



# The Mediating Role of Job Satisfaction between Strategic Performance Measurement System and Lecturers' Performance in Malaysian Research University

Sharul Effendy Janudin\*, Hazianti Abdul Halim

Universiti Pendidikan Sultan Idris, Malaysia

\*Corresponding Email: [sharul@fpe.upsi.edu.my](mailto:sharul@fpe.upsi.edu.my)

## Abstract

University's lecturers play an important role to develop its human capital to be competitive and subsequently achieve world-class status. Unfortunately, research on measuring performance of university at the lecturer level are lacking due to difficulty to measure university input and output. Resource Based View theory and Work Performance Model were used in developing the research framework. The relationship between strategic performance measurement system (SPMS) and job satisfaction on lecturers' work performance at the individual level was investigated through analysis on data gathered from 362 lecturers from five Malaysian research universities. Findings show 1) strategic performance measurement system has significant relationship with lecturers' performance; 2) job satisfaction has significant relationship with lecturers' performance; 3) job satisfaction fully mediates the relationship between strategic performance measurement system and lecturers' performance.

**Keywords:** Strategic Performance Measurement System, Job Satisfaction, Institute of Higher Learning

## 1. Introduction

Stakeholders of the university force the university to improve governance system, organizational structure and management style. Management tools practice by profit entities especially performance measurement system has been adapted into university's management activities. For example, University of Siena, Italy has been actively using dynamic performance measurement system when carrying out teaching, research activities and management (Barnabè & Riccaboni, 2007) and research quality is positively related with teaching quality in Slovenia (Cadez, Dimovski, & Zaman Groff, 2015). While in Russia, an increase in the scale of higher education combined with the insufficient quality and quantity of lecturers has deteriorated the university's performance (Lisyutkin & Froumin, 2015). University corporatization and changes to an autonomy university forces the management to find the best way to get financial resources. A new style of public management has been adapted to the very essence of corporate management styles in university. In addition, the performance of university may be moulded by the characteristics of its leader which explained through key performance indicator listed in performance measurement system (Breakwell & Tytherleigh, 2010).

In this paper, present PMS of university was evaluated base on Strategic PMS model. Prior research in the area of PMS has focused on its relationship with organizational performance rather than work performance. Furthermore, there are limited studies that examine the behavioural consequences and motivational mechanisms of performance measurement on individual work performance especially in education environment. Therefore, this framework examine the relationship between PMS and work performance at public research universities in Malaysia. In

addition, job satisfaction was hypothesized as mediating factor between performance measurement system and work performance. Generally, this paper is answering the following questions:

1. Does the strategic performance measurement system influence the lecturers' work performance?
2. Does the job satisfaction influence the lecturers' work performance?
3. Does the job satisfaction mediate the relationship between strategic performance measurement system and lecturers' work performance?

Job satisfaction is expected to influence work and subsequently organization performance. Various studies have shown job satisfaction influence work performance of academics but further study found there are several dimensions need to be improved such as salary and promotions (S.-H. Chen, Yang, Shiau, & Wang, 2006), job enrichment (Rashid & Rashid, 2011) and the supervisory (Khalid, Zohaib Irshad, & Mahmood, 2011). In addition, the findings have shown different level of job satisfaction among academics; low (Machado, Soares, Brites, Ferreira, & Gouveia 2011); and medium (Pop-Vasileva et al, 2011).

## 2. Literature review

### 2.1. Strategic Performance Measurement System in University

Strategic performance measurement system are designed to present managers with financial and non-financial measures covering different perspectives which provide a way of translating strategy into a coherent set of performance measures (Chenhall,

2005). If the strategy information is provided and all measures are strategically linked, the common measures bias is eliminated (Humphreys & Trotman, 2011). Managers' assessment about the importance of the firm's strategic resource mediates the association between the importance of strategic resources and performance (Widener, 2006). Strategic performance measurement system is being used to provide managers with the relevant information and working as control mechanism to reflect planning undertaking by the organization particularly to evaluate subordinates' performance, communicate business strategy, identify problems, track performance and guide future directions (Cheng & Humphreys, 2016).

Strategic performance measurement system is a communication element to motivate stakeholders in university. It keeps the university's direction and purposes in a frame of a specific operation area (Genç, 2012). Christopher (2012) suggest that amidst a shift toward corporate culture, aspects of collegia and autonomous practices continue to exist in various degrees among universities due to different level of influencing forces on its operating environment.

### 2.1.1. Job Satisfaction in University

Some studies have examined factors that influence job satisfaction among employees working in higher education institution. Organizational support has influenced job satisfaction and organizational commitment among lecturers in Thailand (Baotham, 2011). In Pakistan, lecturers in private universities were more satisfied with their salary, supervision and career development compared to public university lecturer's (Khalid, Irshad, & Mahmood, 2012). Hygiene factor such as status, security, colleagues, salary, supervision and university policy were listed as major factor affected job satisfaction among lecturers in Malaysia (Amazt & Abdul Rahman Idris, 2011). High turnover among lecturers in Malaysian private universities was motivated Raemah and Rosli (2011) to measure lecturers' job satisfaction and they found salary was the factor with low level of satisfaction. In Bolivia, lecturers' job satisfaction was influenced by work-family-enrichment program and work schedule flexibility is moderating the relationship between work family-enrichment-program and job satisfaction (Michel & Michel, 2015).

### 2.1.2. Lecturers' Work Performance

The main objective of university is to develop knowledge through teaching, research and social service. University requires lecturers with high competency to ensure teaching and learning activities work effectively. Gregory and Jones (2009) developed process "Maintaining Competence" which emphasises the value of analysing what lectures actually do in the classroom situation and the model comprised four separate teaching approaches: distancing, adapting, clarifying, and relating. In measuring lecturers' work performance, researchers used few dimension. For example, Abdulsalam and Mawoli (2012) identified positive and moderate relationship between motivation and teaching performance while the relationship between motivation and research was negative. In Indonesia, Sukirno and Siengthai (2011) found lecturers participation in decision making process has significant effect towards lectures' work performance in teaching, research activities, publication, social works and consultation. Universities in South Africa, United States of America, United Kingdom, Australia and Nigeria pay more attention on teaching and research performance among their lecturers (Molefe, 2010).

### 2.1.3. University Performance

Due to the globalization of higher education, world-university rankings have grown in influence in recent years through few classification such as academic ranking world of universities,

world university rankings, global university rankings using bibliometrics and global university rankings using web metrics (Liu & Cheng, 2011). Each ranking system has specific dimensions to measure university performance and should address multiple audiences (Goglio, 2016). For example Time Higher Education System – THES in 2015 (Times Higher Education, 2016) used five dimensions; teaching, research, citation, international look, and industry income, while QS World Indicator 2015 (QS Top Universities, 2016) used six dimensions; academic reputation, employer reputation, faculty – students ratio, citation per faculty, proportion of international students, and proportion of international faculty. The dimensions used by these rankings show that performance of academics contributes more than 60 percent of the overall university performance. Therefore, universities need to empower its human capital to be competitive and subsequently achieve world-class status. The idea of combining research and teaching along with autonomy in university management is the primary driver to excellence (Chirikov, 2013).

## 2.2. Hypothesis Development

### 2.2.1. Strategic Performance Measurement System and Work Performance

SPMS is a guidance to the members of any organization as well as being a performance indicator because it is explicitly links strategy and performance measurement (Choi, Hecht, & Tayler, 2012). The organizational competitive advantage increase through mutual understanding between management and employees (Rapih Mohamed, Hui, Ibrahim Kamal Abdul Rahman, & Rozainun Abdul Aziz, 2010). Employees are able to work out on their own strategies to contribute effectively in executing strategic plan (Gimbert, Bisbe, & Mendoza, 2010). Therefore, performance at the individual level is achievable when performance indicator is clearly defines in performance measurement system. As a result, employees become more proactive and will aggressively in performing their in-role duties (Perego & Hartmann, 2009). The introduction of SPMS and performance guidelines has influenced lecturer to maximize their work (Decramer, Smolders, Vanderstraeten, Christiaens, & Desmidt, 2012). Therefore, the following effect can be hypothesized:

*H<sub>1</sub>: Performance measurement system has a significant effect on the lecturers' work performance*

### 2.2.2. Satisfaction and Work Performance

Job satisfaction is an important factor as it represents the value placed by a person on the work performed. According to Whitman, Rooy and Viswesvaran (2010) job satisfaction has positive relationship with work performance including productivity and organizational citizenship behaviour. In Italy, job satisfaction was a positive predictor of work performance (Borgogni, Russo, Petitta, & Vecchione, 2010) while only career development and job satisfaction influenced employees in banking sector (Tekeli & Pasaoglu, 2011). Mawoli and Babandako (2011) found lecturers with high job satisfaction excel in teaching, research and consultation activities. In Indonesia, job satisfaction has significant effect on the lecturers' performance (Kuswandi, Sundjoto, Noor, & Purwanto, 2015). While Nurfarahin Jasmine et al. (2015) proves that job satisfaction consists of salary, job itself, promotion, supervision and co-worker have significant relationship with lecturers' work performance. Therefore, the following effect can be hypothesized:

*H<sub>2</sub>: Job satisfaction has a significant effect on the lecturers' work performance*

### 2.2.3. Strategic Performance Measurement System, Job Satisfaction and Work Performance

The interest to study job satisfaction in education sector is motivated by the nature of labour-intensive and the huge allocation in university budget is for academic staff development (Toker, 2011). Comm and Mathaisel (2003) found that academics take up additional jobs due to dissatisfaction with amount of salary received and lack of recognition from their universities. A study by Paul and Phua (2011) found that almost 60 percent academics at public universities in Singapore are moderately satisfied with their work. Other contributing factors influencing satisfaction being studied include salary and promotion (Chen, Silverthorne, & Hung, 2006; Nawab & Bhatti, 2011); co-worker (Oshagbemi, 2000); and organizational support (Baotham, 2011). Hoque (2011) states the adoption of performance measurement systems are able to present the signal and motivation through improvement in critical activity. Chong and Solihin (2005) states these benefits will increase job satisfaction deemed by employee as a fair and able measurement system to increase employee motivation. Therefore, the following effects can be hypothesized:

*H<sub>3</sub>: Job satisfaction mediates the relationship between strategic performance measurement system and lecturers' work performance*

## 3. Methodology

### 3.1. Sample and procedure

Survey questionnaires were distributed to 1500 lecturers working in Malaysian Public Research University. Sample selection process was carried out based on stratified random sampling. The names of respondents were gathered through website of each respective university. Only lecturers who has received their confirmation in job position was chosen. Details of instruments are summarized in table 1:

**Table 1: Measurement**

Construct	Items	Source	Scale
Strategic Performance Measurement System	9 items	Burney and Widener (2007) Gimbert et al. (2010)	1 – “strongly disagree” to 7 – “strongly agree”.
Job satisfaction	18 items	Ssesanga and Garrett (2005)	1 – “Very dissatisfied” to 7 – “Very Satisfied”
Work Performance	7 items	Smeenk et al. (2009)	1 – “Very low” to 5 – “Very high”

## 4. Results and discussion

Out of 1500 distributed questionnaires, only 382 questionnaires were sent back to the researcher. 10 questionnaires were not useable due to the incompleteness and another 10 questions were considered as outliers. The details of respondent are in table 2.

**Table 2 : Demographics of Respondent**

Demographic Characteristics		Frequency (N = 362)	%
Gender	Male	182	50.3
	Female	180	49.7
Age (years)	25 - 30	7	1.9
	31 - 35	28	7.7
	36 - 40	61	16.9
	41 - 45	105	29.0
	46 - 50	59	16.3
	Above 50	102	28.2
Job Position	Lecturer	31	8.6

Senior Lecturer	140	38.7
Associate Professor	120	33.1
Professor	71	19.6

Research framework in which the relationship between SPMS and work performance is mediated by job satisfaction is presented in figure 1. A structural equation model (SEM) used to test for the mediation in H<sub>3</sub> in one stage, rather than using the two-stage approach of Baron and Kenny (1986). The SEM was estimated using a full information maximum likelihood procedure. A bootstrapping method is used to construct a sampling distribution in order to develop test statistics and assess the uncertainty. Since this method makes fewer assumptions and has more power (while maintaining reasonable type-1 error), and is therefore the currently recommended analysis approach (MacKinnon, Fairchild, & Fritz, 2007). One thousand resample (with replacement) were drawn from the original sample and bias corrected bootstrap confidence intervals were computed for the indirect effects. Descriptive statistic and inferential statistics were used to analyse the data. The confidence interval level for statistical significance was set at a value of 95% ( $p \leq 0.05$ ) for confirmatory factor analysis and a value of 99% ( $p \leq 0.01$ ) for correlations.

Result of reliability shows each factor has cronbach's alpha more than 0.70 its represent each factor has high reliability (Hair, Black, & Anderson, 2010). Factor loadings for each items also above 0.50 and Hair et al. (2010) recommend for sample more than 350 respondents, the minimum factor loading is 0.30.

As can be seen from figure 1, the ratio of chi-square to the degree of freedom ( $\chi^2/df$ ) is 1.809. This value is acceptable and below the threshold value ( $\leq 3$ ) and thus indicate good fit (Kline, 2011). Furthermore, additional goodness-of-fit parameters of CFI (comparative fit index) and TLI (Tucker-Lewis index) are all over the minimum threshold of 0.9 (Hair et al., 2010). This findings also supported by RMSEA (root mean square of approximation) and SRMR (standardized root mean square residual) value less than the recommended value of 0.08 (Hu & Bentler, 1999; Bentler, 1990). All this data support that the proposed model does fit the research data.

Three hypotheses have been developed and tested for this research. Both direct relationship hypotheses is supported and significant at  $p \leq 0.01$ . Bootstrapping was used to test the mediation effect and the result shows competency is fully mediates the relationship between strategic performance measurement system and work performance. According to Zainudin (2014), if the result of indirect and direct relationship are significant, the nature of mediation is partial mediation.

## 5. Conclusion

This study contributes to the theory and practice by providing Malaysian evidence on PMS design for education sector. Generally, SPMS has significant relationship with work performance and this finding support result of past research such as Cheng and Coyte (2014), Lau and Roopnarain (2014), Baird et al. (2012) and Sholihin et al. (2010). Finding of job satisfaction has significant relationship with work performance in this research also support findings of Mawoli and Babandako (2011), Tekeli and Pasaoglu (2011) and Borgogni et al. (2010). By the way, job satisfaction fully mediates the relationship between SPMS and work performance. It shows job satisfaction was a critical factor in order to enhance lecturer's work performance. The study also provides empirical evidence if interaction between the two dimensions in theory leads to high performance. For regulators and administrators, the results can be meaningfully used as guide to design and implement effective PMS, training, and work setting for the academics. Strategic performance measurement system and job satisfaction of lecturers are important as valuable, rare,

imperfectly imitable and non-substitutable resource (Bobe & Kober, 2015).

It is a ultimate goal of university to become a leading global university and university's management need to deal with changing environmental conditions. The application of strategic performance measurement system provides the impetus to for a step change in performance throughout the universities by charting the future direction of university. Quest for excellence is a process of nurturing and continuous building up capabilities and capacities of the university to the highest level. Job satisfaction also represent one of the most complex challenge when it comes to managing employees in university as it may cause a person to work harder or less. Even though employee retention amongst lecturer is not an issue, it becomes a primary because university invests substantial resource in recruiting, training, providing tangible and intangible compensation and taking long time to make lecturers buy-in to organizational goals and objectives.

In 2015, Malaysian Ministry of Education has formulated a Malaysia Education Blueprint (2015-2025) for higher education as a strategic planning roadmap to enables Malaysia higher education to compete globally. The finding of this research shows that Malaysian research universities are ready to support the plan which consists of ten shifts; holistic entrepreneurial and balanced graduates, talent excellence, nation of lifelong learners, quality technical and vocational graduates, financial stability, empowered governance, innovation ecosystem, global prominence, globalised online learning and transformed higher education delivery (Ministry of Education Malaysia, 2015). At the individual level, lecturers are required to excel in research and teaching as well to participate in developing local and international talent using new academia talent framework. To strengthen the long term plan of Malaysia Education Blueprint, performance measurement system of university should work comprehensively to accelerate system improvement.

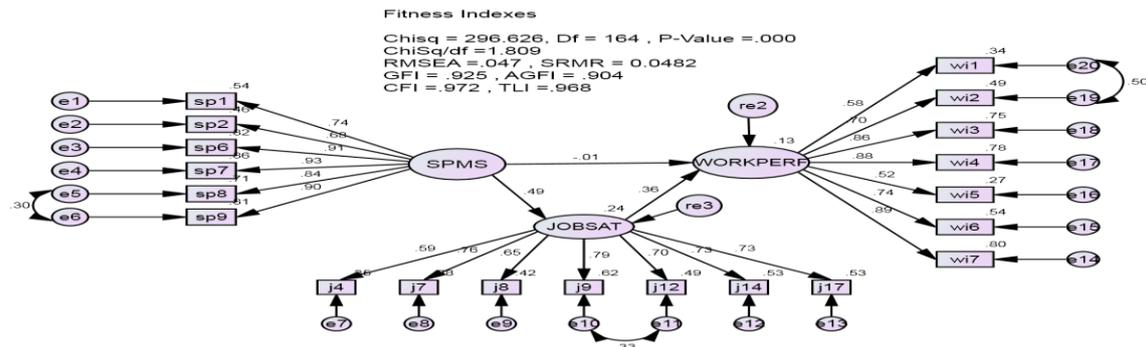


Figure 1 : Structural model of relationship between strategic performance measurement system, job satisfaction and work performance

## References

- Abdulsalam, D., & Mawoli, M. A. (2012). Motivation and job performance of academic staff of state universities in Nigeria: The case of Ibrahim Badamasi Babangida University, Lapai, Niger State. *International Journal of Business and Management*, 7(14), 142–148.
- Amazt, I. H., & Abdul Rahman Idris. (2011). Lecturers' satisfaction towards university management & decision-making styles in some Malaysian public universities. *Procedia Social and Behavioral Sciences*, 15, 3957–3970.
- Baird, K., Schoch, H., & Chen, Q. (James). (2012). Performance management system effectiveness in Australian local government. *Pacific Accounting Review*, 24(2), 161–185.
- Baotham, S. (2011). Antecedent and consequence of job satisfaction and organizational commitment of Thai employees in RMUTT. *Review of Business Research*, 11(3), 89–98.
- Barnabè, F., & Riccaboni, A. (2007). Which Role for Performance Measurement Systems in Higher Education? Focus on Quality Assurance in Italy. *Studies in Educational Evaluation*, 33(3–4), 302–319. <https://doi.org/10.1016/j.stueduc.2007.07.006>
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical consideration. *Journal of Personality and Social Psychology*, 51(6), 1173–1182.
- Bobe, B. J., & Kober, R. (2015). Measuring organisational capabilities in the higher education sector. *Education + Training*, 57(3), 322–342.
- Borgogni, L., Russo, S. Dello, Petitta, L., & Vecchione, M. (2010). Predicting job satisfaction and job performance in a privatized organization. *International Public Management Journal*, 13(3), 275–296.
- Breakwell, G. M., & Tytherleigh, M. Y. (2010). University leaders and university performance in the United Kingdom: Is it "who" leads, or "where" they lead that matters most? *Higher Education*, 60(5), 491–506. <https://doi.org/10.1007/s10734-010-9311-0>
- Cadez, S., Dimovski, V., & Zaman Groff, M. (2015). Research, teaching and performance evaluation in academia: the salience of quality. *Studies in Higher Education*, 5079(May), 1–19. <https://doi.org/10.1080/03075079.2015.1104659>
- Chen, J.-C., Silverthorne, C., & Hung, J.-Y. (2006). Organization communication, job stress, organizational commitment, and job performance of accounting professionals in Taiwan and America. *Leadership & Organization Development Journal*, 27(4), 242–249.
- Chen, S.-H., Yang, C.-C., Shiau, J.-Y., & Wang, H.-H. (2006). The development of an employee satisfaction model for higher education. *The TQM Magazine*, 18(5), 484–500. <https://doi.org/10.1108/09544780610685467>
- Cheng, M. M., & Coyte, R. (2014). The effects of incentive subjectivity and strategy communication on knowledge-sharing and extra-role behaviours. *Management Accounting Research*, 25(2), 119–130. <https://doi.org/10.1016/j.mar.2013.07.003>
- Cheng, M. M., & Humphreys, K. A. (2016). Managing strategic uncertainty: The diversity and use of performance measures in the balanced scorecard. *Managerial Auditing Journal*, 31(4/5), 512–534. <https://doi.org/10.1108/02656710210415703>
- Chenhall, R. (2005). Integrative strategic performance measurement systems, strategic alignment of manufacturing, learning and outcomes: an exploratory study. *Accounting, Organizations and Society*, 30, 395–422.
- Chirikov, I. (2013). Research universities as knowledge networks: the role of institutional research. *Studies in Higher Education*, 38(3), 456–469. <https://doi.org/10.1080/03075079.2013.773778>
- Choi, J. (Willie), Hecht, G. W., & Tayler, W. B. (2012). Lost in translation: The effects of incentive compensation on strategy surrogation. *The Accounting Review*, 8(7), 1135–1163.
- Christopher, J. (2012). Tension between the corporate and collegial cultures of Australian public universities: The current status. *Critical Perspectives on Accounting*, 23(7–8), 556–571. <https://doi.org/10.1016/j.cpa.2012.06.001>
- Comm, C. L., & Mathaisel, D. F. X. (2003). A case study of the implications of faculty workload and compensation for improving academic quality. *International Journal of Educational Management*, 17(5), 200–210.
- Decramer, A., Smolders, C., Vanderstraeten, A., Christiaens, J., & Desmidt, S. (2012). External pressures affecting the adoption of employee performance management in higher education

- institutions. *Personnel Review*, 41(6), 686–704.
- [21] Genç, K. Y. (2012). The Relation between the Quality of the Mission Statements and the Performances of the State Universities in Turkey. *Procedia - Social and Behavioral Sciences*, 58, 19–28. <https://doi.org/10.1016/j.sbspro.2012.09.974>
- [22] Gimbert, X., Bisbe, J., & Mendoza, X. (2010). The role of performance measurement systems in strategy formulation processes. *Long Range Planning*, 43, 477–497.
- [23] Goglio, V. (2016). One size fits all? A different perspective on university rankings. *Journal of Higher Education Policy and Management*, 38(2), 212–226. <https://doi.org/10.1080/1360080X.2016.1150553>
- [24] Gregory, J., & Jones, R. (2009). "Maintaining competence": A grounded theory typology of approaches to teaching in higher education. *Higher Education*, 57(6), 769–785. <https://doi.org/10.1007/s10734-008-9175-8>
- [25] Hair, J. F., Black, W. C., & Anderson, R. E. (2010). *Multivariate Data Analysis: A Global Perspective* (7th ed.). New Jersey, USA: Pearson Education.
- [26] Hoque, Z. (2011). The relations among competition, delegation, management accounting systems change and performance: A path model. *Advances in Accounting, Incorporating Advances in International Accounting, article in*.
- [27] Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1–55.
- [28] Humphreys, K. A., & Trotman, K. T. (2011). The balanced scorecard: The effect of strategy information on performance evaluation judgments. *Journal of Management Accounting Research*, 23, 81–98.
- [29] Khalid, S., Irshad, M. Z., & Mahmood, B. (2012). Job satisfaction among academic staff: A comparative analysis between public and private sector universities of Punjab, Pakistan. *International Journal of Business and Management*, 7(1), 126–136.
- [30] Khalid, S., Zohaib Irshad, M., & Mahmood, B. (2011). Job Satisfaction among Academic Staff: A Comparative Analysis between Public and Private Sector Universities of Punjab, Pakistan. *International Journal of Business and Management*, 7(1), 126–137. <https://doi.org/10.5539/ijbm.v7n1p126>
- [31] Kuswandi, Sundjoto, Noor, A., & Purwanto. (2015). Effects of Transformational Leadership, Personal values, Job Satisfaction on Lecturer Performance. *Journal of Arts, Science & Commerce*, VI(April 2015), 84–93.
- [32] Lau, C. M., & Roopnarain, K. (2014). The effects of nonfinancial and financial measures on employee motivation to participate in target setting. *The British Accounting Review*, 46(3), 228–247. <https://doi.org/10.1016/j.bar.2014.02.006>
- [33] Lau, C. M., & Sholihin, M. (2005). Financial and nonfinancial performance measures: How do they affect job satisfaction? *The British Accounting Review*, 37, 389–413. <https://doi.org/10.1016/j.bar.2005.06.002>
- [34] Lisyutkin, M. A., & Froumin, I. D. (2015). How Do Universities Degrade? *Russian Education & Society*, 57(6), 442–458. <https://doi.org/10.1080/10609393.2015.1096136>
- [35] Liu, N. C., & Cheng, Y. (2011). Global university rankings and their impact. In Philip G. Altbach (Ed.), *Leadership for world class universities*. New York: Routledge.
- [36] MacKinnon, D. P., Fairchild, A. J., & Fritz, M. S. (2007). Mediation analysis. *Annual Review of Psychology*, 58, 593–614.
- [37] Mangi, R. A., Soomro, H. J., Ghumro, I. A., Abidi, A. R., & Jalbani, A. A. (2011). A study of job satisfaction among non PHD faculty in universities. *Australian Journal of Business and Management Research*, 1(7), 83–90.
- [38] Mawoli, M. A., & Babandako, A. Y. (2011). An evaluation of staff motivation, dissatisfaction and job performance in an academic setting. *Australasian Journal of Business and Management Research*, 1(9), 1–13.
- [39] Michel, R. D. J., & Michel, C. E. J. (2015). Work schedule flexibility, work-family enrichment and job satisfaction. *Journal of Behavioural Sciences*, 25(1), 78–90. <https://doi.org/10.1016/j.sbspro.2010.03.109>
- [40] Ministry of Education Malaysia. (2015). *Malaysia Education Blueprint (Higher Education) 2015 -2025*. Putrajaya.
- [41] Molefe, G. N. (2010). Performance measurement dimensions for lecturers at selected universities: An international perspective. *SA Journal of Human Resource Management*, 8(1), 1–13.
- [42] Nawab, S., & Bhatti, K. K. (2011). Influence of employee compensation on organizational commitment and job satisfaction: A case study of educational sector of Pakistan. *International Journal of Business and Social Science*, 2(8), 25–32.
- [43] Nurfarahin Jasmine, S. A., Ismail, I. A., & Idrus, K. (2015). Organizational Antecedent with Job Satisfaction, Work Performance As Mediators and Knowledge Sharing Practices among Academician At Malaysia Research Universities. *International Journal of Economics and Financial Issues*, 5(1S), 57–62. Retrieved from [http://search.proquest.com/docview/1753607389?accountid=10218%5Chttp://www.ub.uni-koeln.de/openurl?url\\_ver=Z39.88-2004&rft\\_val\\_fmt=info:ofi/fmt:kev:mtx:journal&genre=article&sid=ProQ:ProQ:abiglobal&atitle=Organizational+Antecedent+with+Job+Satisfaction](http://search.proquest.com/docview/1753607389?accountid=10218%5Chttp://www.ub.uni-koeln.de/openurl?url_ver=Z39.88-2004&rft_val_fmt=info:ofi/fmt:kev:mtx:journal&genre=article&sid=ProQ:ProQ:abiglobal&atitle=Organizational+Antecedent+with+Job+Satisfaction)
- [44] Oshagbemi, T. (2000). Satisfaction with co-workers' behaviour. *Employee Relations*, 22(1), 88–106.
- [45] P. M. Bentler. (1990). Comparative fit indices in structural models. *Psychological Bulletin*, 107, 238–246.
- [46] Paul, E. P., & Phua, S. K. (2011). Lecturers' job satisfaction in a public tertiary institution in Singapore: ambivalent and non-ambivalent relationships between job satisfaction and demographic variables. *Journal of Higher Education Policy and Management*, 33(2), 141–151. <https://doi.org/10.1080/1360080X.2011.550087>
- [47] Perego, P., & Hartmann, F. (2009). Aligning performance measurement systems with strategy: The case of environmental strategy. *Journal of Accounting, Finance and Business Studies*, 45(4), 397–428.
- [48] QS Top Universities. (2016). QS World University Rankings: Methodology. Retrieved June 8, 2016, from <http://www.topuniversities.com/university-rankings-articles/world-university-rankings/qs-world-university-rankings-methodology>
- [49] Raemah, A. H., & Rosli, M. (2011). What is the state of job satisfaction among academic staff at Malaysian universities? *Universiti Tun Abdul Razak E-Journal*, 7(1 (January)), 15–26.
- [50] Rapih Mohamed, Hui, W. S., Ibrahim Kamal Abdul Rahman, & Rozainun Abdul Aziz. (2010). The relationship between strategic performance measurement systems and organisational competitive advantage. *Asian-Pacific Management Accounting Journal*, 5(1), 1–20.
- [51] Rashid, U., & Rashid, S. (2011). The effect of job enrichment on job satisfaction: A case study of faculty members. *Interdisciplinary Journal of Contemporary Research in Business*, 3(4), 106–118.
- [52] Rex B Kline. (2011). *Principles and practice of structural equation modeling* (3rd ed.). New York: The Guilford Press.
- [53] Sholihin, M., Pike, R., & Mangena, M. (2010). Reliance on multiple performance measures and manager performance. *Journal of Applied Accounting Research*, 11(1), 24–42.
- [54] Sukirno, D. S., & Siengthai, S. (2011). Does participative decision making affect lecturer performance in higher education? *International Journal of Educational Management*, 25(5), 494–508.
- [55] Tekeli, S., & Pasaoglu, D. (2011). Factors influencing performance of bank employees in turkey: Eskisehir province public and private bank sample. *International Journal of Business and Social Science*, 2(14), 167–174.
- [56] Times Higher Education. (2016). World University Rankings 2015-2016 methodology. Retrieved June 8, 2016, from <https://www.timeshighereducation.com/news/ranking-methodology-2016>
- [57] Toker, B. (2011). Job satisfaction of academic staff: an empirical study on Turkey. *Quality Assurance in Education*, 19(2), 156–169.
- [58] Whitman, D. S., Rooy, D. L. Van, & Viswesvaran, C. (2010). Satisfaction, citizenship behaviors, and performance in work units: A meta-analysis of collective construct relations. *Personnel Psychology*, 63, 41–81.
- [59] Widener, S. K. (2006). Associations between strategic resource importance and performance measure use: The impact on firm performance. *Management Accounting Research*, 17, 433–457.
- [60] Zainudin, A. (2014). *A handbook on SEM for academicians and practitioners: Practical guide for the beginners*. Kuala Terengganu: Universiti Sultan Zainal Abidin.