive statistics, correlations, exploratory and confirmatory factor analysis, structural equation model and multiple regression analysis. In addition, reliability and validity of the scales were performed. The MKTOR scale yielded customer orientation, inter-functional coordination and competitor orientation as predictors while the MARKOR scale identified market intelligence generation, dissemination and responsiveness as predictors of university performance. The results of the study indicate that there are significant similarities between both scales. In addition, these results support theoretical arguments that universities can be successful in

terms of their performance by initiating and adopting market-oriented activities. The study also found a significant impact of market orientation on university performance as consistent with previous market orientation studies undertaken in other contexts. The study has succeeded in affirming that market orientation positively and significantly influences university performance. Management in different HEIs need to rethink their policy framework and strategy to become market-oriented and enhance performance of their institutions. Furthermore, recommendations, limitations and future research opportunities are also identified.

Keywords: (maximum 5 words): Market orientation, MKTOR, MARKOR and university performance.

JEL: Classification: M30, M31, M39, M12,M54

1. INTRODUCTION AND BACKGROUND TO THE STUDY

There is growing evidence globally that in recent years organisational performance has become one of the most important aspects, both in profit and non-profit sectors (Gross, 2015). A central idea in the marketing literature is the proposition that any firm that is able to raise its level of market orientation will improve its performance in the market place (Narver and Slater,1990).In comparison with other services, HE sector has been slow to adopt a marketing concept to guide its business activities (Maringe,2004). With regard to this context, it must be pointed out that HEIs has not been the subject of an in-depth research, and moreover the limited findings are also not inconclusive. It is therefore envisaged that this research into the university performance will improve the understanding of this concept within the somewhat under researched context of services.

The long-term survival of a HEI within an increasingly competitive environment depends on its capacity to efficiently and effectively meet its stakeholders' demands. To this end, Deshpande & Farley, (1999) advocate that top management should effectively identify metrics linked to business performance in order to improve their effectiveness. Market orientation is one such metric that has emerged

as a significant predictor of performance and is presumed to contribute to long-term success. Invariably, the construct of market orientation is central to the discipline of marketing with the notion that it will improve their market performance (Farrel & Oczkowowski, 1997). Likewise, market orientation has emerged as a significant antecedent of performance and is presumed to contribute to long-term success (Cano, Carrillat & Jaramillo, 2004). Currently, it is widely held that MARKOR and MKTOR are generally acceptable measuring instruments globally and are still the most widely used scales either in their original form or as adopted scales (Kaur, Sharma & Seli, 2013).

2. PROBLEM STATEMENT AND PRIMARY OBJECTIVE

Despite the positive exposure of market orientation highlighted above, market orientation is regarded as a complex construct and as such generates many debates regarding its measurement. While the operationalisation of market orientation to maximise organisational performance has been studied by many researchers in a variety of contexts, there is a lack of consensus on an appropriate measure of market orientation within a HEI setting. This is exacerbated by the increasing growth of alternative measuring instruments for measuring market orientation philosophy. This problem of scale selection and validation within the market orientation sphere has been ongoing and various methods regarding the measurement of market orientation have been advanced over the years. Moreover, given the conformist use of market orientation scales that exist across a variety of contexts, it is important to consider how will each scale of market orientation identified in the study, manifest itself in relation to university performance. Therefore, uncertainty remains as to which scale is appropriate to measure the extent of market orientation within HE and this uncertainty remains of interest to marketing researchers. To the researcher's knowledge, no study exists in the public domain to confirm both these measures within HE context in South Africa. In

addition, the importance of considering how market orientation manifests itself in relation to university performance warrants this study.

Against this background, the purpose of the study is to conduct a comparative content and empirical analysis on market orientation scales in performance of UoTs in South Africa. The objective of the study is twofold: firstly, is to compare and evaluate the effectiveness of the two scales in the context of universities in order to find out which scale best predicts university performance, and secondly to provide insights towards identifying dimensions of MKTOR and MARKOR scales that academics at universities value most.

3. LITERATURE REVIEW.

In comparison of measurement scales, it is axiomatic that the researcher be guided by theory (Oczkowski & Farrell,2002).The content analysis of the study will be based on the dimensionality of the instruments under review in this study.

3.1 MKTOR

The first version of MKTOR scale developed by Narver and Slater (1990,) was confined to the three behaviours' components customers orientation (CSO), competitors orientation (CO) and inter-functional co-ordination (IFC) and two decisions components (long-lasting and profit) (Tomaskova 2009). The measuring instrument was premised on Narver & Slater (1990) initial conceptualisation of market orientation as an organization culture measured as an attitudinal concept (Boso, Cadogan & Story, 2012). The authors interviewed managers in 113 strategic business units in one corporation to measure the respondent's level of marketing orientation adoption (as attitude) in terms of employee behaviour (Asikhi (2011).The authors goal was to shed light on the components that build a market orientation and propose a useable definition of the concept.

3.1.2 MARKOR

MARKOR is based on Kohli and Jaworski's (1990) conceptualization of market orientation as a set of behaviours representing the implementation of the marketing concept. The measurement instrument was developed by Kohli and Jaworski (1990) to measure the degree of marketing orientation (as behaviour or attitude) of the respondents. The most popular application of the behavioural/attitudinal MARKOR scales has been a measurement index that is confined to three interrelated behavioural dimensions, namely, i)market intelligence generation(MIG), ii) market intelligence dissemination(MID) and iii) responsiveness(RES) (Felgueira &Rodrigues 2012). At the core of this instrument is the degree of engagement in multi-department market intelligence generation activities, dissemination of this intelligence throughout the organisation, and lastly, development and implementation of the organisation's strategies and marketing plans on the basis of the intelligence generated (Kohli, Jaworski, & Kumar1993).

3.1.3 University performance (UP).

The relationship between market orientation and business performance was originally formalized by Narver and Slater (1990) and Kohli and Jaworski (1990). These authors thus established the conceptual basis for a research agenda later adopted by many marketing scholars (Ellis,2006). A significant positive influence of market orientation on university performance has been supported by several studies (e.g. Voon, 2008; Niculescu, Xu, Hampton & Peterson,2013). Given this positive outlook, a performance based higher education institution (HEI) sector is critical in meeting the current national and future development needs. In this study, the researcher supports Long, Kara and Spillan's, (2016) proposition that market-oriented organisations will outperform their competitors**.**

4. RESEARCH METHODOLOGY

4.1 Research design and methodology

A literature review was conducted on market orientation and university performance which formed the content analysis component

of the study. The empirical section was cross-sectional in nature and a quantitative methodology approach, grounded by a positivist social sciences paradigm, was employed in this study. The quantitative approach is viewed as systematic and structured, aimed at obtaining information from respondents in a direct, open manner (Du Plessis & Rousseau, 2007).

4.2 Sample and data collection method

In order to achieve the stated study purpose, a non-probability convenience sampling procedure was pursued to recruit full time academics from the six participating UoTs in South Africa. A structured self-administered questionnaire was used to collect data for this study. The researcher distributed 1000 questionnaires with the aid of lead staff members within the six participating institutions to obtain maximum participation of respondents for data collection. Of these distributed questionnaires, only 517 questionnaires were useful in the final analysis of the results.

4.3 Measuring instrument.

The measuring instrument consisted of Section A (which elicited respondents' biographical information), Section B (which measured the dimensions of MKTOR) and Section C (which measured the dimensions of MARKOR) were both adapted from Zebal's (2003) study and modified to fit the context of South Africa. University performance was measured by items adapted from Ma and Todorovic (2011). These items were measured on five-point Likert-type scales ranging from 1=strongly disagree to 5=strongly agree.

5. RESULTS

5.1 Sample composition

An analysis of the demographic profile of respondents shows that the majority of respondents (57%; n = 287) were males and the rest (43%; n = 220) were females. In terms of the age groups, the largest group (34%; n = 172) was composed of respondents whose age group

ranged from 30 to 39 years, followed by (32%; n = 160) respondents whose age group ranged from 40 to 49 years, followed by (16%; n = 81) respondents whose age group ranged from 50 to 59, followed by (13%; n = 66) who fell in the age group of less than 30 years of age and (5%; n = 28) were 60 years and above. Lastly, more than half (72%; n = 359) of the participants had more than three years of service in the fraternity.

5.2 Reliability and validity results.

The reliability and validity values of the constructs under investigation are reported in Table 1 and 2.

Table 1. Reliability and accuracy statistics MARKOR

Research construct		Cronbach's test		CR	AVE	Shared variance (SV)	Factor loadings
		Item-total	α Value				
Market intelligence generation (MID)	MID_1	.740	.890	.89	.54	.34	.768
	MID 2	.749					.722
	MID 3	.742					.717
	MID 4	.731					.693
	MID 5	.697					.749
	MID 6	.770					.757
	MID 7	.776					.723
Market intelligence generation (MIG)	MIG_1	.621	.803	.81	.51	.31	.765
	MIG 2	.759					.681
	MIG 3	.842					.662
	MIG 4	.801					.745
	RES_1	.695	.806	.83	.56	.34	.729

Responsiveness (RES)	RES_2	.701					.802
	RES_3	.691					.723
University performance (UP)	UNP_1	.741	.90	.91	.62	.34	.791
	UNP_2	.796					.835
	UNP_3	.703					.759
	UNP_4	.796					.845
	UNP_5	.764					.805
	UNP_6	.628					.674

Table 2. Reliability and accuracy statistics MKTOR

Research construct		**Cronbach's test**		**CR**	**AVE**	**Shared variance (SV)**	**Factor loadings**
		Item-total	α Value				
Competitor orientation (COA)	COA_1	.740	.92	.91	0.56	.39	.721
	COA_2	.749					.687
	COA_3	.742					.702
	COA_4	.731					.714
	COA_5	.697					.721
	COA_6	.770					.745
	COA_7	.776					.748

Inter-functional coordination (IFC)	IFC_1	.621	.81	.82	0.50	.38	.624
	IFC_2	.759					.621
	IFC_3	.842					.678
	IFC_4	.801					.638
	IFC_5	.778					.662
Customer orientation (CSO)	CSO_1	.695	.84	.84	.51	.39	.739
	CSO_2	.701					.745
	CSO_3	.691					.710
	CSO_4	.562					.543
	CSO5	.549					.605
University performance (UP)	UNP_1	.741	.90	.89	.61	.38	.729
	UNP_2	.796					.779
	UNP_3	.703					.717
	UNP_4	.796					.844
	UNP_5	.764					.838
	UNP_6	.628					.712

Both the Cronbach's alpha coefficient and composite reliability (CR) values for all the measurement items surpass the acceptable benchmark of 0.70 and justify the internal consistency of the measuring instrument as suggested by Malhotra (2010).

Content validity was ascertained through pilot-testing of the questionnaire prior to the main survey. The pilot-testing stage was

undertaken with 50 academics to establish where changes had to be made to the questionnaire through the computation of the Cronbach alpha reliability. These participants were not included in the main survey. After pre-testing and incorporating certain changes in the layout, the questionnaires were administered. In order to confirm construct validity, exploratory factor analysis (EFA) was conducted for each of the dimensions of the constructs under review. CFA was then conducted and the resultant goodness-of-fit indices affirmed construct validity of the instruments. The average variance extracted (AVE) computed and shown in Tables 4 and 5 respectively, all surpassed the 0.5 threshold, which suggested convergent validity of the measuring instruments. Predictive validity of the measuring instrument was ascertained through linear regression analysis of the constructs. Both MARKOR and MKTOR dimensions showed a positive predictive relationship with university performance , thus providing evidence of predictive validity. Lastly, discriminative validity was confirmed by AVE values that were greater than the shared variance (SV) values (for both MARKOR and MKTOR) in line with Fornell and Larcker (1981) recommendation

5.3 Exploratory factor analysis (EFA)

The SPSS version 25.0 software program was employed to undertake an EFA to examine the dimensionality of the factors and especially to identify the factor structure of both MARKOR and MKTOR instruments. Principal component analysis with varimax rotation was performed on all items so as to restructure the factors and re-assign items if necessary. A factor loading and an item to total correlation of above 0.5 for each item, was considered as a criterion for assessing whether these items load onto a single factor (Malhotra 2010). The EFA results for both instruments are reported in Table 3 and 4 respectively.

Table 3: Results for exploratory factor analysis of MKTOR

Constructs	Bartlett's tests of sphericity[1] Sig	KMO[2] (sampling adequacy)	% of variance[3]	Eigen-values[4]	No of items
Market orientation dimensions(MKTOR)					
COA	.000	.926	67.33	8.410	7
IFC				1.884	5
CSO				1.152	5
UP	.000	.826	71.40	2.856	6

Table 4: Results for exploratory factor analysis of MARKOR

Constructs	Bartlett's tests of sphericity[1] Sig	KMO[2] (sampling adequacy)	% of variance[3]	Eigen-values[4]	No of items
Market orientation dimensions (MARKOR)					
MID	.000	.889	64.04	6.393	7
MIG				1.417	4
RES				1.155	3
UP	.000	.826	71.40	2.856	6

5.4 Descriptive stats and correlation analysis.

The mean scores returned for the dimensions of MKTOR and MARKOR with university performance as well as the correlation analysis results are reported in Tables 5 and 6 respectively.

Table 5: Correlational matrix and descriptive statistics of MKTOR

Construct	COA	IFC	CSO	UP	MEAN	STD
COA	1.000	.546**	.626**	.574**	3.60	1.05
IFC	.546**	1.00	.604**	.608**	3.61	1.01
CSO	.626**	.604**	1.00	.618**	3.58	0.979
UP	.585**	.489**	.618**	1.00	4.52	1.39
**Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed). ** *Correlation is significant at the 0.01 level (2-tailed).*						

Table 6: Correlational matrix and descriptive statistics of MARKOR

Construct	MID	MIG	RES	UP	MEAN	STD
MID	1.000	.557**	.566**	.585**	3.59	0.84
MIG	.557**	1.00	.518**	.489**	3.61	0.83
RES	.566**	.518**	1.00	.584**	3.46	0.86
UP	.585**	.489**	.584**	1.00	4.52	1.39
**Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed). ** *Correlation is significant at the 0.01 level (2-tailed).*						

5.5 Model fit results

Model fit (misfit) was assessed using indices suggested by Bagozzi and Yi (2012) as indicated in Table 7.

Table 7: Model Fit Results

Fit indices	Acceptable fit indices	CFA MARKOR	CFA MKTOR	SEM MARKOR	SEM MKTOR
Chi square/degree of freedom	< 3.0	2.435	2.011		
GFI	> 0.90	0.929	0.937		
IFI	> 0.90	0.963	0.974		
TLI	> 0.90	0.955	0.971		
CFI	> 0.90	0.962	0.976		
RMSEA	< 0.08	0.053	0.045		

5.6 Structural Equation Model

Following the satisfactory results of the assessment of the measurement and structural models, the next stage utilised the structural equation model to support the adequacy of the models (Fornell & Larcker,1981). These results are presented in Table 8 and 9 respectively for both measures.

Table 8: The hypotheses test results MKTOR

Paths	Hypothesis	Path coefficient	Standardized estimate	CR(t-values)	P	Decision
COA →UP	H1	0.13	0.056	2.334	0.02	Supported<0.05
IFC → UP	H2	0.263	0.048	5.447	***	Supported<0.01
CSO →UP	H3	0.546	0.090	6.072	***	Supported<0.01

Note 1*** p- value 0.01; **2**. Using a significance level of 0.05 critical ratios (t-value) that exceed 1.96 would be called significant.

Table 9: The hypotheses test results MARKOR

Paths	Hypothesis	Path coefficient	Standardized estimate	CR(t-values)	P	Decision
MID	H1	0.304	0.078	3.877	***	Supported<0.0

→UP						1
MIG → UP	H2	0.162	0.086	1.885	0.059	Not Supported>0.05
RES →UP	H3	0.408	0.073	5.689	***	Supported<0.01

Note 1*** p- value 0.01;**2**. Using a significance level of 0.05 critical ratios (t-value) that exceed 1.96 would be called significant.

5.7 Multiple regression analysis

Two multiple regression analyses were conducted in this study, one for each measuring instrument (See Table 10). Concerns for multi-collinearity were addressed prior to undertaking the analyses. Multi-collinearity was not a problem when estimating the multiple regression models in the study because predictor variables (independent variables) were not highly correlated (<1.00) (Pallant,2010). Furthermore, the variance inflation factors(VIF) for all these predictor variables for both scales returned values of less than 4 and tolerance value of less than 0.1(Malhotra 2010).).

Table 10: Regression analysis - study constructs

Model 1: Dependent variable (UP)	Standardised beta	t	sig	Collinearity statistics	
Independent variables MARKOR				Tolerance	VIF
MID	.321	7.419	.000**	.584	1.71
MIG	.139	3.330	.001*	.630	1.59
RES	.330	7.846	.000**	.620	1.61
R= .670 R^2 = .449 Adjusted R^2 = .445 F change = 136.412 * sig at p< 0.05 ** sig at p<0.01					
Model 2: Dependent variable (UP)	Standardised beta	t	sig	Collinearity statistics	
Independent variable MKTOR				Tolerance	VIF
COA	.201	4.624	.000**	.529	1.9
IFC	.312	7.593	.000**	.593	1.69
CSO	.307	6.744	.000**	.481	2.08
R= .706 R^2 = .498 Adjusted R^2 = .495 F change = 166.339. * sig at p< 0.05 ** sig at p<0.01					

6. DISCUSSION OF FINDINGS.

The MKTOR scale yielded customer orientation, inter-functional coordination and competitor orientation as factors while the MARKOR scale identified market intelligence generation, dissemination and responsiveness as factors of market orientation philosophy within HEIs.. through the literature review. MKTOR is premised on customer-focused efforts (touches upon all issues concerning customer orientation) and is thus essentially a better measure of market orientation. . .

Prior to analysis of the data, reliability and validity checks were undertaken as reported in Section 5.2. The results displayed the superiority of the MKTOR scale over the MARKOR scale in terms of greater values in all the reported psychometric dimensions.

Three factors were extracted by means of EFA for each instrument after all the items with cross-loading were dropped. Although not reported here, all the factor loadings of the individual factors extracted were significant. These factors were identified as the theoretical dimensions of these measures. Results of the EFA attested to the superiority of MKTOR scale over MARKOR scale in terms of the following: MKTOR reflected better values in sampling adequacy-KMO (.928>.889); cumulative % of variance (67.33>64.04) cumulative eigen values (11.446>8.965) and number of items (23>20).

Descriptive statistics show that the three dimensions of the MKTOR scale (3.6;3.61 and 3.58 respectively) comparatively recorded higher scores than the three dimensions of MARKOR (3.59; 3.61 and 3.46) based on the five-point Likert scale. This finding suggests that all the theoretical dimensions were important to study participants as all the mean values were above 3. This finding is in consonant to Rojas-Mendez and Rod (2007) findings.

Although there is a significant and positive relationship between both instruments and university performance, the relationship seems stronger in MKTOR(r value ranges from.489 to .626) when compared to MARKOR(r value ranges from .489 to.585).The rigorous validity checks employed in the study through CFA, revealed that the overall fit indices of MKTOR measurement and structural models is superior (Chi square/DF=2.435<3.0; RMSEA of <0.08 and other fit indices of >0.90) to that of the competing MARKOR model (Chi square/DF=2.011<3.0;RMSEA of 0.053 <0.08 and other fit indices of >0.90).Furthermore, the. SEM results(Table 8 and 9) revealed that all three factors of MKTOR measure contributed significantly to university performance while only two of the three factors of MARKOR measure contributed significantly towards university performance, thus superiority of MKTOR scale over MARKOR scale was proven.

With regard to regression analysis, Table 10 reveals that the predictor variables of MKTOR scale explains (R^2 of 0.498**)** approximately 50 per cent of the variation in the UP construct. COA (Beta=0.201; $p<0.05$) IFC (Beta=0.312; $p<0.05$) and CSO (Beta=0.307; $p<0.05$) all

exert a significant and positive influence on UP. On the other hand, Table 10 reveals that the predictor variables of MARKOR scale explains (R^2 of 0.449) approximately 45 per cent of the variation in the UP construct. MID (Beta=0.321; $p<0.05$) MIG (Beta=0.139; $p<0.05$) and RES (Beta=0.330; $p<0.05$) all exert a significant and positive influence on UP. This finding further affirms the superiority of MKTOR scale over MARKOR in predicting university performance.

To summarise, the findings of this study, support the contention of Campo, Diaz and Yague (2014) and Farrell and Oczkowski (1997) in that the dimensions of MKTOR seem to produce a better fit of the model and is easier to administer.

7. LIMITATIONS AND FUTURE RESEARCH OPPORTUNITIES

The limitations of the study must be taken into account when analysing the results obtained. Gathering information from a representative sample of six UoTs in South Africa, leaves comprehensive and traditional universities out of the equation. Therefore, the conclusions should remain tentative. It could be interesting to confirm the findings of the study with respect to other HEIs segments. Although it is likely that the sub-dimensions of both MARKOR and MKTOR are significant in predicting university performance, future studies would be required to ascertain whether the proposed factor structure is equally applicable to various HEIs contexts. Furthermore, instead of relying on a purely quantitative design, a mixed method approach could be considered in future studies on this topic. A qualitative design may be helpful in making follow-ups to the responses provided in the quantitative design.

8. RECOMMENDATIONS

HEIs can adapt the existing market orientation scales investigated in this study to serve as a guide in assessing their current practices in the domain of market orientation. They can identify those areas where their approaches differ substantially from the marketing perspectives or dimensions identified in this study. These deviations may represent weaknesses or oversights on the part of these institutions. Marketing information generation may be a good starting point when developing or adapting existing measurement scales for improving market orientation within HEIs, management should embrace an inward looking approach towards the operationalisation of the market orientation philosophy. An adequate focus on both the internal (employees and students) and the external stakeholders (businesses and community) shall assist in development, refinement and validation procedure in order to assess the extent of market orientation of HEIs. Finally, this study can serve as a stepping stone in the development of better and more complete measures of market orientation within HEIs.

9. CONCLUSION

The major contribution advanced by this research is in addressing the paucity of research on market orientation of HEIs through an empirical investigation of the competing measurement models. Furthermore, the study confirms that market orientation can play a critical role in the optimum performance of UoTs in South Africa. It is also interesting to note that the measures applied in the study, fit very well to the UoT context as affirmed by the statistical measures of accuracy tests results in the study.

REFERENCES

Asikhi,O(2011).Adjusted Narver and Slater's market orientation concept and firm performance in Nigerian Companies, *Global Journal of Management and Business Research*, 11, (7):54-61.

Bagozzi and Yi (2012). Specification, evaluation and interpretation of structural equation models. *Journal of the Academy of Marketing Science*, 40 (1):8-34.

Boso, Nathaniel, John W. Cadogan and Vicky M. Story, (2012). "Entrepreneurial Orientation and Market Orientation as drivers of Product innovation Success: A Study of Exporters from Developing Economy, *International Small Business Journal* 3(1):57-81.

Campo,S., Diaz,M.A & Yague,J.M(2014). Market orientation in mid-range service, urban hotels: how to apply the MKTOR instrument, *International Journal of Hospitality Management*, 43, (2014):76-86.

Cano, C.R.,Carrillat, F.A. & , Jaramillo, F(2004),A meta-analysis of the relationship between market orientation and business performance: evidence from five continents, *International Journal of Research in Marketin*g, 21,(2):179-200

Deshpandé, R & Farley, J.U (1999).Corporate culture and market orientation: Comparing Indian and Japanese firms. *Journal of International Marketing*, 7 (4):111-127

Du Plessis, P.J. & Rousseau, G.G. (2007). Buyer Behaviour: Understanding Consumer Psychology and Marketing. 3rd ed. Cape Town: Oxford University Press.

Ellis, P.D. (2006), Market orientation and performance: A meta-analysis and cross-national comparisons, *Journal of Management Studies*, 43(5): 1089-1107.

Farrel,M.A & Oczkowowski, E (1997).An analysis of the MKTOR and MARKOR measures of market orientation: an Australian perspective. *Marketing Bulletin*,8(3):30-40.

Felgueira,T.&Rodrigues,R.G.(2012).Entrepreneurialorientation,marke t orientation and performance of teachers and researchers in public higher education institutions. *Public Policy and Administration*,11, (4) :703-718.

Fornell, C. & Larcker, D.F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1): 39-52

Gauzente,C (1999). Comparing Market Orientation Scales: A Content Analysis *Marketing Bulletin*, 1999, 10, 76-82,

Gross, R (2015). Measuring organizational performance: a new approach to triple bottom line reporting and stakeholder engagement, *British Journal of Business and Management Research*, 2,(1):69-80.

Kaur,G Sharma,R.D & Seli,N(2013). A balanced approach towards market orientation *Vikalpa* 38 (3), 51-66

Kohli, A.K. & Jaworski, B.J. (1990). Market orientation: the construct, research propositions, and managerial implications. *Journal of Marketing*, 54(2), 1-18

Kohli,A.K, Jaworski,B.J., & Kumar,A.(1993). MARKOR: a measure of market orientation, *Journal of Marketing Research* Vol. XXX (November 1993), 467-77

Long,Z., Kara,A & Spillan ,J.E(2016).Market orientation and firm performance: an empirical analysis of Chinese IT enterprises, *Sixth Asia-Pacific Conference on Global Business, Economics, Finance and Social Sciences* Feb 2016 :1-22.

Ma,J. & Todorovic, Z (2011). Making university relevance: MO as a dynamic capability within institutions of higher learning, *Academy of Marketing Studies Journal*, 15(2):1-15.

Malhotra,N.K. (2010) Marketing research: an applied orientation.6th edition. Eaglewood-Cliffs:Prentice_Hall.

Maringe,F (2004). Vice chancellor's perceptions of university marketing: a view from university in a developing country. Higher Education Review,36(2):53-6

Narver,J & Slater,S (1990). The effect of market orientation on business profitability. *Journal of Marketing,* 54(4):20-35).

Niculescu, M, Xu,B, Hampton,G.M & Peterson, R.T.(2013). Market orientation and its measurement in Universities. *Administrative Issues Journal: Education, Practice and Research,* 3(2:1-16.

Oczkowski,E & Farrell,M.A.(2002) Are Market Orientation and Learning Orientation Necessary for Superior Organizational Performance? *Journal of Market-Focused Management*, 5, 197–217

Pallant, J. (2010). SPSS Survival Manual: A Step by Step Guide to Data Analysis using SPSS for Windows Third Edition. Open University Press: McGraw-Hill

Rojas-Mendez, J.I & Rod, M (2013) Chilean wine producer market orientation: comparing MKTOR with MARKOR *International Journal of Wine Business Research*,25(1):27-49.

Tomášková, E.I (2009). The Current Methods of Measurement of Market Orientation, *European Research Studies*, XII (3):135-150.

Voon, B.H (2008).SERVMO: a measure for service driven market orientation in higher education, *Journal of Marketing for Higher Education*,17(2):216-237.

Zebal, M.A. (2003). Market orientation: synthesis model of market orientation for a developing country: the case of Bangladesh. PhD Thesis. Melbourne: Victoria University of Technology.