UNIVERSITI PUTRA MALAYSIA

PREDICTORS OF RESEARCH PERFORMANCE AND MEDIATION INFLUENCE OF WORK ENGAGEMENT AMONG ACADEMICS AT SELECTED MALAYSIAN RESEARCH UNIVERSITIES

SITI ZAINAB TAUHED

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By

SITI ZAINAB TAUHED

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PREDICTORS OF RESEARCH PERFORMANCE AND MEDIATION INFLUENCE OF WORK ENGAGEMENT AMONG ACADEMICS AT SELECTED MALAYSIAN RESEARCH UNIVERSITIES

By

SITI ZAINAB BINTI TAUHED

December 2018

Chairman : Assoc. Prof. Dr. Roziah Mohd Rasdi, PhD
Faculty : Educational Studies

Research performance among academics at Malaysian Research Universities is very significant in the present competitive academic world. This is based on the fact that university's ranking that is mainly based on the research activities and outputs, plays a significant role in determining the standing and reputation of a university. Therefore, studies to understand the phenomena about research performance of academics remains pertinent, especially from the non-western perspective. In the context of job performance, past empirical studies have substantiated that work engagement mediates the relationship between job performance and its predictors. However, work engagement has less been studied in the context of academics' work, particularly in research. Research performance of academics was theorized using Kahn's Theory of Personal Engagement at Work and Job Demands-Resources Theory. These theories highlight that works environment which includes organizational factors (organizational culture and transformational leadership), work resources (task significance and networking), and individual factors (individual effort, time management, and professional development) all of which explain individual research performance. Thus, this study aims were to determine the influence of these factors on academics' research performance and the mediating influence of work engagement between the predictors and research performance.

This study adopted a quantitative research paradigm using descriptive and correlational research methodology. Data were collected using cross-sectional study approach. The structured questionnaire was employed to collect data from 381 academics from grade 51/52 up to VK7 at the selected Malaysian Research Universities. They were chosen using the proportionate stratified random sampling procedure. Structural Equation Modeling was employed to examine the structural model of the study. The descriptive statistics of this study showed that the research performance of academics at MRUs is not promising. Results from the direct effect analysis showed that individual effort and professional development influenced significantly to research performance of academics. These findings indicate that individual factors are significant predictors of

research performance. In addition, organizational culture and transformational leadership significantly influenced work engagement. This shows that organizational factors are an important aspect in explaining work engagement. This study also found that work engagement did not mediate the relationship between research performance and its predictors. This study did not support Kahn's Theory of Personal engagement at Work and Job Demands-Resources Theory in explaining organizational factors and work resources as predictors of academics' job performance in research.

The study concluded that job performance is explained by different factors according to the nature of work. Research performance of academics in this study needs further attention and it is the function of individual factors. On the other hand, organizational factors are important in developing an engaged workforce. However, this study also concluded that work engagement did not have a mediation influence between its predictors and research performance. The study broadens the concept of research performance measures which mainly dominated by the number of publications and citations. This study also offers new insight for the Human Resource Development Practitioners related to academics' job performance in research which has been understudied. In terms of practice, individual effort and professional development need to become an important strategy to improve research performance of academics.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah.

PENENTU PRESTASI PENYELIDIKAN DAN PERANAN KETERLIBATAN KERJA SEBAGAI PENGANTARA DALAM KALANGAN PENSYARAH DI UNIVERSITI PENYELIDIKAN MALAYSIA TERPILIH

Oleh

SITI ZAINAB BINTI TAUHED

Disember 2018

Pengerusi : Prof. Madya Dr. Roziah Mohd Rasdi, PhD
Fakulti : Pengajian Pendidikan

Prestasi penyelidikan dalam kalangan ahli akademik adalah agenda penting di Universiti Penyelidikan dalam era yang kompetitif. Ini adalah kerana prestasi penyelidikan yang di ukur dari segi aktiviti dan hasil penyelidikan memainkan peranan yang sangat penting bagi menentukan kedudukan dan reputasi sesebuah universiti. Oleh kerana itu, kajian untuk memahami fenomena mengenai prestasi penyelidikan dalam kalangan ahli akademik adalah sentiasa relevan terutamanya daripada perspektif bukan barat. Di konteks prestasi kerja, kajian-kajian yang lalu telah membuktikan bahawa keterlibatan kerja menjadi perantara antara prestasi kerja dan faktor-faktor peramal prestasi kerja. Walaubagaimanapun, keterlibatan kerja kurang mendapat perhatian dalam kajian yang melibatkan profesion ahli akademik terutamanya bidang penyelidikan. Teori prestasi penyelidikan dalam kalangan akademik dijelaskan dengan menggunakan '*Kahn's Theory of Personal engagement at Work'* and *'Job Demands-Resources Theory'.* Teori-teori ini menerangkan bahawa persekitaran kerja yang merangkumi faktor organisasi (budaya organisasi dan '*transformational leadership')*, sumber pekerjaan (kepentingan tugas dan rangkaian), dan faktor individu (usaha individu, pengurusan masa dan pembangunan profesional) menerangkan prestasi penyelidikan di peringkat individu. Sehubungan dengan itu, kajian ini bertujuan untuk mengenal pasti adakah faktor-faktor tersebut mempengaruhi prestasi penyelidikan dalam kalangan ahli akademik dan peranan keterlibatan kerja sebagai pemboleh ubah perantara.

Kajian ini telah menggunakan pendekatan kuantitatif dengan reka bentuk penyelidikan deskriptif dan korelasi di samping mengguna pakai kajian keratan rentas. Soal selidik berstruktur telah digunakan dalam pengumpulan data. Data kajian diperolehi dari 381 ahli adademik dari gred 51/52 hingga Jusa C di Universiti-universiti Penyelidikan Malaysia yang terpilih. Sampel di pilih berdasarkan prosedur persampelan rawak berstrata berkadaran. Permodelan Persamaan Struktur (atau SEM-AMOS) digunakan untuk menguji model struktur kajian. Keputusan analisa menunjukkan bahawa usaha individu dan pembangunan professional memberi kesan secara langsung yang signifikan

terhadap prestasi penyelidikan ahli akademik. Kajian ini menunjukan bahawa faktor individu adalah peramal kepada prestasi penyelidikan ahli akademik. Di samping itu, budaya organisasi dan kepimpinan transfomasi mempengaruhi keterlibatan kerja. Keputusan ini menunjukkan bahawa faktor-faktor organisasi adalah penting untuk menerangkan keterlibatan kerja. Kajian ini juga menunjukkan bahawa keterlibatan kerja tidak menjadi perantara dalam hubungan di antara prestasi penyelidikan dan faktor-faktor peramalnya. Kajian ini tidak menyokong '*Kahn's Theory of Personal engagement at Work'* and *'Job Demands-Resources Theory'* dalam memberi penekanan kepada kepentingan faktor organisasi dan sumber pekerjaan terhadap prestasi kerja ahli akademik di dalam penyelidikan.

Kajian ini membuat kesimpulan bahawa pretasi kerja adalah dipengaruhi oleh faktor-faktor yang berbeza berdasarkan keadaan sesuatu kerja. Prestasi penyelidikan ahli akademik adalah pada tahap yang tidak begitu memberangsangkan. Prestasi penyelidikan akademik adalah fungsi faktor individu. Sebaliknya, faktor-faktor organisasi hendaklah di ambil kira dalam usaha untuk membangunkan tenaga kerja yang terlibat. Kajian ini juga membuat kesimpulan bahawa keterlibatan kerja tidak mempengaruhi hubungan di antara penentu dengan prestasi penyelidikan di kalangan akademik. Kajian ini menganjurkan konsep prestasi penyelidikan yang lebih meluas daripada didominasi oleh bilangan hasil penerbitan dan rujukan/petikan. Di samping itu, kajian ini memberikan pandangan yang baharu kepada pengamal-pengamal Sumber Manusia berkaitan prestasi kerja ahli akademik dari segi penyelidikan yang kurang dipelopori. Dari segi amalan, usaha individu dan pembangunan professional perlu untuk dijadikan sebagai strategi yang penting untuk memperbaiki prestasi penyelidikan ahli akademik.

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I certify that a Thesis Examination Committee has met on 18th December 2018 to conduct the final examination of Siti Zainab Tauhed on her thesis entitled "Predictors of Research Performance and Mediation Influence of Work Engagement among Academics at Selected Malaysian Research Universities" in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The Committee recommends that the student be awarded the Ph.D. in Human Resource Development.

Members of the Thesis Examination Committee were as follows:

Ismi Arif Ismail, PhD
Associate Professor
Faculty of Educational Studies
Universiti Putra Malaysia
(Chairman)

Abdul Latif Abdullah, PhD
Associate Professor
Faculty of Educational Studies
Universiti Putra Malaysia
(Internal Examiner)

Zoharah Omar, PhD
Senior Lecturer
Faculty of Educational Studies
Universiti Putra Malaysia
(Internal Examiner)

Mesut Akdere, PhD
Professor
University of Wisconsin - Madison
United States
(External Examiner)

_____
RUSLI HAJI ABDULLAH, PhD
Professor and Deputy Dean
School of Graduate Studies
Universiti Putra Malaysia

Date:

This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfillment of the requirement for the degree of Doctor of Philosophy. The members of the Supervisory Committee were as follows:

Roziah Mohd Rasdi, PhD
Associate Professor
Faculty of Educational Studies
Universiti Putra Malaysia
(Chairman)

Hjh. Rahinah Ibrahim, PhD
Professor
Faculty of Design and Architecture
Universiti Putra Malaysia
(Member)

Bahaman Abu Samah, PhD
Professor
Faculty of Educational Studies
Universiti Putra Malaysia
(Member)

_____
ROBIAH BINTI YUNUS, PhD
Professor and Dean
School of Graduate Studies
Universiti Putra Malaysia

Date:

Declaration by graduate student

I hereby confirm that:

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Name and Matric No.: Siti Zainab Tauhed (GS40352)

Declaration by Members of Supervisory Committee

This is to confirm that:

- the research conducted and the writing of this thesis was under our supervision;
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Signature: _____
Name of Chairman
Of Supervisory
Committee: Assoc. Prof. Dr. Roziah Mohd Rasdi

Signature: _____
Name of Member
Of Supervisory
Committee: Prof. Dr. Hjh. Rahinah Ibrahim

Signature: _____
Name of Member
Of Supervisory
Committee: Prof. Dr. Bahaman Abu Samah

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LIST OF ABBREVIATIONS

HEIs	Higher Education Institutions
KPI	Key Performance Indicators
JDRT	Job Demands-Resources Theory
MRU	Malaysian Research Universities
MyRA	Malaysia Research Assessment Instrument
R&D	Research and Development
RU	Research Universities
TPEW	Theory of Personal Engagement at Work
UM	Universiti Malaya
UKM	Universiti Kebangsaan Malaysia
USM	Universiti Sains Malaysia
UPM	Universiti Putra Malaysia
UTM	Universiti Teknologi Malaysia

CHAPTER 1

BACKGROUND OF THE STUDY

Research performance among academics is one of the prominent topics that have received considerable attention from researchers since 1950s. The fact that academics' research performance has a direct effect on the university performance, make this topic significant at all times (Cadez, Dimovski, & Groff, 2017; Frenken, Heimeriks, & Hoekman, 2017; Ademir Hajdarpasic, Brew, & Popenici, 2015). There are various forms of measuring research performance and most prominently is through publications (Brew, Boud, Namgung, Lucas, & Crawford, 2016; Marek Kwiek, 2016; Jung, 2012; and Shin & Cummings, 2010) and citations (Khan et al., 2014; and Carpenter, Cone, & Sarli, 2014; Harris & Kaine, 1994).

Competetive research performance is also associated with academic excellence. Thus, it becomes one of the measures of a university's excellence (Ahmad, Farley, & Soon, 2014). For example, the University's performance is measured mainly by research (30%) and its outcomes (35% - citation and 2.5% - industry income) for ranking purpose used by the Times Higher Education for 2016-2017. Accordingly, many universities set research as the key direction in their universities (Li, Millwater, & Hudson, 2008). The new direction in research has changed the demands on academics to commit and produce more value-added and competitive research outcomes (Suryani, Yaacob, Hashima, Rashid, & Desa, 2013; Ramli, Boer, & De, 2004).

Unlike other studies at the universities context that have examined academic job performance that involved teaching, research, and service to the community (e.g. Aminuddin et al., 2008), this study emphasizes on specific academic's job performance, that is research. It is chosen as it is directly related to the context of the main role of a university in both knowledge production and knowledge dissemination (Dundar & Lewis, 1998) as well as related to the key element of a university's reputation (Perry, Clifton, Menec, Struthers, & Menges, 2000).

The standard of research performance depends on the university's environment. Creating a research-oriented university is a long-term process that involved capacity building (Ridley, 2011) that is not only about imparting the body of knowledge but most importantly is creating a research ambiance (Finch, Cornwell, Ward, & McPhail, 2013). Ridley (2011) and Harris and Kaine (1994) further discussed that research environment involves developing the academics' readiness and qualities to involve actively and engage in research related activities. It also involves in developing the research community that ultimately focuses more on the intangible values, social and cultural practices such as openness to discuss research and support each other for research rather than on the tangible infrastructure and facilities. This means that research excellence is a gradual process.

However, the enthusiasm to be excellent in research was sometimes done without an appropriate plan. Not only, there was lack of influential specific strategies, policies, and processes related to research at the organizational level (Nguyen, 2016), but also there are challenges at the operational level that affect academics' research performance such as (a) lack of support; (b) higher teaching load; (c) lack of funding; (d) limited experience and lack of professional development in research; and (e) lack of research culture at both department and university (Basarudin, Yeon, Yaacob, & Rahman, 2016; Hardré & Hardre, 2012; Hardré, Beesley, Miller, & Pace, 2011; Shin & Cummings, 2010).

The above situation could be impliedly conjectured that challenges to be excellent in research are related to the organizational factors, job resources, and individual factors. The lack of job resources such as absence of support from the organization may disengage academics in performing their research activities and consequently may cause low research productivity (Naidoo, 2014). In addition, the Program on Innovation, Higher Education and Research for Development (IHERD) (Olson, 2012, p. 183) suggested that the Asian countries, which are Malaysia, Singapore, Thailand, Indonesia and Vietnam need to invest more heavily in capacity building and the expansion of opportunities for research in universities. This suggestion indicates the importance of developing the individual academics to be resilience to produce research output. Therefore, universities and Human Resource Development practitioners need to understand the organizational factors, work resources, and individual factors could be developed to enhance academics' research performance.

There were a number of studies that have been conducted to identify the factors that could increase research performance of academics. Few studies have found that organizational factros such as organizational resources influence academics' research performance. The size of the university, the culture of the institution and to a certain extent, the facilities provided by the organization have also been found to influence academics' research performance (Baran & Correia, 2014; Arifin, Troena, Djumahir, & Rahayu, 2014; Gu, Hoffman, Cao, & Schniederjans, 2014; Edgar & Geare, 2013). Past studies have substantiated that leadership style such as transformational leadership also contributing towards academics' job performance (Pourbarkhordari, Hua, Zhou, & Pourkarimi, 2016).

Apart from organizational factors, work resources such as task significance has been substantiatied in influencing academics' research performance. (Yang & Cho, 2015; Altunel, Kocak, & Cankir, 2015). Individual factors also are another construct that have been the focus of earlier studies on research performance. Aptitude, intelligence, and experience have been found to significantly influence research performance of academics (Dubbelt, Rispens, & Demerouti, 2016; Kooij, Tims, & Akkermans, 2016; Bosquet & Combes, 2013; Hu & Gill, 2000; Dundar & Lewis, 1998). Time management and professional development (Brew et al., 2016; Hardré & Hardre, 2012; Hedjazi & Behravan, 2011; Shin & Cummings, 2010; Blackburn et al., 1991) are another example of individual factor that have also been significantly contributing towards academics' performance.

Past studies have also shown an increased interest in investigating the mediating role of work engagement. Work engagement is a positive state (Schaufeli et al., 2002) that reflect an individual's motivation (Kahn, 1992) and it is related to positive work affect (Rothbard, 2001). In this study, work engagement is expected to mediate the relationship between research performance and its predictors as there were adequate evidence that substantiated the mediating effect of work engagement (Mazzetti et al., 2016; Caesens, Stinglhamber, & Luypaert, 2014; Shantz & Alfes, 2014; Menguc, Auh, Fisher, & Haddad, 2013).

Indeed, research performance issue significantly impacts universities' performance. This phenomenon of research performance among the academics in the MRUs' context calls for an effort to determine the predictors that are related to research performance. Such effort is in line with the aim of Human Resource Development (HRD) in developing competency that improve organizational performance. Therefore, HRD is vital to ensure that employees are productive and lead to the improvement and achievement of the personal and organizational target (Swanson & Holton, 2008).

It is also paramount to determine the factors that may influence and motivate academics in their everyday work especially in research performance by those responsible for the universities, be they vice-chancellors, deans, and heads of departments. The factors identified include organizational factors that consists of organizational culture and transformational leadership. Work resources that is represented by task significance and networking is also considered as one of the factors that distinctly influence academics' research performance that has received little attention in the studies about research performance of academics. This study also highlights the influence of employee attitudes and behavior with regards to individual effort, time management, and professional development. Work engagement that is associated with investment of fullselves physically, cognitively and emotionally is also discussed in this study with its roles as mediator. This study offers a comprehensive perspective related to research performance of academics in the field of human resource development.

Research Transformation in the Malaysian Higher Education Institutions

Research activities and performance play an influential role in determining the ranking and reputation of a university. Accordingly, the Malaysian government has aligned its target to make Malaysia the knowledge and innovation hub through Research and Development (R&D) as outlined in the National Higher Education Plan beyond 2020 and the Malaysia Education Blueprint 2015-2025 (Higher Education). The government has also implemented higher educational system transformation to strengthen the research activities and have more research outputs. This transformation is in response to the global trend (Lee, 2004) that requires the nation's higher education institutions to reposition the research (Ministry of Higher Education, 2007a; Ministry of Higher Education, 2007b). Equally important, the government also dedicate attention to the leadership of the universities as they play significant roles in ensuring the success of the R&D agenda (Tie, 2012).

The objective of this transformation is to reposition the Malaysian universities to achieve world-class status and operate as a hub for higher education in the Southeast Asia region for knowledge and innovation through R&D productivity (Abd Aziz & Abdullah, 2014; Knight & Morshidi, 2011; MoHE, 2007; Lee, 2004). In its transformation plan to improve the research performance, the Malaysian government aimed that two of its Higher Education Institutions (HEIs) to be among the 100 and 50 top world universities as delineated in the 10th and 11th Malaysia Plan, respectively.

The transformation plan among others also include the establishment of six (6) universities as Malaysian Research Universities (MRUs), the formation of ten (10) prominent R&D Centre of Excellence, and the promotion of innovative local products and services based on local R&D. The details of the transformation plan are depicted in Table 1.1 below. This transformation plan indeed demands extra effort from both universities and academics to ensure its success.

One of the means to improve the research performance is to institute the research-oriented environment. The government has recognized five universities as the Malaysian Research Universities (MRUs) since 2006 with the aim to improve the ranking of the Malaysian Universities in the THE-QS through intensification of research activities and outputs (Basarudin et al., 2016). These are Universiti Malaya (UM), Universiti Kebangsaan Malaysia (UKM), Universiti Sains Malaysia (USM), Universiti Teknologi Malaysia (UTM), and Universiti Putra Malaysia (UPM). The number of MRUs remains unchanged since 2006 as there are no other universities that have met the minimum criteria to be recognized as MRU. Similar to the higher education system in the US, the MRUs occupied the top ranking of scholarly esteem (Hardré & Cox, 2009).

Table 1.1: Transformation of the Higher Education Sector

Malaysia Plan	**10th 2011 – 2015**	**11th 2015 – 2020**	**Beyond 2020**
Phase	Strengthening and enhancement	Excellence	Glory and sustainability
Target outcomes	2 HEIs in top 100 world ranking	2 HEIs in top 100 world ranking	2 HEIs in top 50 world ranking
	6 research universities	Innovative local products and services based on local R&D	Malaysian Nobel Laureates
	10 prominent R&D centers of excellence		Respected repository of scientific patents

Source: The National Higher Education Strategic Plan: Beyond 2020, Ministry of Higher Education (2007, p. 15).

Research universities are trusted more for knowledge creation in comparison to the dissemination of knowledge (Abramo, Cicero, & D'Angelo, 2013). Therefore, the focus needs to be geared towards knowledge creation environment that has an impact on knowledge dissemination. There are two other types of university in addition to MRU, i.e. Comprehensive University and Focus University that have their own specific roles in the Malaysian tertiary education. However, today, research is the critical agenda of all types of universities in Malaysia and they are competing to fulfill the requirements set by the ministry in the ranking exercise. This has escalated the burden of both the university and the individual academic (Basarudin et al., 2016).

All public universities in Malaysia received their operating funds mainly from the government and they are answerable to the government. In the early years of MRU recognition, the government had allocated an additional amount of financial support (Prathap & Ratnavelu, 2014) in addition to the yearly operating budget to enable the MRUs to have more research-related policies and strategies (Chapman et al., 2014). This allows the MRUs to create more research grants and activities besides incentivize the academics (Ahmad, 2012). This investment was made with the expectation that the MRUs would have produced significant research outputs and be the model of the research-oriented university to other non-MRUs.

In addition, the government has allocated a substantial amount of budget in the form of research grants to catalyze the R&D activities ranging from basic to applied R&D. Provision of such funding is expected to increase research performance (Ahmad, 2012). These funds are competitive and all academics have equal opportunity to compete in order to secure the research grant. In such case, academics from MRUs compete with academics from other types of universities, i.e. Comprehensive Universities and Focus University to remain competitive.

As a result of the research-intensive activities, the publications of Malaysian public universities are higher in comparison to that of Malaysian private universities (Prathap & Ratnavelu, 2014; Suryani, Yaacob, Abd Rashid, & Desa, 2013). It is further evidence from the report of Ministry of Education Malaysia (2015) that the number of research articles published by Malaysian Universities grew more than threefold between 2007 and 2012. The number of citations had also increased fourfold from 2005 to 2012. Interestingly, 70 percent of these publications were contributed by the five Malaysian Research Universities (MRUs).

This achievement indicates that the government's effort to spur the research activities and intensify the research outputs was considered successful. Malaysia has shown considerable improvement in the overall higher education system with improvement in terms of ranking from 27th to 25th as reported in the Ranking of National Higher Education Systems 2017 by Annual Report by Universitas21 (U21), a global network of research universities for the 21st century (Williams, Leahy, & Jensen, 2017) as depicted in Table 1.2. This result is expected as Malaysia had doubled the investment on research expenditure for the past two years and ranked as the biggest spender in research among the other 50 countries (Williams et al., 2017). Subsequently, it improved Malaysia's ranking for research output from 44th to 25th.

Table 1.2: U21 Ranking of National Higher Education Systems

Types	Country	Resources	Environment	Connectivity	Output	Overall
Asia	Malaysia	12	26	35	44	28
	Singapore	9	11	5	19	10
	South Korea	18	39	32	18	21
	Hong Kong	19	4	7	23	15
Global	USA	4	3	15	1	1
	Australia	16	8	8	6	9
Types of metrics used		Government expenditure, investments, R&D	Qualitative assessment of policy and regulatory environment	- Collaboration global and with industries - International student enrolment	Research output, institution ranking, enrolment, employabi-lity	The average score of the four category -es

Source: Summary of Malaysia Education Blueprint Education 2015 - 2025 (Higher Education), Ministry of Education Malaysia 2015, p. 5).

Academics and Research Transformation in Malaysian Research Universities

Research performance appears to dominate the criteria of becoming a world renowned university in the current academic landscape as academics' job performance in research is closely related to the university's core competence in knowledge creation. This makes academic job performance in research very significant as it is closely linked to and has a substantial effect on the university's standing (Cadez et al., 2017; Aguinis & O'Boyle, 2014). Therefore, even in the current economic downturn situation, academics' job performance in research remains highly expected (Bentley, 2015a; Bland, Center, Finstad, Risbey, & Staples, 2005) to enable academics to contribute in maintaining and improving the university's performance to be a renowned RUs.

Despite the fact that budget allocation is an important determinant for research performance (Abouchedid & Abdelnour, 2015), there was sizable budget cut and reduction for MRUs. This has greatly affected academics in their research activities that consequently affect their research performance (Basarudin et al., 2016; Ahmad, Farley, & Naidoo, 2012). Although the resources are declining, higher expectation on research performance is imposed on the academics of MRUs from time to time. Both the government and university have set a standard annual research key performance indicators (KPIs) to be achieved by the academics. Notwithstanding, the fulfillment of KPIs for research performance is also tied to the requirement for promotion or career advancement and tenure decisions (Cadez et al., 2017; Basarudin et al., 2016).

Besides the higher expectation for research performance, the academics are not likely to get reduced teaching hours since the number of undergraduate students is on the rise (Basarudin et al., 2016). They are even entrusted with the additional responsibility to secure more research grants offered internally by the university and externally by both the government and international agencies without any extra compensation (Basarudin et al., 2016). Academics have difficulty to complete a research project besides having low publications, and low level of postgraduate studies completion was often reported

(Williams et al., 2017; Ministry of Education Malaysia, 2015; Lodhi, 2012; Ahsan & Alam, 2009). This lead to low research performance which has been regularly discussed in the mainstream media (The Star Online, Jan 9th, 2017).

The transformation to institute the research culture is a long-term process (Lodhi, 2012) as shown in a case study by Ridley (2011) that Addis Ababa University, Ethiopia took about sixteen years to institute the research culture. The 10 years' emphasis on research-intensive is considered new to the Malaysian academics as previously they were mainly involved in teaching. It is also not a surprise that academics are having work overload besides lacking of knowledge, skill, and ability to perform the expected research work (Lodhi, 2012; Ahsan & Alam, 2009).

A longitudinal study by Idris (2011) shows that academics are in role overload and role ambiguity which may pressure them in the long run. Idris (2011) further argued that role overload happens when academics are expected to produce more than their individual ability and motivation as well as when academics are unclear about how to execute the job. A study by Noor and Ismail (2016) which examined the phenomena of occupational stress among academics at one of the Malaysian RUs found that teaching, research, and career development were significantly associated with stress. They further argued that career development that was measured by University condition and the publication requirement for promotion was found to be the highest source of academics' stress.

The above studies shed some lights that academics of RUs are in stressful condition for them to achieve and accomplish the standards set by the universities in research related work in comparison to teaching. Thus, the academics involved are likely associated with intention to leave the academic profession (Ryan, Healy, & Sullivan, 2009) and the university (Idris, 2011; Harris & Kaine, 1994).

On contrary, there are academics who performed in their annual KPIs related to research and they have the advantage for their career development (Abu Said, Mohd Rasdi, Abu Samah, Silong, & Sulaiman, 2015; Elen, Lindblom-Ylänne, & Clement, 2007). This shows that characteristics of researchers also contribute towards sound research output. Researchers who have high research performance are those who have better stress coping strategy, dedicate more time to research activities and worked at top-tier universities (Amara, Landry and Hallilem, 2015). Edgar and Geare (2013) also found that 'belonging to research team', 'satisfaction with performance appraisal process', 'a proven track record in publishing', and being 'trained in the skills necessary for quality research' are influential factors for research performance of high performers. Interestingly, there are universities that rely on few 'stars' research performers since organization's research performance is measured by the average number of research performance of the academics (Dundar & Lewis, 1998).

As the discussion of research performance revealed that research performance among academics varies. The variation is accounted by the constructs related to the organization factors, work resources, and individual factors.

Managing Research Performance of Academics

Research performance among academics has become one of the most challenging issues faced by the Malaysian Research Universities. The University's management need to strategize the plan to instill research culture at the universities. Kahn's Theory of Personal Engagement at Work (TPEW) (1990) suggests that organizational factors, work elements and individual factors influence job performance. The Job Demands-Resources Theory (JDRT) further strengthen this notion that job resources which consist of several features such as physical, organizational, social and physiological as well as personal resources also contribute towards job performance. Job performance in the context of this study referring to the output of the work performed by academics as knowledge workers where their output is important for institutions to depend on for knowledge production and transfer (Edgar & Geare, 2013).

JDRT further strengthen the notion that employees with sound job resources and personal resources would influence their job performance. JDRT conceptualizes job resources in a broader sense that include those physical, psychological, social, or organizational aspects of the job that directly related to the tasks and duties that employees perform at work (Bakker & Demerouti, 2007). From these two theories, the management could comprehend that the important factors to manage research performance are organizational factors, work resources and individual factors.

It is noted that organizational factors are of relevance for the person who is in role performance (Roe, 1999) as these factors are related to the social systems of the organization. These organizational factors make employees feel safe in expressing and employing themselves during work role performance (Kahn, 1990). In addition, an institution with an appropriate organizational environment would generate more research output (Gantman, 2009). Beside the organizational norms, Bland, et al. (2005) highlighted the importance of leadership in influencing academics to produce research output. Similarly, Christian, Garza, and Slaughter (2011) highlighted the importance of leadership in providing direction for employee to have better performance.

Similarly, equal emphasis need to be given on work characteristics or elements such as task significance and networking which make academics feel that their research work is meaningful. Academics believed that their research tasks and output are significant as they have a high impact on others' lives (Christian et al., 2011) through knowledge creation and dissemination are ultimately to benefit the society (Abramo, et al., 2013). Networking for example, provides a platform for academics to obtain information for research opportunities and collaboration, feel related to academic community, and acquire skills and techniques in performing research tasks was also found influence research performance (Daly & Dee, 2006). These could be inferred that work characteristics contribute to employees' job performance, general health and well-being at work (Cerasoli, Nicklin, & Ford, 2014; Saksvik, 2013). Thus, the organization could assure and provide an environment that research work is a meaningful and interesting for the academics.

Individual factors have also received attention as one of the factors that contribute towards research performance in most past studies on research performance. Among the individual factors are self-efficacy, time management, aptitude, and experience. Blackburn et al. (1991) study recommended that academics' self-efficacy and competency are significant for their research performance. Likewise, time spent in conducting research have a significant influence on academics research performance (Bentley, 2015b; Aminuddin et al., 2008; and Hu & Gill, 2000).

Work habits and work effort are another behaviors that have an effect on research performance (Hedjazi & Behravan, 2011; Krishnan & Boles, 2002; Fox, 1983). In addition, professional development that equips academics with varieties of skill makes employees become competent in their research tasks and thus contributing to research performance as well (Brew, Boud, & Namgung, 2011; Edgar & Geare, 2013; Blackburn et al., 1991). Creswell (1985) strongly argued that adequate job resources are important for academics to be a productive researcher.

These individual factors motivate academics to be responsible in performing the job and knowlegable about the results of their activities (Christian et al., 2011). Edgar and Geare (2013, p. 782) have clearly alluded one of his participants's view in their study that "all you can do is provide opportunities to explain why it's important and so on, so if they're not going to do it willingly by themselves, it's not going to happen". This emphasizes the importance of managing individual factors to enhance academics' research performance.

The management of universities and the HRD practitioners should also consider to enhance the academics' work engagement. Past studies have shown that work engagement mediates the relationship between its predictors and outcomes (Mazzetti et al., 2016; Albrecht, 2012; Hart et al., 2010; Rich et al., 2010; and Salanova, Agut, & Peiró, 2005). A study by Saks (2006) has substantiated that work engagement could improve individual's job attitude such as they are more satisfied with their job, have low intention to quit the organization, and more committed to the organization. Myhre (2014) recommended that employees with self-efficacy and optimisim are more engaged in their work. Due to the nature of work engagement and past studies, therefore, work engagement could be considered as mediator in the study between research performance of academic and its predictors.

In managing research performance of academics, the management and HRD of the universities should give attention to the organizational factors, work resources and individual factors, which make employees be more engrossed, absorbed and interested in performing their job which ultimately influence the job performance.

Statement of Problem

Research performance of academics becomes an area of concern as it is closely associated with the ranking of a university. Research performance started to receive

serious attention in Malaysia since 2006. After more than a decade of attempt to enhance research performance, the report by the Ministry of Education (2015) which was based on the Annual Report by Universitas21 (U21), highlighted that Malaysia's performance in R&D is still lacking despite the fact that Malaysia is one of the biggest spenders in higher education.

The report also shown that Malaysia is ranked number 12 among the countries that has allocated the highest expenditure on higher education as exhibited in Table 1.2. However, Malaysia is one of the weakest in research output, that is at the 44th place among fifty higher education institutions in comparison to other countries that have a lesser investment in higher education such as South Korea and Hong Kong (Williams et al., 2017; The Star Online, Jan 9th, 2017; Ministry of Education Malaysia, 2015). In addition, for research output such as articles co-authored with an international collaborator, Malaysia's ranking dropped from 35th to 38th. The said report also revealed that the number of Malaysian academics' publications in reputable journal needs to be increased. Similarly, the rate of postgraduate students' graduate on time is very low. It can be concluded that despite Malaysia is significant amount of investment in higher education system, its performance in research outputs is still deficient. Thus, this makes performance in research become the concern of both Malaysian government and universities.

Study about research performance has started as early as in the 1940s and mostly in the US with the aim to improve the low research performance among academics (Creswel, 1985). In addition, studies about research performance among academics are still scarce in comparison to studies related to teaching (Edgar & Geare, 2013; Dundar & Lewis, 1998; and Blackburn, Bieber, Lawrence, & Trautvetter, 1991). Most of the studies on the relationship between academics' research performance with its predictors were conducted in HEIs at European countries (e.g. Verbree, 2015), United States of America (e.g. Dundar & Lewis, 1998; Blackburn et al., 1991; Creswell, 1986), and New Zealand (e.g. Edgar & Geare, 2013). Studies on academics' research performance in the Malaysian context is negligible (e.g. Aminuddin et al., 2008). Although previous studies have substantiated the factors that influence research performance, there is a need to examine whether the identified variables proven to influence research performance in previous studies have a similar influence in a different socio-cultural work environment (Hardré, Beesley, Miller, & Pace, 2011; Bland et al., 2005).

Theory of Personal Engagement at Work (TPEW) postulated that organizational factors are the significant factors that influence job performance. Organizational norm or culture is one of the organizational factors that influence job performance and this is evidence in past studies by Bakker, Demerouti, and Sanz-Vergel (2014), Prajogo and McDermott (2011), and Sarros, Cooper, and Santora (2011). However, there are lack of studies related to the influence of organizational culture on research performance and the findings were inconclusive (Edgar & Geare, 2013; Shin & Cummings, 2010; Bland et al., 2005). Likewise, transformational leaders who have a clear vision, charismatic, and inspiring have been shown to have an influence on performance (Edgar & Geare, 2013; Zhu, Avolio, and Walumbwa 2009; Bland et al., 2005) but there is lack of studies that examine the influence of transformational leadership on research performance.

Past studies on academics' job performance in research suggest that certain individual factors such as aptitude, experience, and enthusiasm of the academics influence academic job performance in research (Aminuddin et al., 2008; Dundar & Lewis, 1998). These findings were in line with the argument of TPEW that individual factors influence job performance. Accordingly, there is a need to study other individual factors that are more relevant to the work context in predicting job performance (Kooij et al., 2016) such as individual effort and time management which are lacking in the studies on research performance of academics.

In addition, the influence of work characteristics such as task significance and networking in explaining job performance have been studied (Dubbelt et al., 2016; Brew, Boud, & Namgung, 2011; Shantz, Alfes, Truss, & Shantz, 2013; Muijs, West, & Ainscow, 2010; and Grant, 2008) but it is understudied in research performance domain. Thus, further studies are warranted to investigate the influence of job resources, i.e. task significance and networking on research performance. Based on the above discussion, this study examined the influence of organizational factors, individual factors, and job resources concurrently on research performance.

For the last ten years, studies have established the uniqueness of work engagement as mediator in diverse sectors such as banking, manufacturing, healthcare, and the like, (Bakker, 2011; Hart et al., 2010; Rich et al., 2010; Saks, 2006). However, this study observed that very little studies have investigated the influence of work engagement in mediating academics' research performance with its predictors (Dubbelt et al., 2016; Menguc, Auh, Fisher, & Haddad, 2013; Kim, Kolb, & Kim, 2012). Based on past studies and the theoretical framework, this study examined the influence of work engagement in facilitating the relationship between academics' job performance in research and its predictors.

The above discussions led to the development of research question for this study that are: (i) what is research performance; (ii) what are the factors that explain research performance and work engagement; (iii) what are the variables that explained greater variance in academics' research performance? and (iv) does work engagement mediates the relationship between research performance and its predictors. Therefore, this study attempted to answer such research questions in order to fill up the knowledge gap in the specific context of research performance of academics from the Malaysian perspective.

Objectives of Study

General Objective

In general, this study examined the influence of organizational factors, work resources and individual factors on research performance of academics at selected Malaysian Research Universities (MRUs). This study also investigated the mediation influence of work engagement in the relationship between job resources, transformational leadership and individual factors with research performance of academics.

Specific Objectives

The specific research objectives were:

i. to determine the level of research performance (the number of articles published, number of grants received as principal researcher, number of conference presentation and number of completed postgraduate students' supervision) among academics at selected Malaysian Research Universities;

ii. to determine the level of work engagement, organizational factors (organizational culture and transformational leadership), work resources (task significance and networking), and individual factors (individual effort, time management and professional development), among academics at selected Malaysian Research Universities;

iii. to determine the relationship between organizational factors (organizational culture and transformational leadership), work resources (task significance and networking), and individual factors (individual effort, time management and professional development), and work engagement with research performance among academics at selected Malaysian Research Universities;

iv. to determine the contributions of organizational factors (organizational culture and transformational leadership), work resources (task significance and networking), and individual factors (individual effort, time management and professional development), and work engagement on research performance among academics at selected Malaysian Research Universities;

v. to determine the mediation influence of work engagement on the relationship between organizational factors (organizational culture and transformational leadership), work resources (task significance and networking), and individual factors (individual effort, time management and professional development) on research performance among academics at selected Malaysian Research Universities.

Hypotheses of Study

The hypotheses of this study were as follows:

H_1: Organizational culture influences research performance of academics.

H_2: Transformational leadership influences research performance of academics.

H_3: Task significance will have a positive influence on research performance of the academics.

H_4: Networking influences research performance of academics.

H_5: Individual effort will have a direct and positive influence on research performance of the academics.

H_6: Time management will positively influence research performance of academics.

H_7: Professional development will have a direct and positive influence on research performance of academics.

H_8: Work engagement influences research performance of academics.

H_{9a}: Work engagement mediates the relationship between organizational culture and research performance of academics.

H_{9b}: Work engagement mediates the relationship between transformational leadership and research performance of academics.

H_{9c}: Work engagement mediates the relationship between task significance and research performance of academics.
H_{9d}: Work engagement mediates the relationship between networking and research performance of academics.
H_{9e}: Work engagement mediates the relationship between individual effort and research performance of academics.
H_{9f}: Work engagement mediates the relationship between time management and research performance of academics.
H_{9g}: Work engagement mediates the relationship between professional development and research performance of academics.

Significance of Study

This study is significant as the findings contribute to the body of literature on the reliable predictors of research performance among academics. This study examines the predictors of research performance that are applicable in the Malaysian context, which has its unique socio-cultural context. In addition, this study verified the theoretical framework used to examine work engagement as the mediator between research performance and its predictors. Theory on Personal Engagement at Work (TPEW) and the Job Demands-Resources Theory (JDRT) were used as the underpinning theories to explain research performance among academics. TPEW explains the importance of organizational factors, work characteristics and individual factors in understanding academics' performance in research. This notion is futher supported by JDRT that emphasizes on the importance of job resources that consist of physical, psychological, social, and organizational factors in influencing research performance. Integrating these two theories, contribute to a better understanding of research performance among academics. It is quite evident that this study is able to provide a comprehensive perspective to understand the interdependence of the identified factors as a mechanism to enhance research performance of academics.

In order to have a comprehensive understanding about research performance, no one factor, either organizational factors, work resources or individual factors, can stand out in isolation to be a significant predictor of work engagement as well as research performance of the academics. Focusing on any single factor will be detrimental to other factors and it is likely that the attainment of the expected outcomes will not happen (Morgeson & Humphrey, 2006). Hence, this study makes the theoretical contribution of explaining how these variables, specifically organizational factors, work resources and individual factors, work together as the predictors of work engagement and subsequently influence the academics' research performance.

At present, studies that identifying factors to improve research performance particularly among academics at Malaysian universities are lacking despite the importance of research performance at universities. Therefore, identifying potential predictors within the study context is very important to further understand the phenomena before organizations can gain the benefits from the workforce (Rich et al., 2010). The findings of this study could likely be a reference when the managers of MRUs are entrusted to

develop policies and procedures to enhance academics research performance especially when it involves proposing feasible strategies and direction to stakeholders.

The findings of this study offer valuable insights for top management of universities and managers of the MRUs to plan activities to enhance research performance. Understanding and quantifying the identified variables in this study is an important step in designing more efficient mechanisms to improve research performance of academics (Bosquet & Combes, 2013). Findings of this study offer guidelines which can help MRUs managers to formulate new approaches to further improve employees' preference for factors that could enhance their research performance. This study is in line with the government's effort of making Malaysia as an educational hub for knowledge and innovation. This study, in a way, contributes in developing relevant policies for the government to further accelerate Malaysia's progress in internationalization, with R&D as a potential catalyst (Knight & Morshidi, 2011; Abd Aziz & Abdullah, 2014).

As for the Human Resource Development (HRD) practitioners, an important starting point for any active policy is the baseline measurement of research performance and its drivers among the targeted population. It is proposed that the identified factors to explain research performance presented in this study, could enhance the HRD practitioners' understanding about research performance and they are able to comprehend the relevant factors that improve academics research performance. The details assessment of all the factors involved is very useful for the HRD practitioners to devise intervention strategies at individuals, teams and the organization at large.

Scope and limitations of the study

In conducting this study, there are several limitations. First, despite the advantages of using survey method, this study purposely uses this method in order to gauge the overall phenomena about research performance and it predicting variables. There are several weaknesses of using it such as lack of detail and in-depth information, lack of control over the timeliness and difficulties in determining the truthfulness of the answers. Taking this issue into consideration and in order to minimize the weaknesses of using survey method, the study adopted some guidelines such as using only previously tested, reliable and valid scales in this research, and provide clear guidelines and instructions in the questionnaire (Hair et al., 2003). In addition, the respondents were informed that the data are confidential, and self-reports may be the best way to assess sensitive private behavior such as their time management and their individual effort (Dalal, Baysinger, Brummel, & Lebreton, 2012).

Second, this research is subject to the individual responses based on the social norms and standards. There is certain variable especially that are related to the organizational variable could be considered as a sensitive issue and may lead to the issue of bias. For example, employees might be unwilling to respond to some items concerning the organization culture and leaders. This attitude may, to some extent, distort the findings of this research. Nevertheless, several preventative steps such as guaranteed

confidentiality and anonymity of individual responses were taken to minimize this bias (Podsakoff, et al. 2003).

Third, a measure of research performance is based on the self-reported data. Due to various reasons, it is possible that the numbers may be inflated (Hu & Gill, 2000). Considering Hu and Gill's contention, the scale applied is designed and validated with specific context relevant to the samples, i.e. academics of Malaysian Research Universities. Thus, it is possible that there will be some potential problems when applying this measure. In order to enhance the stability of the findings through the SEM model, research performance construct is considered as a manifested variable. In addition, the research performance was only focusing on the quantity rather than quality. This stand is made as the definition of quality varies between disciplines.

Fourth, the sample of this research are academics from the Research Universities (RUs) in Malaysia. The rationale to narrow this research at the MRUs is to exclude the organizational environments differences between MRUs with other types of universities that could affect the interpretations of research performance and its predictors. Therefore, generalizations of this study findings could not be made to other types of universities in Malaysia.

Fifth, it is noted that to have quality research performance for example publication of articles in top-tier journal requires more effort and longer time (Hu & Gill, 2000). Thus, it may be an advantage for senior academics in comparison to the newly recruited ones. Thus, in this study age and work experience have been determined as the control variables in order to identify clearly the relationship between the exogeneous and endogeneous variables.

Finally, in this study, research refers to the basic and applied research that aims at providing deeper knowledge about certain topics (Bremer 1999, p. 2). This study did not cover the aspect of research that aims for commercialization and business creation which involves in technology transfer of the results of research from universities to the commercial sector. Attention in this study is focusing on basic and applied research as they are the fundamental and basic activities in R&D that require different set of predictors to that of commercialization and business creation (Gerbin & Drnovsek, 2016; and Yusoff, Khan, Mubeen, & Azam, 2013).

Assumptions

Based on the extensive literature reviews from articles, the main assumption of this study is that, this study is fully aware of the issues related to research performance among academics in the Malaysian Research Universities which deserves attention and remedy. High expectation to produce competitive research performance has changed the demand of academic work to deliver the Key Performance Indicator (KPI) in research such as human capital, publications and sharing the finding through conferences and seminars. At the same time, academics are expected to perform the other substantive duties such as teaching, consultancy and service to the community as usual. In this situation, the

academics are struggling to perform the normally expected activities and striving to achieve the expectation in research which is more demanding as research performance is one of the pertinent indicators of organizational performance. This study also assumes that the academics in the Malaysian Research Universities have full control over their research performance behavior. This is based on the fact that academics have autonomy to conduct research and that research is the result of individual activities where they have the opportunity to boost their true potential by engaging themselves into the research activities.

It is worth noted that the level of research performance among academics is different due to various reasons such as demographic, institutional environment and individual factors. As for the demographic variables, age and tenure of service as an academics at the universities have been identified as the factors that may have influence on research performance. Thus, these two variables have been classified as the control variables in this study. In addition, the exogenous variables used in this study were identified as important variables based on the past studies and found to be contributing towards academics' research performance. This study assumes that the examination of the relationships between the selected exogenous variables, research performance, and work engagement as the mediating variable would help in understanding research performance among academics in the Malaysian context. This study assumed that the available instruments developed by scholars from western are appropriate for this study on research performance at the Malaysian Research Universities with some modifications to suit the socio-cultural factors of the Malaysian context.

Definition of Terms

Research performance is defined as the quantity of academics' various research outputs as the result of research activities.

Work engagement is defined as the academics' perception about the degree to which they have invested themselves physically, cognitively and emotionally in performing their research work.

Job resources is defined as physical, psychological, social, or organizational factors of the job that are related directly to the duties and tasks that academics perform at work.

Organizational factors refer to the organizational context in which employees work that is manifested through employees' behaviors and output.

Organizational culture is defined as the academics' perception about the shared values, principles, traditions, and ways of doing things that influence the way organizational members act.

Transformational leadership is defined as the extent of academics' perception about the behaviors of their leaders in inspiring them that could raise their level of motivation.

Work resources refers to the characteristics of the task, job, and organizational and social environment that could motivate employees.

Task significance is defined as the degree to which academics found their job has a substantial impact on the lives of other people.

Networking is defined as the perceived contact system that provide information and enhance skills in performing research-related activities.

Individual factor is defined as the differences of individual or personal characteristics that are relatively stable over time and situations.

Individual effort is defined as the academics' perception of frequency about their involvement in research-related activities.

Time management is defined as the academics' perception about how they manage their time to accomplish the research-related activities.

Professional development is defined as the degree of academics' perception about the formal or informal developmental activities to improve knowledge and skill in the discipline that they have experienced.

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BIODATA OF STUDENT

Siti Zainab Tauhed was born in a family that emphasized on the importance of education. The hard work and dedication of her parents inspire her to strive for the best in her education. She graduated with an upper second class honours, Bachelor of Islamic Education degree in 1994 from University of Malaya (UM). After her graduation, she joined the Education Service Commission (*Suruhanjaya Perkhidmatan Pendidikan*) as a teacher from May 1994 till April 1995. She was then offered for a position as an Assistant Lecturer at the Kulliyyah of Education, International Islamic University Malaysia (IIUM) in May 1995. Due to her interest in management, she joined the administration of IIUM as an Assistant Director in 1997. In 2001, she was granted the IIUM's scholarship to continue her Master's degree in Public Administration at the Faculty of Economics and Administration, UM and graduated in year 2003. Later, in 2014, she continued her PhD degree in Human Resource Development at the Faculty of Educational Studies, UPM under the scholarship and study leave of Ministry of Higher Education and IIUM respectively. She is now the Deputy Director at Kulliyyah of Dentistry, IIUM.

Her research focuses on the predictors of research performance and work engagement among academics at the Malaysian Research Universities. During her Ph.D candidature, she has written few conference papers which were presented at various conferences both in Malaysia and abroad. Her papers were presented at the conference organized by the Academy of Human Resource Development, at Bangkok, Thailand (2018); Postgraduate Workshop at Warwick University, UK (2018); International Conference on Business Management and Social Science organized by UiTM (2017); Graduate Research in Education Seminar (GREduc 2016) held at the Faculty of Educational Studies, UPM and International Conference on Educational Research and Practice 2015 (ICERP 2015) held at The Everly, Putrajaya. Her papers were improved and published in journals.

LIST OF PUBLICATIONS

Journal

Tauhed, S. Z., Mohd. Rasdi, R., Ibrahim, R., Abu Samah, B., (2018). The Influence of Organizational Factors on Work Engagement among Academics at Malaysian Research Universities, *International Journal of Academic Research in Business and Social Sciences*, Vol. 8, Issue No. 10, 2018

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Paper Presentation

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Tauhed, S. Z., Mohd. Rasdi, R., Ibrahim, R., Abu Samah, B., (2016). The Mediating Effect of Work Engagement between its Antecedents and Outcome among Academics in Research and Development at Malaysian Public Universities. Paper presented at at the Graduate Research in Education Seminar (GREDUC 2016), at the Faculty of Educational Studies, UPM.

The Influence of Organizational Culture, Transformational Leadership and Professional Development on Work Engagement among Academics at Malaysian Research Universities. Paper presented at a Postgraduate Students Seminar at Warwick University, London during Student Mobility Program 2018 (May, 2018).

Tauhed, S. Z., Mohd. Rasdi, R., Ibrahim, R., Abu Samah, B., (2018). The Influence of Organizational Factors on Work Engagement among Academics at Malaysian Research Universities. Paper presented at AHRD, Bangkok, Thailand (November, 2018).