

ICBSI 2018
International Conference on Business Sustainability and
Innovation

THE IMPORTANCE OF UNIVERSITY RANKING AND
STUDENTS ENROLMENT TOWARDS UNIVERSITY
SUSTAINABILITY

Suhaidah Hussain (a)*, Jalal Rajeh Hanaysha (b), Diyana Kamarudin (c)

*Corresponding author

(a) Universiti Malaysia Pahang, Lebuhraya Tun Razak, Gambang, Kuantan, Pahang, suhaidahhussain@ump.edu.my

(b) DRB-HICOM University of Automotive Malaysia, Pekan, Malaysia, jalal@dhu.edu.my

(c) Universiti Malaysia Pahang, Gambang, Kuantan, Pahang, yanakamarudin@ump.edu.my

Abstract

This research highlights the importance of University ranking and students' enrolment towards the University sustainability in education industry. Nowadays, the University ranking has significant impact on the reputation as well as the attraction of the students enrol into the University. The common University ranking covers general areas, teaching and learning, research and services. These areas measured and evaluated through the sustainability or survival of the university in the market. There were various debates related to the University sustainability for example university ranking, the student enrolment, the return of investment and student retention. The quality of academic programmes, teaching and learning facilities also factors contributed to the students' preferences in choosing the best university. The discussion of this research encompass the how the experienced University able to sustain in the Malaysian Higher Education Industry through the help of University rankings and students' enrolment. The secondary data collection was adopted through the purposive sampling. The information obtained through University website, University ranking website and other existing sources available. The findings present the importance of University ranking and students' enrolment along with the recommendations lead University sustainability.

© 2019 Published by Future Academy www.FutureAcademy.org.UK

Keywords: University ranking, students' enrolment, University sustainability, private higher education institution Students retention, business performance, higher education.



1. Introduction

The University sustainability is described in numerous ways; university ranking, the student enrolment, the return of investment and student retention. In Malaysia, the student is looking at the quality of academic programme, teaching and learning facilities and support service provided by the University. The Times Higher Education World University Rankings defined the five areas of performance of the university is defined through the its five performance indicators; teaching 30% (learning environment), research 30% (the size, returns and recognition), citations 30% (research impact), international outlook 7.5% (academician, students and research) and industry outcome 2.5% (transfer of knowledge) (Times Higher Education, 2018). The recent introduction Webometrics Ranking of World Universities by Cybermetrics Lab has becoming significant for the university which it measures the scientific activity in the university web. The ranking is presented through presence, impact, openness and excellence (Cybermetrics, 2018). The QS Quacquarelli Symonds or QS Ranking is another University ranking used by the students to identify the best University at their choice. One of the objective of QS Ranking is to ensure potential customers ability in accessing to the best platform and autonomous expert information to facilitate their decision making (QS Quacquarelli Symonds, 2018).

In Malaysia, SETARA 2017 provides assessment to the University using the assessment metrics was aligned towards the Malaysian Education Blueprint 2015-2025 for higher education. Its facilitated the university in shaping strong fundamentals focus on the three major core functions namely teaching, research and services. The detailed parts categorized into four; general: institutional profiles, teaching and learning, research capacity and services and income generation. In the institutional profiles measures the following; student quality and diversity, lecturer capability, academic staff recognition, quality management system, financial sustainability and institutional reputation. The second measurement on teaching and learning measures the capacity of academic staff, student satisfaction on teaching and facilities, quality of graduates, internationalization of academic programs and program recognition. In research capacity, it measures critical mass of researchers, research income, quantity and quality of publications. The final measures are on services and income generation; income from commercialization of ideas, University Social Responsibility (USR) and Knowledge Transfer Programme (KTP), education and training programs as well as other sources of income. The categories ranging from mature university (minimum 15 years), emerging university (less than 15 years) and university college. SETARA also introduced the Discipline-Based Rating (D-SETARA) was established to measure the teaching and learning quality level of specific disciplines at the undergraduate level. The 4 discipline includes engineering, health sciences, hospitality and tourism, and medicine, dentistry and pharmacy. The criteria were measured through the team meetings, consultation with stakeholders, collection of data and verification, analysis as well as written report between MQA and the institutions (Leong, 2016). It is not easy as an education institution to fulfil the criteria and requirement set, however this exercise has created healthy competition among the University in Malaysia. In measuring the competitiveness of PHEI with college status, the introduction of MyQUEST in 2010 for colleges is aimed to for the continuous improvement and capability building. The assessment covers the college based assessments, study field assessment as well as the international student's service assessment (Star Education, 2018). The criteria of University rankings presented in Table 01.

Table 01. The Criteria of University Rankings

	SETARA (2017)		QS Asia University Rankings (2017)	The Times Higher Education (2017)
	Mature University	Emerging University		
CRITERIA	General (40%)	General (40%)	Academic Reputation (30%)	Teaching (the learning environment) (30%)
	Teaching & Learning (30%)	Teaching & Learning (40%)	Employer Reputation (20%)	Research (volume, income and reputation) (30%)
	Research (20%)	Research (15%)	Faculty/Student Ration (20%)	Citations (research influence) (30%)
	Services (10%)	Services (5%)	Citation per paper (10%) & papers per faculty (10%)	International outlook (staff, students, research): (7.5%)
			Staff with PhD (5%)	Industry income (knowledge transfer) (2.5%)
			Proportion of international faculty (2.5%) and proportion of international students (2.5%)	
			Proportion of inbound exchange students (2.5%) and proportion of outbound exchange students (2.5%)	

2. Problem Statement

In early 2018, Malaysia has achieved 170,000 students from 135 countries; Asia, Europe, the Middle East and Africa. The accessibility of Malaysia Higher Education improved tremendously from 14% in 1980's to above 44% in 2016. The 2016 Malaysia's Gross Enrolment Ratio of 44% is comparatively higher than other ASEAN countries as well as higher than world average is at 37%. This achievement is aligned with the Malaysia Higher Education Blueprint (2015-2025) envisaged one of the 10 shifts to make Malaysia as the best higher education hub in the world (Star Education, 2018).

The student's enrolment into Malaysia's higher education institution has shown a great improvement but in Malaysia, the Private Higher Education Institution (PHEI) is largely based on a profit oriented model in order to sustain their institution in the education industry. The students have the right to choose the preferred programme and pay for the programme offered to them. The PHEI is also looking to promote quality in order to entice more customers even though quality often addressed as an issue. The business survival of PHEI merely based on the bottom-line and reputation of the institution. In addition to that, the quality of a PHEI also described through the university ranking which accessible to public. The institution whose participate in the ranking assessment realize the financial commitment in designing their strategies in attracting more students to the institution (Razak, 2017). The overhead cost and poor management of running the operation of the University could be the reason of the University closure.

There were few University cases highlighted by the media on the closure of University in Malaysia, for example in 2014, closure of one International University and in 2015, one University College status also ceased their operation due to the poor management. Bilton (2018) explained, if the

Universities that survived based on 80 to 90 percent of students fees, they will not survive. In December 2017, based on report by Ministry of Higher Education, there were 33 colleges ordered to ceased their operation for the poor performance falling below the standards. According to the report, since 2012 to 2016, 46 colleges was instructed to close by the Ministry (Nasa, 2017). This enforcement is expected to improvise the quality of PHEI in their rating through performance based regulation.

The University ranking exercise started back in 1925 after Professor Donald Hughes graded the graduate program on the peer reputation ground in the United States. Ever since then, various effort took place on ranking of graduates programs and its institutions (Cartter, 1996; Conrad & Blackburn, 1985; Ehrenberg & Hurst, 1996). The ranking exercise has increased from time to time where at least 33 rankings systems globally as reported by Usher and Medow (2009). The University scores or ranking is increasingly significant for most of the universities. The University ranking assist to position the institution in the market. It will facilitate the University branding and able to attract academic experts and most importantly local and international students. Marginson (2014) explained the University ranking does benefit the prominent university and continuous improvement takes place on teaching, research and overall services provided.

The interest of policymakers and leaders of the institution becoming significant in mid 1990s due to the intensive arguments on how ranking assist the institutions in marketing, substantial existence and globalization (Dill, 2009; Shin & Harman, 2009). In most of the countries, the university ranking gives benefits in terms of reputation and their position in the market. Bramwell (2017) explained Chinese Universities prefer to allocate more investment into their own institutions which can reduce the expense sending their students to study abroad. Based this study, it also described the employment is greater if the Chinese student's studies in China Universities compared to overseas. The students had the advantage of native knowledge, contacts as well as the opportunity though internships. Unlike in UK, the UK Universities incline towards ranking which position them in the highest place. It is a must for a university to show improvement compared to last year performance. In a recent study by Sheeja et al., (2018), revealed the importance of number of scholarly articles and the received number of citations has a great impact on the global University rankings. The scholarly articles published and cited is another significant area to focus for a University targeting for global ranking.

Despite of various discussion on University ranking, and how to achieved it, it also appeared that there is also insidious effect for a University chasing for the ranking. The potential problems could come from internal and external environment of the University. The University goals and readiness asserts the objective of the University chasing for the ranking. In order to achieve it, the collaborations among the academic staff, students and society requires a change in realizing the achievement. University leadership is the only way to ensure the change can take place (Hallinger & Hallinger, 2014). Based on the above problem statement, the two research questions were derived as follows; RQ1: Is the University ranking related to University sustainability? RQ2: Is the students' enrolment related to the University sustainability?

In conclusion, the University assist the customers on their investment in PHEI and grasp of the institutions results. It also makes available to the students on the evaluation among institutions from

various countries. Through this, it facilitates the institution to draw more students to the institutions and leading the sustainability of the institution in the education industry.

2.1. University Sustainability

The sustainability of a university is related to the organization's effectiveness which can be measured via combination of input process and/or outputs. In this case, the organizational effectiveness is measured based on the goals/objectives achieved and the goal attainment efficiency. Driscoll et al., (2013) defined the abilities needed for university sustainability namely; availability, capability, dependability, marketability and affordability. Based on the framework, the availability described the customer access to the current technologies, teaching materials, facilities and tools available to the usage of their customers. The capability explained about the performance guidelines and measurement of the management. The dependability described how reliable the services given particularly in terms of support, maintenance, and consistency. The affordability focus on the cost of incur in offering of any products by the university. Last but not least, the marketability defined the marketing of the products or services, having a right understanding on customer needs and demand, as well as recognizing improvements to be carried out for the customer.

Since the higher education is in the service industry, students is looking forward to the "experience" when enrolling themselves into a University. The good service quality provided by the University will ensure the students satisfaction and retention to the University. Chong and Ahmed (2015), explained the service quality is perceived as significant factor not only for the University's sustainability but also serve as a basis to the country's competitive advantage.

In order to ensure the sustainability of the university, it requires a clear direction and support from top management as well as senior level leadership in the University. The collaborative and pro-active approach between senior staff and junior staff in the University able to drive any changes takes place, developing knowledge, encourage and empower others. Besides that, the University needs to think on suitable platform with right environment where University staff and students can get together to contribute new ideas for improvements (Adams, 2013).

Regardless the importance of the University availability, capability, dependability, marketability, affordability and clear direction from the top management, the sustainability in terms of environment also becoming crucial to the University. This is described through a study by Ryan et al., (2010), the higher education sustainability initiatives conducted in Asia-Pacific is affiliated with world developments. Some of the higher education in Asia Pacific is improving their sustainability effort through green campus i.e. the management of carbon and management of waste as well as construction.

2.2. Students Enrolment

The number of students enrolled into the university is another good indicator towards the rankings of the University. Even though, it is debated that the survival of the University cannot be relied on the tuition fee only (Bilton, 2018), the enrolment of the students is still significant to the University in order to cover their operational cost. According to QS Quacquarelli Symonds (2018) QS, most of the students is looking for an institution which enable to display sustainability leadership and ability to provide them

with relevant tools for any complex decision making. Some of programmes can be in the form of personal development and employability skills for the graduates. It is important for the university to be committed in nurturing well rounded graduates and to ready them with real working environment.

The sustainability of a University conservatively depending on the number of student enrolment into the University. Continuous effort and strategies needs to draw by the University from time to time in ensuring the number of student enrol into the University is sustain. The awareness of programmes offered to the public, academic support as well as students support services provided by the University were factors for the students' enrolment into the University (Manoshika, 2017). The study shows improvement of student enrolment the year after the improvement initiatives carried out by the Open University of Sri Lanka. Some other factors influenced the student's choice to enter the University includes perception of the students, accessibility and opportunity, environment of learning, academic staff quality, design of the course and the success of the graduates (Shah et al., 2013). The students also looking for a good employability upon the completion of their studies. It is important for the students to secure a job within 6 months to 1 year after completed their studies. This is described by Bennett (2014), explained the students highest motivation to enrol into University involves the factor of better job employability and better pay. The reasons students decided to further their studies is basically to get a degree, preparing them for an attractive career and ability to decide on their life future direction (Tavares, 2012). If the university able to satisfy the appetite of current and potential students through the conducive learning environment, quality academic staff, the design of courses and job employability, it will lead to the student's satisfaction and loyalty to the University (Mercedes & Marta 2005; Shah et al., 2013).

Above all, it is clearly assumed the sustainability of University is heavily depending on the student's enrolment into the University. The potential students are looking for a University which can provide conducive teaching and learning environment, good support service, the design of the course as well as the graduates' job employability. With the sustained number of students enrolled, it will strengthen the financial standing of the University.

3. Purpose of this study

The purpose of this study to investigate the importance of University rankings towards the University sustainability and student's enrolment which leads to the survival of the University in Education industry in Malaysia.

4. Research Method

The objectives of this study is to analyze the effects of university ranking towards the PHEI sustainability in education industry. The secondary data collection is used, and the University were identified through purposive sampling method. Table 02 shows an information about samples of the study.

Table 02. Selected PHEI University in Malaysia

University	Description	SETARA 2017 Ranking	QS Asian University 2017 Ranking
University A	Private Higher Education Institution	SETARA 6 Mature University	60-65
University B	Private Higher Education Institution	SETARA 5 Mature University	260-265*
University C	Private Higher Education Institution	SETARA 5 Emerging University	175-180

Note: *Only QS World University Ranking 2017 available

The information regarding the University is obtained through the data published in their website in August 2018. In addition, the website related to the University ranking namely; SETARA (MOHE, 2018), QS University Ranking (QS Quacquarelli Symonds, 2018) and Times Higher Education (Times Higher Education, 2018) and other reliable sources.

5. Findings

Based on the information available on each PHEI and University ranking website, the information was collected based on the three areas namely; University Ranking, University Sustainability and Students Enrolment. As described in the research method, the website of the University was visited in the month of August 2018 after the QS Asian Ranking University 2017 and SETARA 2017 result was released.

5.1. University Ranking

University A, B and C has published the University ranking in the university official website as part of their marketing strategy to attract more local and international students. Apart from that, the information about the University ranking also made available to the students in order for them to select and choose the intended University. Table 3 shows the university ranking description and number of years in the education industry.

5.2. University Sustainability

Based on the establishment information found the University website, it is found that University A has more than 20 years' experience in the education industry. The University B and University C has more than 15 years and 49 years of experience in the education industry respectively. As shown in Table 2 the similar characteristics described that all 3 universities have been in the market more than 10 years in the education industry. This explained the University A and B are matured University (Table 03) which always embrace challenges and implementing strategies which relevant to the education industry.

5.3. Students Enrolment

Based on information published in University website and other reliable sources, it is found that University A has more than 8,000 international students from more than 70 countries all around the world

(Hotcoursesabroad, 2018). The student enrolment for University B is more than 3,500 students (Hotcoursesabroad, 2018). Students enrolment University C is more than 15,000 (UniRank, 2018).

Table 03. University ranking description and number of years in the education industry

PHEI University	Description of Findings	Years in the Education Industry
University A	<ul style="list-style-type: none"> ▪ Top 60 university in QS World University Rankings 2018. ▪ Top 25 Times Higher Education – World Most International University. 	More than 20 years
University B	<ul style="list-style-type: none"> ▪ Top 152 university in Academic Ranking of World University 2017 ▪ Top 262 QS World University Rankings 2018 	More than 15 years
University C	<ul style="list-style-type: none"> ▪ Top 150 QS Asia University Rankings 2017 ▪ Top 29 QS World University Rankings by Subject 2017 	More than 49 years

In answering the objectives of this study, it answered both the research questions and it shown that the experienced university with good University ranking leads to the University sustainability in the education industry. The strategies used by the University proven the effectiveness through the students' enrolment into the University. It also explained the "trust" between University and public is established through the quality of the university, University branding and years in the education industry. Even though various strategies used by the University to sustain the number of students enrol, the potential of losing students is also great due to the online courses and overseas competitors. This is another challenge for PHEI in Malaysia to embrace and findings suitable ways to overcome. The current trend is taking place gradually is the online courses offered by an overseas established University. The students can enjoy the same courses offered online by a prominent university overseas. According to Bilton (2018), the branding of the country would be able to attract more international students and retain the existing students. It is the university responsibility create the distinctiveness and branding in representing the country quality lifestyle. It is important for the universities to advertise their lecturers, research and innovation activities so that it would attract more students to the universities.

6. Conclusion

The developments in Malaysian higher education sector have resulted in larger competition among various private higher education institutes. Such competition which has clearly appeared recently in the higher education context has urged the policy makers to identify the factors that influence the choice and selection of an institution among students for pursuing higher education studies. The main objective of this paper was centred on examining whether university ranking and students' enrolment have any effect on the performance and sustainability of private higher education institutions in Malaysia. The results confirmed that university ranking plays an important role in determining business performance and the sustainability of private higher education institutions. Munisamy, Jaafar, and Nagaraj (2014) found that

the reputation of a university and quality of its programmes had significant influence on students' choice. Ehrenberg (2001) also confirmed a strong correlation between the reputation of institution, its rankings and the application behaviour among students. Greater support was shown in the study of Hazelkorn (2012) who stated that the choice of an institution tends to be affected by its reputation and overall rankings. Freid (2005) also demonstrated that an institution's ranking affects the perceptions towards its prestige and level of quality. Based on these findings, it is suggested that the PHEs should focus their efforts on increasing their rankings which can be achieved through research and development, quality of academic staff, students' facilities, and other evaluation assessments.

The outcomes of this study also showed that students' enrolment have significant impact on the sustainability and performance of private higher education institutions. The result was confirmed by certain scholars (Migin, Falahat, Yajid, & Khatibi, 2015) who declared that students' enrolment represents the key factor in sustaining the performance of an institution. However, to increase students' enrolment, it requires the decision makers in higher education context to focus on improving their facilities, quality of academic staff, and availability of various programmes that fulfil today's business needs (Migin et al., 2015). Ollin (1996) added that the professional training of lecturers may enable the higher education institutions to capitalize on their strengths for brining significant changes and long term business growth sector. The authors demonstrated that academic staffs in PHEIs represent important assets for nurturing the growth and development of organizations. Therefore, PHEIs should direct their marketing efforts towards promoting their reputations and quality of academic programmes using various media channels in order to create a distinct image in the minds of customers and influence their decision process. The marketing tactics should mainly emphasize on addressing the needs of customers in an attempt to build favourable brand reparation that could assure the sustainability of the institutions on the long term.

This paper has few limitations that could be considered by future researches. First, only three private higher education institutions in Malaysia were targeted in this study; therefore, future researches should enlarge the scope and include other institutions from different geographical areas in the country. Furthermore, secondary data approach was employed for gathering the information and reaching at conclusions. For this reason, future studies are recommended to implement other quantitative and qualitative techniques to confirm the results. Finally, only student enrolment and university ranking were investigated to determine their relationship with university sustainability. Thus, future researches can examine other factors which may exert a significant effect on student choice, such as brand name, social media marketing, and education fees.

References

- Adams, C. A. (2013). Sustainability reporting and performance management in universities: Challenges and benefits. *Sustainability Accounting, Management and Policy Journal*, 4(3), 384–392. <https://doi.org/10.1108/SAMPJ-12-2012-0044>
- Bennett, R., & Bennett, R. (2014). Students' motives for enrolling on business degrees in a post-1992. <https://doi.org/10.1108/09513540410512127>
- Bilton, I., (2018). Malaysian universities need to future-proof themselves – or face closure. *SI News*.
- Bramwell, J. (2017). What do the 2018 world university rankings tell us? Retrieved from <https://www.britishcouncil.org/voices-magazine/what-do-2018-world-university-rankings-tell-us>

- Cartter, A. (1996). An assessment of quality in graduate education. Washington, DC: American Council on Education.
- Chong, Y. S., & Ahmed, P. K. (2015). Student motivation and the 'feel good' factor: an empirical examination of motivational predictors of university service quality evaluation. *Studies in Higher Education*, 40(1), 158–177.
- Conrad, C., & Blackburn, R. (1985). Correlates of departmental quality in regional colleges and universities. *American Education Research Journal*, 22, 279–295.
- Cybermetrics. (2018). Ranking Web of Universities. Retrieved from <http://www.webometrics.info>
- Dill, D. D. (2009). Convergence and diversity: The role and influence of university ranking. In M. K. Barbara & S. Bjorn (Eds.), *University rankings, diversity, and the new landscape of higher education*. Rotterdam: Sense Publishers., 97–116.
- Driscoll, E., Comm, C. L., & Mathaisel, D. F. X. (2013). A Lesson Plan For Sustainability In Higher Education. *American Journal of Business Education (AJBE)*, 6(2), 255–266. Retrieved from <http://www.journals.cluteonline.com.proxy.ufv.ca:2048/index.php/AJBE/article/view/7691>
- Education, T. T. H. (2018). The Times Higher Education. Retrieved from <https://www.timeshighereducation.com>
- Ehrenberg, R. G. (2001). *Reaching for the Brass Ring: How the "US News & World Report" Rankings Shape the Competitive Environment in US Higher Education*. Retrieved on 10 September, 2018 from: <https://files.eric.ed.gov/fulltext/ED470061.pdf>
- Ehrenberg, R. & Hurst, P. (1996). The 1995 NRC ratings of doctoral programs: A hedonic model. *Change*, 28(3), 46–50.
- Freid, L. (2005). *Reputation and prestige in American research universities: An exploration of the history of rankings and the increasing importance of student selectivity in perceptions of quality in higher education* (Dissertation, University of Pennsylvania).
- Hallinger, P., & Hallinger, P. (2014). Riding the tiger of world university rankings in East Asia : where are we heading ? <https://doi.org/10.1108/IJEM-11-2012-0126>
- Hazelkorn, E. (2012). *The effects of rankings on student choices and institutional selection*. Retrieved on 10 September, 2018 from: <https://arrow.dit.ie/cgi/viewcontent.cgi?article=1015&context=cserbk>
- Hotcoursesabroad. (2018). Overview.
- Leong, I. J. (2016). Setara Tier 5. *The Star*.
- Manoshika, P. S. D. A. & R. (2017). Addressing the issues of low student enrollment :The case of the Kandy Regional Centre of the Open University of Sri Lanka.
- Marginson, S. (2014). University Rankings and Social Science 1, 49(1), 45–59. <https://doi.org/10.1111/ejed.12061>
- Mercedes Marzo Navarro, Marta Pedraja Iglesias, P. R. T. (2005). A new management element for universities: satisfaction with the offered courses. *International Journal of Educational Management*, 19(6), 505–526.
- Migin, M. W., Falahat, M., Yajid, M. S. A., & Khatibi, A. (2015). Impacts of Institutional Characteristics on International Students' Choice of Private Higher Education Institutions in Malaysia. *Higher Education Studies*, 5(1), 31–42.
- MOHE. (2018). SETARA-2017.
- Munisamy, S., Jaafar, N. I. M., & Nagaraj, S. (2014). Does reputation matter? Case study of undergraduate choice at a premier university. *The Asia-Pacific Education Researcher*, 23(3), 451–462.
- Nasa, A. (2017). 33 below par colleges ordered shut by Higher Education Ministry. Retrieved from <https://www.nst.com.my/news/nation/2017/12/315737/33-below-par-colleges-ordered-shut-higher-education-ministry>
- Ollin, R. (1996). Learning from industry: human resource development and the quality of lecturing staff in further education. *Quality Assurance in Education*, 4(4), 29–36.
- QS Quacquarelli Symonds. (2018). QS World University Ranking. Retrieved from <https://www.topuniversities.com/university-rankings>
- Razak, D. A. (2017). Overhaul both public and private universities. *The News Straits Times*.
- Ryan, A., Tilbury, D., Blaze Corcoran, P., Abe, O., & Nomura, ko. (2010). Sustainability in higher

- education in the Asia-Pacific: developments, challenges, and prospects. *International Journal of Sustainability in Higher Education*, 11(2), 106–119. <https://doi.org/10.1108/14676371011031838>
- Shah, M., Sid Nair, C., & Bennett, L. (2013). Factors influencing student choice to study at private higher education institutions. *Quality Assurance in Education*, 21(4), 402–416. <https://doi.org/10.1108/QAE-04-2012-0019>
- Sheeja, N. K., K, S. M., Cherukodan, S., & K, S. M. (2018). Impact of scholarly output on university ranking. <https://doi.org/10.1108/GKMC-11-2017-0087>
- Shin, J., & Harman, G. (2009). New challenges for higher education: Global and Asia-Pacific perspectives. *Asia Pacific Education Review*, 10(1), 1–13.
- Star Education. (2018). Redesigning Malaysia's Higher Education System. Retrieved from www.thestar.com.my
- Tavares, O. (2012). Choices and Motivations : the why and how of Portuguese students ' enrolment choices, 47(2).
- UniRank. (2018). Malaysia University Ranking. Retrieved from <https://www.4icu.org/reviews/14632.htm>
- Usher, A., & Medow, J. (2009). A global survey of university rankings and league tables. In M. K. Barbara & S. Bjorn (Eds.), *University rankings, diversity, and the new landscape of higher education*. Rotterdam: Sense Publishers., 3–18.