Implementation of Research Assessment Instruments by Malaysia Research Assessment (MyRA) in Malaysian HEIs: Role, Challenges and Strategies

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ABSTRACT

This study aims to analyze past studies related to Malaysia Research Assessment (MyRA) and provide a comprehensive literature review of MyRA. The objective of this study is to analyze the themes and focus of past studies related to MyRA, particularly the role of MyRA in research development, challenges in MyRA implementation, and strategies to improve MyRA rating achievement. This study uses a qualitative literature review design to analyze past studies related to MyRA. Data were obtained from secondary sources such as these, dissertations, journal articles, conference papers, reference books, and websites discussing the study's topic. The data were analyzed thematically. The main findings of the study indicate that MyRA plays an important role in research development in Malaysian higher education institutions, but there are challenges in its implementation, such as language barriers, limited access to publishing opportunities, and competition for publication in high-impact journals. Therefore, recommended strategies to overcome these challenges include improving English language skills, increasing access to publishing opportunities, and improving research quality. In conclusion, MyRA plays an important role in research development in Malaysian higher education institutions, and the recommended strategies need to be implemented to improve MyRA rating achievement.

Keywords: Research assessment, Malaysia Research Assessment (MyRA), HEI, literature review, research development.

INTRODUCTION

Research is a systematic and scientific process of investigation into a specific subject or problem. The purpose of research is to gain new knowledge, insights and understanding (Epstein, 2014). Processes and actions in research involve identifying research problems, data collection, data analysis and data interpretation. Research can be carried out in various fields, including science, social science, humanities and so on (Petrovich, 2022). From the aspect of research approach, research can be qualitative, quantitative or mixed, and can involve various methods such as surveys, experiments, case studies, and ethnography (Uher, 2018).

Higher education centers are developed around the world as platforms for research activities. Research in Malaysia has grown in recent years, and higher education institutions (HEIs) play a major role in this (Sohail, & Daud, 2009). The Malaysian government has invested heavily in research and development (R&D), and HEIs have been able to take advantage of this funding to support their research activities (Tidd & Brocklehurst, 1999). There are currently five research universities in Malaysia: Universiti Malaya (UM), Universiti Kebangsaan Malaysia (UKM), Universiti Sains Malaysia (USM), Universiti Putra Malaysia (UPM), and Universiti Teknologi Malaysia (UTM). These universities have been given additional funding for R&D and research commercialization (Sheriff & Abdullah, 2017; Faridah Hanum Amran. et. al., 2014).

There are also many other HEIs in Malaysia that conduct research. These HEIs include comprehensive universities, focus universities, and private universities (Sharimllah Goddess Ramachandran et. al., 2011; Tham & Kam, 2008). Research carried out at Malaysian HEIs covers a wide range of disciplines, including science, engineering, medicine, social sciences, and humanities (Jung Hey Shin et. al., 2014). The research carried out in Malaysian HEIs has a great impact on the economy and society of the country. (Selvaraj Grapragasem et. al., 2014) Research findings are used to develop new products and services, improve quality of life, and create jobs (Kadir & Mohd Farid Shamsudin, 2019; Nur Sabrina Suhaimi et. al., 2020).

There are various challenges in conducting research in HEIs, although the conditions vary depending on the specific context and circumstances. Among the constraints and challenges faced by researchers and institutions such as decreased research productivity levels likely due to lack of resources or limited funding (Kataeva, & DeYoung, 2018), insufficient research training and skills (James, & Evans, 2020), poor level of collaboration between senior and junior academic staff (James, & Evans, 2020), time constraints due to carrying out various responsibilities including teaching, administrative tasks and research (Ketevan, et al., 2015), researchers lack proactiveness, motivation and commitment resulting from weak competitiveness, lack of recognition or incentives for research, and limited institutional support (Parker, 2000; Heavey et. al., 2015), and the absence of a clear research policy at the institutional level (Cloete, et. al., 2012).

Addressing these challenges requires a multifaceted approach including providing adequate resources and funding, offering training and support for researchers, fostering a collaborative research culture, and recognizing and incentivizing research productivity. Other strategies are such as encouraging students to engage in formative research, especially postgraduate candidates (Varios, 2022: Bourne, J., & Winstone, N. (2020)), fostering a research environment among lecturers through the awarding of research grants and incentives (Hermawan & Antoni, 2021), the development of clear strategies by the leadership of higher education institutions (Ahmed et. al., 2022).

Realizing the importance of research and the challenge to realize the goal of making Malaysian education world-class (Fareiny Morni et. al., 2009), the Ministry of Higher Education (KPT) has introduced a research evaluation instrument called Malaysia Research Assessment (MyRA). Thus, this study strives to provide a comprehensive literature highlight on MyRA. The objective of this study is to analyze the themes and focus of past studies related to MyRA. The focus of the analysis is on the discussion of the role of MyRA in research development, the challenges of MyRA implementation and strategies to improve the achievement of MyRA ratings.

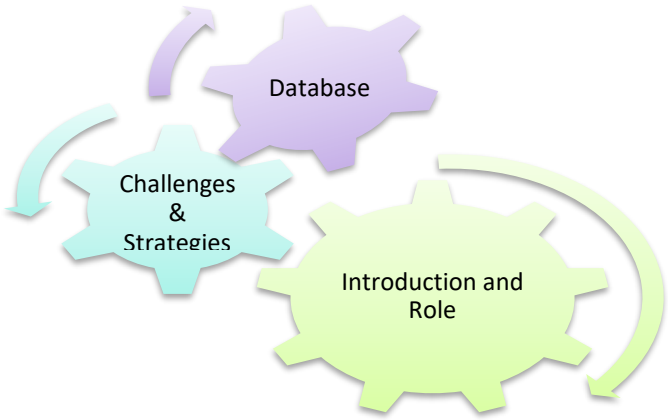
RESEARCH METHODOLOGY

This study aims to analyze past studies related to Malaysia Research Assessment (MyRA). Therefore, this study is a qualitative study with a literature review design. Qualitative research and focusing on aspects of quality storytelling that are organized from the themes obtained. Meanwhile, a descriptive data analysis approach is also applied in this study. The data is obtained from secondary data sources obtained from theses, dissertations, journal articles, conference papers, reference books and websites that discuss topics related to the research theme (Creswell, 2010). Data collection can be obtained through research on library literacy, literary literacy, manuscripts and communication through print media, pictures or visual broadcasting (Ahmad, & Mohd, 2014). These data were analyzed thematically. According to Dawson (2002), when data is analyzed thematically, it is called thematic and is highly inductive. Inductive means that themes come from the data and do not involve the researcher.

RESEARCH FINDINGS AND DISCUSSION

The results of research on previous studies about Malaysia Research Assessment (MYRA), this study concluded that the discussion of the studies focused on three main problems as shown in the figure below:

Figure 1: Types of Studies on MyRA



Research trends and main themes about MYRA are divided into three main themes; [First] Introduction and role of MyRA, [Second] Challenges and strategies in increasing the quantity and quality of MyRA force; and [Third] Database development for the purpose of compiling data to be audited by MyRA. The details are as follows:

Introduction and Role of MyRA

Malaysian Research Assessment (MyRA) is a comprehensive assessment instrument developed to assess the research capacity and performance of all Higher Education Institutions (HEIs) in Malaysia (KPIMS II, 2016: Mohamed Azlan Ashaari et al., 2020; Mohamed Azlan Ashaari et. al., 2021; Henry, et al., 2020; Yusof, et. al., 2019; Courtesy of Mohd Yassin et al et al., 2011). This evaluation method was first implemented in 2006 and aims to evaluate the research performance of universities in this country (Goh Choo Ta et, al., 2021). MyRA was initially developed to meet the agenda of the Malaysian Research University (MRU) of the Ministry of Higher Education (KPT) The objective is to identify five universities in Malaysia for the award of MRU status (Ismail, et. al., 2018). However, starting in 2014, all HEIs in the country are mandated to participate in annual assessment exercises (KPIMS II, 2016; Siew Yean Tham, 2019; Mohd et. al., 2023).

MyRA assessment areas include eight important areas for evaluating research performance (MyRA, 2023). These areas include institutional information, quantity and quality of researchers, quantity and quality of research grants, quality and quantity of postgraduate candidates, innovation, consultation and awards, research collaboration networks, and facility facilities (MyRA, 2023; Ibrahim, 2018). The evaluation section is shown in the diagram below:

Figure 2: MyRA Assessment Section

Source: (MyRA, 2023)

From the aspect of data collection, HEIs are required to enter their research data into MyRA PowerApp (KPIMS II, 2016). Data must be active from January to December of the assessment year [1]. Deadline for filling out the MyRA Application Power is usually in March (KPIMS II, 2016). In the meantime, the MyRA rating system uses the 6 Star rating method (KPIMS II, 2016). The final score is between 0 and 100. IPT with a score of 80 and above is considered a "world-class" research institution (Yusof, et. al, 2018: Fareiny Morni et al., 2009). The MyRA instrument uses a number of bibliometric indicators, such as impact factor, citation count, H index and academic ratio, to measure research output and university impact (Ihsan Mohd Yassin et al., 2011: Lajis, et. et al., 2023). The rating percentage by section is shown in Table 1 below:

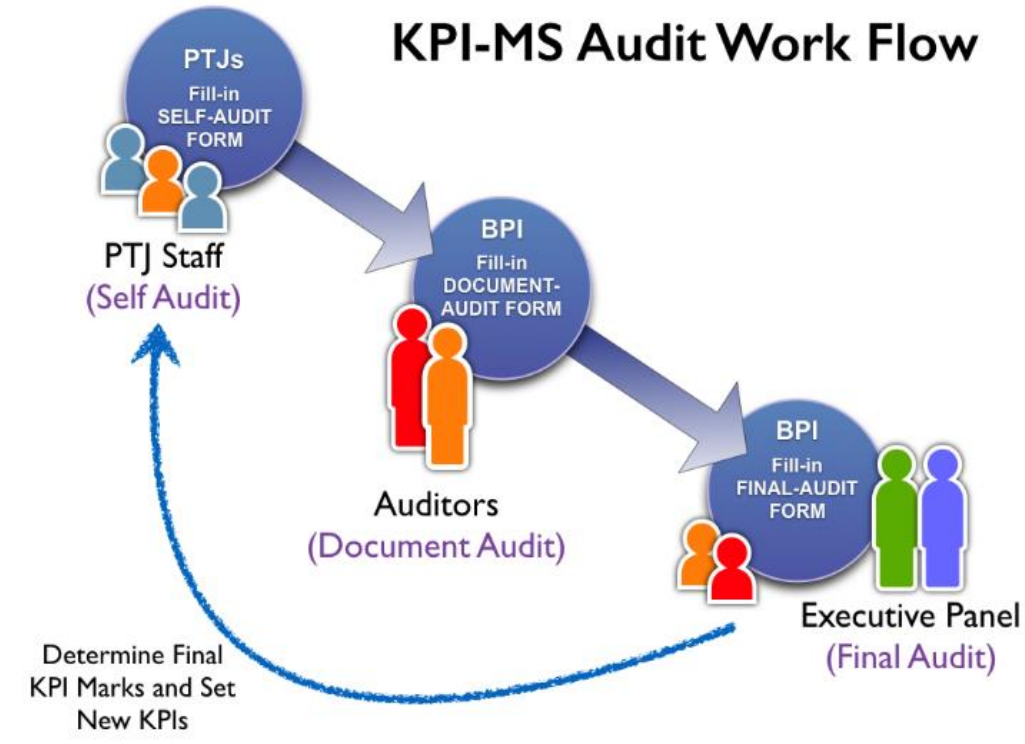
MyRA assessment sections

No.	Section	Areas of Assessment	%
1	Section A	General information	-
2	Section B	Quantity and Quality of Researchers	25
3	Section C	Quantity and Quality of Research	30
4	Part D	Graduate Quantity	10
5	Section E	Graduate Quality	5
6	Section F	Innovation	10
7	Section G	Professional Services and Gifts	7
8	Section H	Networking and Relationships	8
9	Part I	Supporting facilities	3

Source: (KPIMS II, 2016)

In the meantime, HEIs that participate in the MyRA assessment will be audited documentally and site audited by a panel of trained auditors (KPIMS II, 2016). Thus, the entire MyRA evaluation process involves four main parties: MyRA data contributors (lecturers and students), MyRA data manager officers, internal auditors and external auditors. The formula is shown in the diagram below:

MyRA data audit process flow



Source: (KPIMS II, 2016)

MyRA Achievement Challenges and Strategies

Based on the previous discussion, it turns out that MyRA plays an important role in accrediting and monitoring the research performance of public universities in Malaysia. This mechanism also helps in evaluating the overall research capacity and performance of HEIs. In addition, MyRA can assist in promoting research excellence and benchmarking the research performance of Malaysian HEIs against international standards (Ta, et. al., 2021; Norhaslinda, et. al., 2017).

Aware of this importance, HEIs in Malaysia actively strive to improve achievements and double the number of MyRA "stars" over time (Henry et al., 2020). However, there are various constraints and challenges to realize those goals so that there are HEIs that are given a low *rating (Bakar,* et. al., 2018). Among the challenges and constraints that exist in a few HEIs are:

1. Limited research funding is a significant challenge faced by Higher Education Institutions (HEIs) when it comes to implementing research assessment instruments and promoting research activities. This issue can have far-reaching consequences on the quality and quantity of research conducted within these institutions. Limited research funding can indeed hinder various research activities. A study on the effect of competitive project funding on researchers' publication outputs found that funding can significantly impact the dissemination of research findings, particularly for young researchers and those at certain career stages (Heyard, R. & Hottenrott, H., 2021).

A lack of adequate research funding can hinder the ability of researchers to acquire the necessary resources and equipment required for their studies (Salter & Martin, 2001). This includes the procurement of specialized laboratory equipment, software, and materials essential for conducting experiments or fieldwork. Without sufficient funding, researchers may be forced to compromise on the scope or quality of their research projects, ultimately affecting the reliability and validity of their findings (Song, 2006). As talented researchers may seek opportunities elsewhere, where they can access better resources and funding opportunities (Hakala, 2008).

Limited financial resources also can hinder research activities, including conducting experiments, accessing specialized equipment and publishing research findings in scientific journals (Ahmad, et. al., 2015). Additionally, limited funding can restrict opportunities for researchers to attend conferences, seminars, or workshops, which are crucial for disseminating their work, networking, and staying up to date with the latest developments in their respective fields (Moonasar & Underwood, 2018).

2. Uncompetitive research environment: The competitive nature of the research landscape in Malaysia poses significant challenges for researchers and institutions aiming to achieve a high score in the Malaysia Research Assessment (MYRA). This intense competition can manifest in various ways, making it difficult for some to stand out and excel in the assessment (Ahmad, & Xavier, 2012).

Firstly, the presence of numerous research institutions and a large pool of talented researchers in Malaysia creates a highly competitive environment (Sheriff & Abdullah, 2017; Azman, et. al., 2016). Researchers must strive to produce high-quality and impactful research work to distinguish themselves from their peers. Additionally, securing research funding, which is often limited, becomes increasingly challenging as more researchers vie for the same resources (Wan, 2005). This intense competition for funding can hinder the progress and scope of research projects, ultimately affecting the researchers' ability to produce outstanding results that contribute to a high MYRA score.

Secondly, the competition extends beyond individuals to institutions themselves. Higher education institutions (HEIs) in Malaysia are driven to achieve excellent MYRA scores to enhance their reputation, attract top talents, and secure funding opportunities. This pressure can lead institutions to prioritize certain research areas or disciplines that are perceived as more likely to yield high-impact results, potentially neglecting other equally important fields (Rau, et. al., 2018; Enders, 2014).

Furthermore, the competition may incentivize institutions to adopt strategies that prioritize quantity over quality, such as pushing researchers to publish more papers, regardless of their impact or significance (Paradeise & Thœnig, 2013; García & Sanz-Menéndez, 2005). This approach can undermine the overall quality of research and misalign with the true spirit of the MYRA assessment, which aims to evaluate substantive and impactful contributions to knowledge.

3. Inadequate research infrastructure and facilities can significantly hinder the progress and quality of research conducted by researchers in Higher Education Institutions (HEIs). Access to state-of-the-art laboratories, equipment, and resources is crucial for carrying out cutting-edge research and achieving groundbreaking discoveries (Felker & Sundaram, 2007). The lack of modern and well-equipped laboratories can severely limit the types of experiments and analyses that researchers can perform (Xie, et. al., 2022).

4. Research collaboration: Establishing research collaboration, at the national and international level, building effective partnerships requires time, effort and resources and may face obstacles such as differences in research priorities, funding limits and logistical constraints (Knight, & Morshidi, 2011).

5. *Citation* challenges: Publishing research findings in reputable journals and achieving a high number of citations can be a challenge for researchers. Factors such as language barriers, limited access to publication opportunities, and competition for publication in high-impact journals can impact research output and quality (Hernández, & Gómez, 2015).

6. Time constraints: Researchers often face time constraints due to heavy teaching loads, administrative responsibilities and other commitments (Peter & Svein, 2011).

7. Data collection and reporting: Collecting and reporting accurate and comprehensive research data for MYRA evaluations can be time-consuming and complex. Researchers and institutions need to ensure that data is documented, verified and submitted correctly within the set deadline (KPIMS II, 2016)

Addressing these challenges requires collaborative efforts between researchers, HEIs and relevant stakeholders. Therefore, various strategies and guidelines are proposed to help researchers improve their MYRA scores. Here are some examples:

1. Quantity and Quality of Researchers: Researchers should strive to increase the number of qualified researchers in their institutions by attracting and retaining talented researchers, providing opportunities for professional development and fostering a supportive research environment (Mohd, 2015).
2. Quantity and quality of research: This can be achieved by conducting high-impact research, publishing in reputable journals, presenting research results at conferences and obtaining patents (Nazaruddin, et. al., 2013).
3. Postgraduate quality and quantity: This includes attracting and supporting postgraduate students, providing adequate research supervision, and ensuring timely completion of postgraduate studies (Sheriff & Abdullah, 2017).
4. Workshops and training: Many HEIs offer workshops and training sessions to help researchers improve their research performance, thereby increasing their MYRA score. This session covers various topics, such as research writing, grant proposal writing and research collaboration (Marina, et al., 2020).
5. Research Support Services: The University also provides research support services including research consulting, editing and proofreading, and statistical analysis (Brown et al., 2021).
6. Research collaboration: Collaborating with researchers and other institutions can help improve the results and quality of research, by seeking collaboration opportunities through conferences, workshops, and networking events (Mohd, 2015).
7. Research Funding: Researchers can apply for research grants from various sources, such as government agencies, private foundations and industry partners (Mohd, 2015).
8. Commercialization of research: Researchers should explore opportunities to translate their research results into commercial products or services through partnerships with industry, technology transfer initiatives and entrepreneurship programs (Kasim, 2011).

9. Research Management: Researchers can ensure that their research is well planned, well executed, and well documented (Mohd, 2015: Minhat, 2015). In addition, Institutions should have clear research policies, streamlined administrative processes and efficient research support services (Lope, et. al., 2011; Norhaslinda, et. al., 2017)

Overall, researchers can improve their MYRA score by focusing on various aspects of research, such as output, quality, collaboration, funding and management. By using the available guidelines and resources, researchers can improve their research capacity and performance and contribute to overall research excellence in Malaysia.

MyRA Database

The MYRA data storage method for auditing is important to ensure the accuracy and completeness of the research data submitted by an IPT (Mohamed, et. al., 2021; Ahmed, 2013). Here are some examples of systems used by HEIs in Malaysia for MYRA data storage and audit:

1. E-MyRA: This platform is used by HEIs to enter their research data for MYRA assessment. e- MyRA online enables Higher Education Institutions in Malaysia to self-assess their research achievements (e-MyRA, 2023). Data must be active from January to December of the assessment year, and the deadline for filling in MyRA PowerApp is usually in March. Data entered MyRA PowerApp is audited by a panel of trained auditors to ensure its accuracy and completeness (KPIMS II, 2016).
2. HEI level research management system: Some HEIs use their own research management system to store and manage their research data (Multazimah & Adenan, 2016). The system is able to help researchers and institutions track research activities, monitor progress and generate reports for MYRA evaluation. For example, the *Key* system *Performance Indicator Management System* (KPIMS) by Universiti Sains Malaysia. The system functions to store, calculate, and generate reports and charts for the evaluation and monitoring of key performance indicators (KPI) of academic and administrative units, known as Responsibility Centers (PTJ) (KPIMS II, 2016).
3. Repository systems: Institutional repositories are digital collections of research results, such as journal articles, conference papers and theses. HEIs can use this system to store and display their research results, which can contribute to their MYRA score (Multazimah & Adenan, 2016).
4. Offline document management system: This method can be used to store and manage research-related documents, such as grant proposals, ethics approvals and research data. It can help ensure research data is properly documented and stored for MYRA evaluation (Lajis, et. al., 2023

According to Ihsan Mohd Yassin et al., (2011), MyRA- based information systems need to be developed to organize data more efficiently. Despite this system, HEIs and researchers in Malaysia still face challenges in ensuring the accuracy and completeness of their research data for MYRA assessment. These challenges include limited resources, time constraints and data collection and reporting issues (KPIMS II, 2016). Addressing these challenges requires collaborative efforts between researchers, HEIs and relevant stakeholders to promote research excellence and improve the MYRA score of institutions in Malaysia (Roshidi, et al., 2021; Ashaari, et. al. 2020)

Overall, past studies have shown that MYRA has had a positive impact on research performance, leading to an increase in the number of publications, citations and research grants. The study also identified several challenges, including lack of research capacity, high research costs, and lack of clear understanding of the MYRA criteria. Additionally, this study suggests that MYRA needs to be updated to reflect the changing nature of research. They have also suggested that MYRA be made more transparent and easily accessible by HEIs. Research on MYRA is ongoing, and it is likely that new trends and themes will emerge in the coming years. However, the research that has been conducted to date has provided a valuable insight into MYRA's impact on Malaysian HEIs.

CONCLUSION

This study aims to analyze past studies related to Malaysia Research Assessment (MyRA) and provides a

comprehensive literature highlight about MyRA. The main findings of the study show that MyRA plays an important role in the development of research in Malaysian HEIs, but there are challenges in its implementation such as lack of funds and skills, language barriers, limited access to publication opportunities, and competition for publication in high-impact journals. The implication of the findings of this study is that it is important to overcome these challenges so that MyRA can function more effectively in improving the quality of research in Malaysian HEIs. Therefore, the recommendation for future studies is to implement the strategies recommended in this study, such as improving English language skills, increasing access to publication opportunities, and improving research quality, to improve MyRA rating achievement and research development in Malaysian HEIs.

APPRECIATION

Experts " Database System" for the Audit Requirements of Malaysia Research Assessment (MYRA) and Integrated Rating of Malaysian Higher Education Institutions (SETARA).” The researchers believe that this research will make a significant contribution to research performance at KIAS and other HEIs.

REFERENCE

1. Administrator. (2018, November 6). *Malaysian Research Assessment (MyRA)*. Uitm.edu.my. https://fsg.uitm.edu.my/index.php/component/content/article/12-research/18-myra?Itemid=101
2. Xie, C., Li, C., Sung, S., & Jiang, R. (2022). Engaging students in distance learning of science with remote labs 2.0. IEEE Transactions on Learning Technologies, 15(1), 15-31. https://doi.org/10.1109/tlt.2022.3153005
3. Ahmad MI & Mohd NS (2014). *Social Research Methods from an Islamic Perspective*. Bangi: Publisher of the National University of Malaysia
4. Felker, G. and Sundaram, J. K. (2007). Technology policy in malaysia. International Journal of Technological Learning, Innovation and Development, 1(2), 153. https://doi.org/10.1504/ijtlid.2007.015402
5. Ahmad, AR (2013). VU Research Repository. *VU Research Repositories | Victoria University _ Melbourne Australia.* https://vuir.vu.edu.au/21727/
6. Wan, W. P. (2005). Country resource environments, firm capabilities, and corporate diversification strategies*. Journal of Management Studies, 42(1), 161-182. https://doi.org/10.1111/j.1467-6486.2005.00492.x
7. Paradeise, C. and Thœnig, J. (2013). Academic institutions in search of quality: local orders and global standards. Organization Studies, 34(2), 189-218. https://doi.org/10.1177/0170840612473550
8. García, C. E. G. and Sanz-Menéndez, L. (2005). Competition for funding as an indicator of research competitiveness. Scientometrics, 64(3), 271-300. https://doi.org/10.1007/s11192-005-0251-x
9. Enders, J. (2014). The academic arms race. The Institutional Development of Business Schools, 155-175. https://doi.org/10.1093/acprof:oso/9780198713364.003.0007
10. Rau, H., Goggins, G., & Fahy, F. (2018). From invisibility to impact: recognising the scientific and societal relevance of interdisciplinary sustainability research. Research Policy, 47(1), 266-276. https://doi.org/10.1016/j.respol.2017.11.005
11. Azman, N., Sirat, M., & Pang, V. (2016). Managing and mobilising talent in malaysia: issues, challenges and policy implications for malaysian universities. Journal of Higher Education Policy and Management, 38(3), 316-332. https://doi.org/10.1080/1360080x.2016.1174406
12. Sheriff, N. M., & Abdullah, N. (2017). Research Universities in Malaysia: What Beholds?. *Asian Journal of University Education*, *13*(2), 35–50. https://eric.ed.gov/?id=EJ1207763
13. Salter, A. & Martin, B. R. (2001). The economic benefits of publicly funded basic research: a critical review. Research Policy, 30(3), 509-532. https://doi.org/10.1016/s0048-7333(00)00091-3
14. Song, M. (2006). Conflict management and innovation performance: an integrated contingency perspective. Journal of the Academy of Marketing Science, 34(3), 341-356. https://doi.org/10.1177/0092070306286705

15. Ahmad, SA & Xavier, SR (2012). Entrepreneurial environments and growth: evidence from Malaysia gem data. Journal of Chinese Entrepreneurship, 4(1), 50-69. https://doi.org/10.1108/17561391211200939
16. Ahmad, SS (2012). Performance indicators for the progress of Malaysia _ research with a focus on social sciences and humanities. Procedia - Social and Behavioral Sciences, 68, 16-28. https://doi.org/10.1016/j.sbspro.2012.12.203
17. Ahmed, T., Yang, C., Yang, H., & Mahmood, S. (2022). The Impact of Empowerment Leadership on Job Performance of Higher Education Institutions Employees: Mediating Role of Goal Clarity and Self-Efficacy. *Psychology Research and Behavior Management*, *15*, 677–694. https://doi.org/10.2147/prbm.s357083
18. Ashaari, MA, Amran, A., Ahmad, NH, Bakri, H., & Nazri, S. (2020). Big data analysis of capability technology and data-driven decision making in Malaysian higher education institutions: a conceptual framework. IOP Conference Series: Materials Science and Engineering, 874(1), 012021. https://doi.org/10.1088/1757-899x/874/1/012021
19. Hakala, J. (2008). The future of the academic calling? junior researchers in the entrepreneurial university. Higher Education, 57(2), 173-190. https://doi.org/10.1007/s10734-008-9140-6
20. Bakar, NAA, S. Ya'acob, & Hassan, NH (2018). Digital Workplace Model for Collaborative Publishing University Research. International Journal of Human and Technology Interaction (IJHaTI), 2(2), 91–102. https://journal.utem.edu.my/index.php/ijhati/article/view/4621
21. Bourne, J., & Winstone, N. (2020). Empowering students ' voices: the use of activity-oriented focus groups in higher education research. *International Journal of Research & amp ; Methods in Education*, *44* (4), 352–365. https://doi.org/10.1080/1743727x.2020.1777964
22. Brown, S., Alvey, E., Danilova, E., Morgan, H., & Thomas, A. (2021). Evolution of Research Support Services at an Academic Library: Specialist Knowledge Linked by Core Infrastructure. *Routledge eBooks*, 129–140. https://doi.org/10.4324/9781003139072-8
23. Creswell, JW (2014). Research Design: Qualitative, Quantitative and Mixed Methods Approaches. New York, NY: Sage Publications, Inc.
24. Dawson, C. 2002. Practical Research Methods A User- Friendly Guide that Mastering Research. Oxford: How That Books.
25. e- *MyRA (Malaysia Research assessment).* (2023). Mohe.gov.my. https://e-myra.mohe.gov.my/v3/login.php
26. Epstein, I. (2014). *The New York Statement on the Evolving Definition of Practice Research Designed for Continuing Dialogue: A Bulletin From the 3rd International Conference on Practice Research (2014) - Irwin Epstein, Mike Fisher, Ilse Julkunen, Lars Uggerhoj, Michael J. Austin, Timothy SIM, 2015.* Research on Social Work Practice. https://journals.sagepub.com/doi/10.1177/1049731515582250
27. Faridah Hanum Amran, Rahman, A., Kalsom Salleh, Ahmad, SA, & Noor Hasniza Haron. (2014). Research University Funding Trends in Malaysia. 164, 126–134. https://doi.org/10.1016/j.sbspro.2014.11.060
28. Goh Choo Ta, Sharina Abdul Halim, Norzaini Azman, Ibrahim Komoo, & Mokhtar, M. (2021). Evaluating research performance of research institutes in Malaysian universities: an alternative evaluation framework. Tertiary Education and Management. https://doi.org/10.1007/s11233-021-09080-6
29. Grapragasem, S., Krishnan, A., Mansor, AN (2014). Current Trends in Malaysian Higher Education and Impact on Educational Policy and Practice: An Overview. IJHE, 1(3). https://doi.org/10.5430/ijhe.v3n1p85
30. Heavey, C., Zeki Simsek, & Fox, BC (2015). Managerial Social Networks and Ambidexterity of SMEs: The Moderating Role of a Proactive Commitment that Innovation. *Human Resources Management, 54* (S1), p201–p221. https://doi.org/10.1002/hrm.21703
31. Henry, C., Ghani, Hamid, & Bakar, AN (2020). Contributing Factors towards Productivity Research in Higher Education. International Journal of Assessment and Research in Education, 9 (1), 203–211. https://eric.ed.gov/?id=EJ1246403
32. Henry, C., Ghani, NAM, Hamid, UMA, & Bakar, AAA (2020). Factors contributing toward research

productivity in higher education. International Journal of Evaluation and Research in Education (IJERE), 9(1), 203. https://doi.org/10.11591/ijere.v9i1.20420 Mohamed Azlan Ashaari, Azlan Amran,
33. Heyard, R. & Hottenrott, H. (2021). The value of research funding for knowledge creation and dissemination: a study of snsf research grants. Humanities and Social Sciences Communications, 8(1). https://doi.org/10.1057/s41599-021-00891-x
34. Hermawan, E., & Antoni Ludfi Arifin. (2021). What Expert Say about Empowering Human Resources in Supporting Leadership Function in Higher Education in the 21st Century. Iqra Journal ': Study of Education, 6(2), 27–38. https://doi.org/10.25217/ji.v6i2.1493 http://ejournals.kias.edu.my/index.php/rabbanica/article/view/8
35. Ibrahim, S. (2018). Realizing Research Impact and the Experience of a Malaysian University. *JOURNAL of RESEARCH MANAGEMENT & GOVERNANCE.* https://doi.org/10.22452/jrmg.vol1no1.3
36. Courtesy Mohd Yassin, Azlee Zabidi, Johari, MA, Hijaz, F., Izzudin, A., Nooritawati Md Tahir, Mustafar Kamal Hamzah, & AB Abdul Majeed. (2011). Entity-Relationship Analysis for the development of the Malaysian University Research Assessment Instrument (MyRA) information system. https://doi.org/10.1109/icsengt.2011.5993454
37. Ismail, R., Da Wan, C., & Ibrahim, Y. (2018). *31 Funding reform in Malaysia public universities: examining the current situation. Research Handbook on Quality, Performance and Accountability in Higher Education,* 405.
38. James Ernest Kazoka, & Evans Frank Wema. (2020). An Analysis of the Factors Influencing Research Capacity Developments in Higher Education Institutions in Tanzania. *University of Dar Es Salaam Library Journal, 15* (1), 45–66. https://doi.org/10.4314/udslj.v15i1 .
39. Jung Hey Shin, Jung, J., Postiglione, GA, & Norzaini Azman. (2014). Research Productivity of Returnees from Study Abroad in Korea, Hong Kong and Malaysia. 52(4), 467–487. https://doi.org/10.1007/s11024-014-9259-9
40. Kadir, B., Shamsudin, MF (2019). Case Study Analysis of Typhidot: An Example of Market Oriented R& amp;d Commercialization in Malaysia. IJFR, 5(10), 75. https://doi.org/10.5430/ijfr.v10n5p75
41. Kasim, RSR (2011). Malaysian higher education institutions: shaping an entrepreneurial agenda. International Journal of Information and Education Technology, 163-170. https://doi.org/10.7763/ijiet.2011.v1.27
42. Kataeva, Z., & DeYoung, AJ (2018). Faculty Challenges and Barriers for Research and Publication in Tajik Higher Education. *European Education, 50* (3), 249–265. https://doi.org/10.1080/10564934.2017.1408417
43. Ketevan Mamiseishvili, Miller, MT, & Lee, D. (2015). Beyond Teaching and Research: Faculty Perceptions of Service Roles at Research Universities. *Innovative Higher Education, 41* (4), 273–285. https://doi.org/10.1007/s10755-015-9354-3
44. Knight, J., & Morshidi Sirat. (2011). The complexities and challenges of regional education hubs: focus on Malaysia. *Higher Education, 62* (5), 593–606. https://doi.org/10.1007/s10734-011-9467-2
45. *KPIMS II.* (2016). Kpims.usm.my. https://www.kpims.usm.my/v2/?p=what-is-myra
46. Lajis, A., Awang Mat, T., Seid, N., Abu Bakar, Z., Khalid, AS, Roslee, FA,... & Ali, NA (2023). Unstructured data to visualized information: improving the master process _ preparation list for university ranking evaluation and decision making. Proceedings of the 2023 12th International _ Conference on Software and Computer Applications. https://doi.org/10.1145/3587828.3587831
47. Lope, A., Sadeghi, A., & Elias, H. (2011). Analysis of Heads of Departments Leadership Styles: Implications for Improving Research University Management Practices. *Procedia - Social and Behavioral Sciences, 29,* 1081–1090. https://doi.org/10.1016/j.sbspro.2011.11.341
48. Marina Muhammad Razaki, Linamalini Mat Nafi, & Nasir, K. (2020). Lecturers' Perceptions of Research: A Study on Quizzes, Quizzes and UniSHAMS. *RABBANICA - Journal of Revealed Knowledge, 1* (1), 49–66.
49. Minhat, H. (2015). Life cycle management requirements for MyRA system monitoring, UiTM Institution Repository. Uitm.edu.my. https://ir.uitm.edu.my/id/eprint/63495/1/63495.pdf
50. Mohamed Azlan Ashaari, Singh, D., Ghazanfar Ali Abbasi, Azlan Amran, & Liébana-Cabanillas, F. (2021). Big data analytics capabilities for improved performance of higher education institutions in the

Era of IR 4.0: A multi- analytical SEM & ANN perspective. *Technological Forecasting and Social Change, 173*, 121119–121119. https://doi.org/10.1016/j.techfore.2021.121119

51. Mohd, Bakar, A., Ismail, NH, Sharifah, O., & Nordine, N. (2023). Practices Malaysian research universities: patents profile in the lenses database / Mohd Arif Mohd Sarjidan... [et al.] - UiTM Institutional Repository. *Uitm.edu.my*. _ https://ir.uitm.edu.my/id/eprint/77320/1/77320.pdf
52. Mohd. (2015, November 19). *Upgrade MyRa that Five Stars Rating: Vice-Chancellor*. Ums.edu.my. https://www.ums.edu.my/v5/en/discover-link-3/1062-tingkat-myra-ke-tahap-5-bintang-naib-canselor
53. Morni, F., Talip, M., Bujang, FH, & Jusoff, K. (2009). Retraction notice: apex university: is Malaysia's way forward? 2009 International Conference on Computer Technology and Development. https://doi.org/10.1109/icctd.2009.175
54. Multazimah, N., & Adenan, B. (2016). *MyRA (MALAYSIAN RESEARCH ASSESSMENT) DATABASE SYSTEM*. https://ir.unimas.my/id/eprint/26326/1/MyRA(Malaysian%20Research%20Assessment)%2024pgs.pdf
55. *MyRA | Newcastle University Medicine Malaysia | Newcastle University*. (2023). Ncl.ac.uk. https://www.ncl.ac.uk/numed/research/myra/
56. Nazaruddin Ramli, Zinatul Ashiqin Zainol, Aziz, MA, Hasani Mohd Ali, Jady Zaidi Hassim, Mohd, W., Ruzian Markom, Siti, W., & Noor Inayah Jacob. (2013). The Concept of Research University: The Implementation in the Context of Malaysians University System. *Asian Social Science*, *9* (5). https://doi.org/10.5539/ass.v9n5p307
57. Noor Hazlina Ahmad, Bakri, H., & Shahrizal Nazri. (2020). Big Data Analytics Technology Capability and Data- Driven Decision Making in Malaysia Higher Education Institutions: A Conceptual Framework. *IOP Conference Series, 874* (1), 012021–012021. https://doi.org/10.1088/1757-899x/874/1/012021
58. Norhaslinda Zainal Abidin, Nerda Zura Zabidi, & Khairah Nazurah Karim. (2017). Dynamic Research Model of Staff Interacademic Performance System. Journal of Telecommunications, Electronics and Computer Engineering (JTEC), 9 (2-11), 121–128. https://jtec.utem.edu.my/jtec/article/view/2749
59. Norhaslinda Zainal Abidin, Nerda Zura Zaibidi, & Khairah Nazurah Karim. (2017). Strategic planning for MyRA performance: A causal loop diagram approach. https://doi.org/10.1063/1.5005484
60. Nur Sabrina Suhaimi, Muhammad Sohail Halim, & Hafiza Aishah Hashim. (2020). Commercialization of academic research: assessing the perceptions of academics in public universities in Malaysia. 14(1), 59–76. https://doi.org/10.1108/jarhe-04-2020-0071
61. Parker, SK (2000). From Passive that Proactive Motivation: The Importance of Flexible Role Orientations and Role Breadth Self-efficacy. *Applied Psychology, 49* (3), 447–469. https://doi.org/10.1111/1464-0597.00025
62. Petrovich, E. (2022). Acknowledgments-based networks for mapping the social structure of research fields. A case study on recent analytic philosophy. *Synthesis, 200* (3). https://doi.org/10.1007/s11229-022-03515-2
63. Roshidi, A., Mohd. Faizal Omar, & Jastini Mohd. Jamil. (2021). The selection of the university's agenda is strategic planning using various criteria for decision-making techniques. International Journal of Social Science Research, 3 (4), 147–154. https://myjms.mohe.gov.my/index.php/ijssr/article/view/16654
64. Sharimllah Goddess Ramachandran, Siong Choy Chong, & Ismail, H. (2011). Organizational culture. 25(6), 615–634. https://doi.org/10.1108/09513541111159086
65. Sheriff, NM, & Abdullah, N. (2017). Research Universities in Malaysia: What Behold? Asian Journal of University Education, 13(2), 35–50. https://eric.ed.gov/?id=EJ1207763
66. Siew Yean Tham. (2019). Governing Private Higher Education in Malaysia: Change and Evolution. 123–138. https://doi.org/10.1007/978-981-13-9294-8_6
67. Sohail, MS, Daud, S. (2009). Knowledge Sharing In Higher Education Institutions. Vine, 2(39), 125-142. https://doi.org/10.1108/03055720910988841
68. Suhaimi, NS, Halim, MS, Hashim, HA (2020). Commercialization of Academic Research: Assessing the Perceptions of Academics in Public Universities in Malaysia. JARHE, 1(14), 59-76. https://doi.org/10.1108/jarhe-04-2020-0071

69. Ta, GC, Halim, SA, Azman, N., Komoo, I., Mokhtar, M. (2021). Assessing the Research Performance of Research Institutes in Malaysian Universities: An Alternative Assessment Framework. Tert Educ Manag, 4(27), 331-349. https://doi.org/10.1007/s11233-021-09080-6
70. Tidd, J., Brocklehurst, M. (1999). Pathways to Technology Learning and Development. Technological Forecasting and Social Change, 3(62), 239-257. https://doi.org/10.1016/s0040-1625(99)00047-5
71. Uher, J. (2018). The Transdisciplinary Philosophy -of- Science Paradigm for Research on Individuals: Foundations for the Science of Personality and Individual Differences. *Sagepub.com*. https://doi.org/10.4135/9781526470294
72. Varios, A. (2022). *Formative research strengthening in higher education institutions of Risaralda*. Utp.edu.co; Universidad Tecnológica de Pereira. https://repositorio.utp.edu.co/items/3503fdf0-4bb5-4afd-ab63-650c3b0e6d64
73. Yusof, IJ, Latif, AA, Derasid, NAC, & Jani, MDM (2019). The level of educational research literacy of postgraduate research students using the Rasch measurement model. International Journal of Recent Technology and Engineering (IJRTE), 8, 791-796.