International Business Management 11 (11): 1701-1707, 2017
ISSN: 1993-5250
© Medwell Journals, 2017

Validity and Reliability of the Strategic Factors and University Performance Scales

[1]Ahmed Abubakar and [2]Haim Hilman
[1]Federal University Kashere, Gombe State, Nigeria
[2]College of Business, University Utara Malaysia, Changlun, Malaysia

Abstract: The study investigates validity and reliability of small data regarding strategic factors and university performance. Thus, the goodness of measures examined via field expert's academicians. Overall, the alpha coefficients were above the minimum acceptable alpha value and the result of normality test showed the data was normal. Also, the result of Exploratory Factor Analysis (EFA) showed all factors loaded >0.50. The findings showed that the instrument was reliable and valid. Therefore, the questionnaire developed was appropriate to be used in investigating the integrated effects of strategic factors on university performance.

Key words: Validity, reliability, strategic factors, university performance, instrument

INTRODUCTION

Now a days, there are a series of competitions among organisations of all kinds and this can be traced to the innovation brought by the information technology, it takes extra steps for organisations to survive in such a competitive environment. Thus, there is a need for constantly improving the organisational performance to achieve an acceptable level of performance capable of gaining and sustaining competitive advantage. Enhancing organisational performance is not a new thing but the perspectives have been different and most especially, the question is what is the best approach for improving organisational performance in this knowledge-driven economy.

Like other sectors, education is also affected by the rapid changes in the business environment. According to William and Amin (2006), profound changes resulting from the emerging competitive business environment have made universities and other higher educational institute to think the same way like business organisations. Meanwhile, educational markets are getting to be global. Given this, the capacity to contend and stay in business under such a condition depends on to a great extent on how the progressions and change are overseen by the universities and other instructive organisations (Zwain *et al*., 2012).

Numbers of universities suffered more than necessary regarding: resources; good governance and structure; innovation and information technology and internationalisation among others which affect their performance (Pomeda and Casani, 2016). Literature admit that a good blend of strategic factors gives competitive advantage as Kenny (2005) describe strategic factors across sectors to be the tools that can address the needs not just of private sector profit-seeking organisations but also of non-profit organisations from both the public and private sectors. However, there were very limited empirical studies on the basis of the integration of those strategic factors (strategy of an organisation; structure; transactional leadership; talent management and technology integrations) on performance in context higher institution with particular reference to universities. Therefore, this study takes this challenge to address this insufficiency to bridge this existing gap in the literature. More specifically, the study detects flows in the operationalization of the variables under study to establish the validity and reliability of the items measuring the constructs.

Literature review: Literature was reviewed concerning the variables of the study termed as strategic factors for better performance in the university setup. These factors includes: organisational strategy; structure; transformational leadership; talent management and technology integration.

Strategy is action-oriented decisions. It has to do with the action plan and utilising resources for future benefit. Kavale (2012) stated that strategy is the determination of long-term goals, the selection of game-plans and related allocation of resources needed to accomplish the stated goals. The relationship of organisational strategy and performance has been convincingly established in the literature. Some studies

Corresponding Author: Ahmed Abubakar, Federal University Kashere, Gombe State, Nigeria

provide evidence that the choice of strategy is related to organisational performance (Brush, 2015; Hilman, 2009; Ndubisi *et al*., 2015). Also, Past studies have discovered support for Porter (1980, 1985)'s unique and original generic strategies (Helms and Stern, 2001; Nayyar, 1993).

Structure is an important element of any organisation; it is termed as organisation's internal pattern of relationships, authority and communication. Robbins (1990) describes organisational structure to mean a practice being undertaking in an organisation regarding rules, policies and procedures. It has three important features, complexity, formalisation and centralization; the first refers extent to which there is differentiation or a division of labour in an organisation. It has a greater need for communication across many departments horizontally or between many levels vertically. The second one is characterised with rules and regulations being enforced in an organisation and finally, the centralization deals with the amount of power or decision-making authority distributed among employees of various positions. Organisational structure may be considered the anatomy of the organisation, providing a foundation within which organisation functions. The structure of an organisation is believed to affect the behaviour of organisational members (Dalton, 1978). Literature shows various researches that uncover a positive relationship between organisational structure and performance (Csaszar, 2012; Nahm *et al*., 2003).

Significant consideration has been given to the investigation of transforming leadership since initially presented by James MacGregor Burns more than three decades back. Burns (1978) identified transformational as one of the basic types of leadership to transactional. It explained the relationship between leader and follower based upon mutual stimulation and elevation of the follower (Burns, 1978). It is said to have a significant relationship to a wide range of organisational outcomes (Alam and Mia, 2014; Kavanagh and Ashkanasy, 2006; Lee *et al*., 2011). Transformational leadership is strategic and entrepreneurial in nature; it significantly affects individual employee creativity (Mittal and Dhar, 2015) and engagement (Freeborough and Patterson, 2015) as well as team performance (Chi and Huang, 2014).

Talent management has fast gained and has become a top priority for organisations across the world (Singh and Sharma, 2015). Talent is critical to organisational success; it gives a competitive edge through the identification, redeployment and development of talented employees (Clark and Winkler, 2006; Singh and Sharma, 2015). It has embraced and legislated promise to employing a unified, technological and strategic approach to human resource management (Hughes and Rog, 2008). It is a rebrand of human resource management with a focus on talent pool and development by managing the progression of talents within the organisation (Iles *et al*., 2010).

Technology integration has been discussed in the education literature, more especially when related to the teacher student's success. Technology and instruction should be blended to work simultaneously to make a successful program for all students (Dockstader, 1999). National Forum on Educational Statistics (NFES) (1998) defined technology integration as the incorporation of technology resources and technology-based practices into everyday schedules, work and administration of schools. Technology resources include computers and specialised software, network based communication systems and other equipment and infrastructure. Practices comprise collaborative work and communication, internet-based research, remote access to instrumentation, network-based transmission and recovery of information and different strategies (NFES, 1998). Previous researches uncover a positive link and effect of technology integration on performance (Ashrafzadeh and Sayadian, 2015; Mbugua *et al*., 2015; Warnich and Gordon, 2015).

University are higher institutions of learning where non-financial are measures are used in rating its performances mostly on the basis of competitive advantages (Gronum *et al*., 2012; Kaplan and Norton, 1992). It has been described to be measured in terms of improvement trends and academic achievement results (Kirby, 2004; Liao and Wu, 2009). This study used the analysed and synthesised university measures by the famous university ranking bodies.

MATERIALS AND METHODS

Procedure and participant: This pilot test is for the determination of validity and reliability of items in the questionnaire that makes the measurement of the variables. Hence, the essence is for assessment of the adequacy of item-wording, phrasing and question's construction for accurate results; evaluating whether questions are framed in a way that would yield better response and to find if respondents could supply the needed data.

Traditionally sample size for a pilot study is smaller consisting of 15-30 elements, though can increase substantially depending on peculiarities (Malhotra, 1999). Even so, the target is thirty respondent but sixty questionnaires were distributed using online survey with the aid of Google form as respondents are widely

dispersed in different geographical locations. This is beyond the Malhotra (1999)'s suggestion to avoid low response rate. However, 31 responded, indicating a response rate of 52%. The data were analysed using SPSS. The expert' assessments and recommendations added the face and content validity of the instrument. Approximately this exercise took a period of 2 months.

Instrumentation and measurement: A survey questionnaire was utilised for this study. Five-point scale is said to the best and increment in the number from five to seven or nine as the case may not promise change in the reliability of rating (Elmore and Beggs, 1975). More recently, Neuman and Robson (2012) attested that five-point scales is the most suitable and give better results. Hence, five-point Likert scale is utilised in this study. Moreover, confirmation to that exists in the literature as past studies utilised a 5 point likert scale, few among includes (Ali *et al*., 2014; Bacha, 2014; Noor, 2012).

The survey is structure in eight sections. Section A is profile of respondents and Section B consists of nine items on organisational strategy adapted from Covin and Slevin (1989a, b). In Section C, there are five items in respect to organisational structure adapted from Covin and Slevin (1988a, b). There are seven items in Section D representing transformational leadership style adapted from Carless *et al.* (2000). Section E has ten items for talent management adapted from Singh and Sharma (2015). There are nine items in Section F in respect to yet another variable technology integration adapted from Ashrafzadeh and Sayadian (2015) and finally Section G consists of nine items regarding university performance adapted from Academic Ranking World University (ARWU) quacquarelli symonds world university rankings (QS); times higher education world university ranking (THE) (2015) and Ranking Web of Universities (Webometrics). The respondents were asked regarding their perception on the present situations of the strategic factors in their university.

RESULTS AND DISCUSSION

Profile of respondent: For the respondent's characteristics in terms of gender, 61% are male and 39% female with majority having their ages ranging between 41-50 years constituting 52% while 16% having age range of 31-40 years and the remaining 32% fall in the category of 50 years and above. The 19% of the respondents are the vice chancellors/presidents of the universities that make the sample while 23% are deputy vice chancellors/vice presidents and 58% are senior academics that represent their universities. For the university location, 3% of the respondents are from African universities, 26% from Asia and 36% from Europe, 23% from North America, 6% from Oceania and finally South America with the balance of the remaining 6%. Again, the respondent of this research are not from new universities, 48% have operated for over 80years while 39% have their years of operation ranking from 61-80 years and 13% fall in the category of 41-60 years. Furthermore, the respondents are from good universities that make to the list of best universities in the world by QS ranking 2015. This shows that they are in better position to tell about university performance. The 10% are from top 100 universities, 19% have their position range of 101-300, 16% ranges between 301-500 positions, 29% are from the range of 501-700 positions and finally 26% make the position of 701 plus (Table 1).

Goodness of measures

Data distribution: Normality is the most significant postulation in multivariate analysis (Tabachnick and Fidell, 2007; Hair *et al*., 2006). It deals with the nature of data distribution for an individual construct and its association with normal distribution (Tabachnick and Fidell, 2007). The univariate normality was tested by examining the skewness and kurtosis values. The results showed that the skewness ranged from -0.550 to 0.270 and kurtosis from -1.265 to 0.999. This indicated that the data is normally distributed as it falls within the acceptable range of <2 and <7 for Skewness and Kurtosis, respectively.

Table 1: Profile of respondents

Items	Frequency	Percentage
Respondent's gender		
Male	19	61
Female	12	39
Respondent's age (years)		
31-40	5	16
41-50	16	52
51 years and above	10	32
Respondent's position		
VC/president	6	19
DVC/Vice president	7	23
Others	18	58
University location		
Africa	1	3
Asia	8	26
Europe	11	36
North America	7	23
Oceania	2	6
South America	2	6
Year of operation		
41-60	4	13
61-80	12	39
81 years and above	15	48
University's position in the QS ranking		
First 100	3	10
101-300	6	19
301-500	5	16
501-700	9	29
701+	8	26

Face and content validity: Content validity also serves as a process of consulting small sample or panel of expert to judge on the suitability of the items chosen to measure a construct (Sekaran and Bougie, 2010). The items here has undergone the process of face validity; expert opinion was utilised following the guidelines of using the scales laid down by the developers to make a minor modification in order to suit the context of this research and also to suit the sector before the administration of the pilot test. The original draft of the instrument for this study was distributed to five experts from the academic who are familiar with the constructs. The experts were two professors, two associate professors and a senior lecturer. The same instrument was distributed to another five professors that are on universality leadership positions due to their vast knowledge in university performance. They include two vice chancellor, two deputy vice chancellors and a director academic planning and quality assurances. This process makes some questions were re-phrased to measure the appropriate variables and also to be reasonable to the potential respondents.

Therefore, following the scrutiny of the instruments by a group of experts and the fact that previous studies have tested the instruments at different times and context the instruments are considered to be robust and appropriate measures of the construct. Notwithstanding, this study went further to examined the construct validity and reliability as explained in the subsequent sections.

Construct validity: The Exploratory Factor Analysis (EFA) with varimax rotation was used to determine the construct validity of all variables under study. Thus, Kaiser-Meyer-Olkin (KMO) Test and Bartlett's Test of sphericity determined the sampling adequacy. The sample was sufficient due to the KMO value above the minimum accepted value of 0.5 as suggested by Kaiser (1974) and Bartlett's test was significant. To examine the strategic factors and university performance scales, the Principal Component Analysis (PCA) method was applied to the 47 items and resulted the extraction of components were >0.5. The eigenvalues associated with each factor are express in terms of percentage of variance explained in Table 2. All the items were loaded more than the minimum acceptable loading factor of 0.5 as suggested by Hair *et al.* (2006). The finding showed sampling adequacy and the factor model is appropriate.

Reliability analysis: Different tests of reliability were led; notwithstanding, the normal technique utilised by researchers is "internal consistency reliability test" (Fink and Litwin, 1995). It is the scale to which things of a particular constructs meet and are autonomously fit for measuring the construct and in the meantime, the things have corresponded with each other. Table 2 demonstrates the outcomes that show 47 out of 49 items measures accomplished acceptable reliability coefficient, going from 0.720-0.874. Authorities consider a reliability coefficient of 0.60 as average reliability and a coefficient of 0.70 and above as high reliability (Hair *et al*., 2006; Nunnally, 1967; Sekaran and Bougie, 2010). However, two items OSG3 of the construct of organisational strategy and UP7 of the construct of university performance was dropped from the survey instrument due to the negative

Table 2: Result of factor analysis and reliability

Variables	Factor loadings	KMO	Eigenvalue in terms of variance (%)	Reliability
Organisational strategy				
OSG1	0.727	0.514	71.12	0.72
OSG2	0.895			
OSG4	0.633			
OSG5	0.731			
OSG6	0.785			
OSG7	0.892			
OSG8	0.794			
OSG9	0.741			
Organisational structure				
OST1	0.956	0.694	88.41	0.78
OST2	0.897			
OST3	0.835			
OST4	0.970			
OST5	0.756			
Transformational leadership				
TL1	0.635	0.799	72.72	0.87
TL2	0.836			
TL3	0.935			
TL4	0.620			
TL5	0.782			
TL6	0.757			
TL7	0.734			

Table 2: Continue

Variables	Factor loadings	KMO	Eigenvalue in terms of variance (%)	Reliability
Talent management				
TM1	0.900	0.679	72.84%	0.84
TM2	0.734			
TM3	0.844			
TM4	0.833			
TM5	0.813			
TM6	0.598			
TM7	0.807			
TM8	0.680			
TM9	0.934			
TM10	0.624			
Technology integrations				
TI1	0.856	0.797	79.17%	0.84
TI2	0.953			
TI3	0.900			
TI4	0.804			
TI5	0.659			
TI6	0.876			
TI7	0.880			
TI8	0.864			
TI9	0.842			
University performance				
UP1	0.715	0.580	74.07%	0.74
UP2	0.536			
UP3	0.922			
UP4	0.847			
UP5	0.844			
UP6	0. 817			
UP8	0. 850			
UP9	0.818			

item to total correlation. Therefore, the remaining items for each construct in the questionnaire were retained as the proved reliable.

CONCLUSION

This study examined face and content validity to revise some items in the instrument. The findings showed that the data was normal. And reliability test revealed that the all construct possess above the minimum acceptable alpha value. In a nutshell, this study showed the instrument used to measure the integrated effect of strategic factors: organisational strategy, structure, transformational leadership, talent management and technology integration on university performance was valid and reliable. Thus, this study identified an empirically valid and reliable instrument to measure the strategic factors and organizational performance nexus which facilities more future studies in context of strategic management.

REFERENCES

Alam, B. and L. Mia, 2014. Transformational leadership, gender and performance: Evidence from a developing economy. Eur. J. Manage., 14: 62-68.

Ali, N., S. Jan, A. Ali and M. Tariq, 2014. Transformational and transactional leadership as predictors of job satisfaction, commitment, perceived performance and turnover intention (Empirical Evidence from Malakand Division, Pakistan). Life Sci. J., 11: 48-53.

Ashrafzadeh, A. and S. Sayadian, 2015. University instructors concerns and perceptions of technology integration. Comput. Hum. Behav., 49: 62-73.

Bacha, E., 2014. The relationship between transformational leadership, task performance and job characteristics. J. Manage. Dev., 33: 410-420.

Brush, C.G., 2015. Export entry in small companies: Effecs of timing on strategy and performance. J. Small Bus. Strategy, 7: 53-68.

Burns, J.M., 1978. Leadership. Harper and Row, New York.

Carless, S.A., A.J. Wearing and L. Mann, 2000. A short measure of transformational leadership. J. Bus. Psychol., 14: 389-405.

Chi, N.W. and J.C. Huang, 2014. Mechanisms linking transformational leadership and team performance: The mediating roles of team goal orientation and group affective tone. Group Organiz. Manage., 39: 300-325.

Clark, R. and V. Winkler, 2006. Change agenda: Reflections on talent management. Chartered Institute of Personnel and Development, London, UK.

Covin, J.G. and D.P. Slevin, 1989a. Strategic management of small firms in hostile and benign environments. Strat. Manage. J., 10: 75-87.

Covin, J.G. and D.P. Slevin, 1988b. The influence of organization structure on the utility of an entrepreneurial top management style. J. Manage. Stud., 25: 217-234.

Csaszar, F.A., 2012. Organizational structure as a determinant of performance: Evidence from mutual funds. Strategic Manage. J., 33: 611-632.

Dalton, D.R., 1978. Structure and performance: A critical review. Master Thesis, University of California, Irvine, California, USA.

Dockstader, J., 1999. Teachers of the 21st century know the what, why and how of technology. J., 26: 73-75.

Elmore, P.B. and D.L. Beggs, 1975. Salience of concepts and commitment to extreme judgments in the response patterns of teachers. Educ., 95: 325-326.

Fink, A. and ?M.S. Litwin, 1995. How to Measure Survey Reliability and Validity. Sage, Thousand Oaks, California, USA., ISBN:0-8039-7388-8,.

Freeborough, R. and K. Patterson, 2015. Exploring the effect of transformational leadership on nonprofit leader engagement: Servant leadership; Theory and practice. Abbott Turner Coll. Bus., 2: 49-70.

Gronum, S., M.L. Verreynne and T. Kastelle, 2012. The role of networks in small and medium-sized enterprise innovation and firm performance. J. Small Bus. Manage., 50: 257-282.

Hair, J.F., W.C. Black, B.J. Babin, R.E. Anderson and R.L. Tatham, 2006. Multivariate Data Analysis. 6th Edn., Prentice Hall, Upper Saddle River, NJ., USA., ISBN-13: 9780130329295, Pages: 928.

Helms, M. and R. Stern, 2001. Exploring the factors that influence employees perceptions of their organization`s culture. J. Manage. Med., 15: 415-430.

Hilman, H., 2009. Relationship of competitive strategy, strategic flexibility and sourcing strategy on organisational performance. Master Thesis, Universiti Putra Malaysia, Kembangan, Malaysia.

Hughes, J.C. and E. Rog, 2008. Talent management: A strategy for improving employee recruitment, retention and engagement within hospitality organizations. Int. J. Contemp. Hospit. Manage., 20: 743-757.

Iles, P.A., X. Chuai and D. Preece, 2010. Talent management and HRM in multinational companies in Beijing: Definitions, differences and drivers. J. World Busin., 45: 179-189.

Kaiser, H.F., 1974. An index of factorial simplicity. Psychometrika, 39: 31-36.

Kaplan, R.S. and D.P. Norton, 1992. The balanced scorecard: Measures that drive performance. Harvard Bus. Rev., 70: 71-79.

Kavale, S., 2012. The connection between strategy and structure. Intl. J. Bus. Commerce, 1: 60-70.

Kavanagh, M.H. and N.M. Ashkanasy, 2006. The impact of leadership and change management strategy on organizational culture and individual acceptance of change during a merger. Br. J. Manage., 17: S81-S103.

Kenny, G., 2005. Strategic Planning and Performance Management: Develop and Measure Winning Strategy. Routledge, Boston, Massachusetts, ISBN:0-7506-6383-9, Pages: 264.

Kirby, J., 2004. Toward a theory of high performance. Harv. Bus. Rev., 83: 30-39.

Lee, P.K., T.E. Cheng, A.C. Yeung and K.H. Lai, 2011. An empirical study of transformational leadership, team performance and service quality in retail banks. Omega, 39: 690-701.

Liao, S.H. and C.C. Wu, 2009. The relationship among knowledge management, organizational learning and organizational performance. Intl. J. Bus. Manage., 4: 64-76.

Malhotra, N.K., 1999. Marketing Research: An Applied Orientation. 3rd Edn., Prentice Hall, Englewood Cliffs, NJ., USA., ISBN-13: 978-0130830449, Pages: 1008.

Mbugua, S.N., J. Kiboss and E. Tanui, 2015. Influence of integration of information communication technology in teaching on students academic performance. J. Educ. Pract., 6: 7-13.

Mittal, S. and R.L. Dhar, 2015. Transformational leadership and employee creativity. Manage. Decis., 53: 894-910.

NFES., 1998. Technology in schools, suggestions, tool and guidelines for assessing technology in elementary and secondary education. National Forum on Educational Statistics, New York, USA.

Nahm, A.Y., M.A. Vonderembse and X.A. Koufteros, 2003. The impact of organizational structure on time-based manufacturing and plant performance. J. Operations Manage., 21: 281-306.

Nayyar, P.R., 1993. On the measurement of competitive strategy: Evidence from a large multiproduct US firm. Acad. Manage. J., 36: 1652-1669.

Ndubisi, N.O., C.M. Capel and G.C. Ndubisi, 2015. Innovation strategy and performance of international technology services ventures: The moderating effect of structural autonomy. J. Serv. Manage., 26: 548-564.

Neuman, W.L. and K. Robson, 2012. Basics of Social Research: Qualitative and Quantitative Approaches. 3rd Edn., Pearson Education, Canada, Toronto, ISBN-13:9780205863679,.

Noor, N.A.M., 2012. Trust and commitment: Do they influence E-customer relationship performance?. Intl. J. Electron. Commerce Stud., 3: 281-296.

Nunnally, J.C., 1967. Psychometric Theory. 1st Edn., McGraw Hill, New York, Pages: 640.

Pomeda, J.R. and F. Casani, 2016. Legitimating the world-class university concept through the discourse of elite universities presidents. Higher Educ. Res. Dev., 35: 1269-1283.

Porter, M.E., 1980. Competitive Strategy: Techniques for Analyzing Industries and Competitors. 27th Edn., The Free Press, New York, USA., ISBN-13: 9780029253601, Pages: 396.

Porter, M.E., 1985. Competitive Advantage: Creating and Sustaining Superior Performance. Free Press, New York, USA., ISBN-13: 9780029250907, Pages: 557.

Robbins, S.P., 1990. Organisation Theory: The Structure and Design of Organisations. Prentice-Hall, Upper Saddle River, New Jersey, USA.,.

Sekaran, U. and R. Bougie, 2010. Research Methods for Business: A Skill Building Approach. 5th Edn., John Wiley and Sons, New York, USA., ISBN-13: 9780470744796, Pages: 488.

Singh, A. and J. Sharma, 2015. Strategies for talent management: A study of select organizations in the UAE. Int. J. Organizational Anal., 23: 337-347.

Tabachnick, B.G. and L.S. Fidell, 2007. Using Multivariate Statistics. 5th Edn., Pearson Education, Boston, MA., ISBN-13: 9780205465255, Pages: 980.

Warnich, P. and C. Gordon, 2015. The integration of cell phone technology and poll everywhere as teaching and learning tools into the school history classroom. Yesterday Today, 13: 40-66.

William, N. and G. Amin, 2006. Higher education in Sudan and knowledge management applications. Proceedings of the 2nd IEEE Conference on Information and Communication Technologies (ICTTA06), Vol. 1, April 24-28, 2006, IEEE, New York, USA., ISBN:0-7803-9521-2, pp: 60-65.

Zwain, A.A.A., L.K. Teong and S.N. Othman, 2012. Knowledge management processes and academic performance in Iraqi HEIs: An empirical investigation. Intl. J. Acad. Res. Bus. Soc. Sci., 2: 273-293.