



Publication Strengthening As the Foundation in Entering World Quality Higher Education

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Higher education plays a role as a major contributor to the nation's competitiveness in the current era of the knowledge economy. Higher Education as a Knowledge Enterprise serves to produce knowledge that can be utilized in daily life and will lead to the welfare of the community. The need for universities in Indonesia to enter the World Class Quality is a factor that must be well planned. This study aims to identify the capability needed by universities to attain World Class Quality through aspects of the research situation, situations of academic freedom and academic excellence. The research was conducted by survey method on 5 (five) State Universities and 2 (two) Private Universities in Indonesia which were considered to be superior performers in their efforts towards World Class Quality. The research instruments in the form of questionnaires and data processing used structural equation modelling with statistical analysis tools SPSS 22 and AMOS 20. The results showed that 25% of DIKTI ratings in Indonesian universities were strongly influenced by publication performance. The following results state that tertiary institutions ranked in the 10 best providers have opportunities of World Class Quality at an average of 81%, while state and private universities that are ranked $11 \leq \text{Dikti Rank} \leq 50$ have opportunities of World Class Quality on average of 77 %, and the remaining institutions have a chance of 43% to be able to get global quality campus recognition.

Key words: *World Class Quality, Research and Publication, Academic Freedom, Towards Excellence.*



Introduction

Since the beginning of the 21st century, globalization has greatly influenced the survival of tertiary institutions (Philip G Altbach, Reisberg, & Rumbley, 2009). Globalization is interpreted as a reality that is formed from the increasingly integrated world economy, the growing presence of ICT technology, the emergence of international knowledge networks, the increasing role of using English as an international language and other forces beyond the control of academic institutions (Philip G Altbach, 2007). The response that arises in various universities in the world to the issue of globalization is the increasing circulation of the term internationalization of higher education (Cantwell & Maldonado-Maldonado, 2009). These terms, globalization and internationalization are related but are not the same (P. G. Altbach & Knight, 2007).

Colleges that have a strong and positive reputation will be able to attract and retain their students in the competitive arena of universities in the current era of globalization (Plewa, Ho, Conduit, & Karpen, 2016). In fact, the reputation of tertiary institutions is largely supported by the achievement of international rankings issued by various world ranking institutions (Millot, 2015; Vlasov & Kiseleva, 2017). The above phenomenon related to global quality universities lies behind this research which seeks to identify the capabilities of universities in Indonesia in entering global quality universities. This began by increasing the domestic ranking issued by the Indonesian ministry of research, technology and higher education, which had implications for the magnitude of the opportunities of each of these universities to be recognized as global quality universities (*World Class Quality*).

Literature Review

Higher Education Ranking

The reputation of a higher education institution is important, both for the college itself and for its students - where reputation can influence prospective students when making university selection decisions (Soutar & Turner, 2002). Several studies have found that the main value of a university that has a positive reputation lies in the quality of the college itself (Blanco-Ramírez & Berger, 2014), while even the quality of higher education is clearly an important measurement in global ranking. The tertiary ranking system has become a measure of superior reputation and in the process is able to rearrange the existing landscape of higher education (Collins & Park, 2016). In fact, currently the reputation of universities is supported by the international rankings issued by various world ranking institutions (Millot, 2015).



Publication

Publication leads to the creation of new knowledge, enhancing the reputation of the institution, stimulating modernization and innovation, improving the quality of academic staff and improving the economic status of the institution (Dhillon, Ibrahim, & Selamat, 2015). Publication and ranking citations have become the main indicators of the scientific value of a university and as career boosters of printed scholars (Frey & Rost, 2010). At present the competition between universities has undergone a paradigm shift compared to the previous period. Current competition is more concentrated in research productivity than educational productivity (Shin, J.C. and Kehm, 2013). Based on the results of the above research about publications and their relation to the ranking of a college, the following hypothesis is drawn:

Hypothesis 1:

Publications have a positive and significant effect on Higher Education (HE) rating

Academic Freedom

Altbach, Director of the Center for International Higher Education at Boston College, said that world-class tertiary institutions are not only as defined in dictionaries, which means that they must have a high ranking at the world level with international standards of excellence, he poses that further world-class tertiary institutions should not stop in the achievement of several fields which are the criteria of determination by rating agencies. More than that, world-class universities must be superior in the field of research and provide adequate facilities for academic work, an atmosphere of intellectual enthusiasm, and also have academic freedom and have independence in governance (Phillip G. Altbach, 2004). Academic Freedom is quite important for universities, because it is considered to represent the name of a college on the international stage (Neave, 2002). Based on the results of previous research on academic freedom and its relation to the ranking of a college, the next hypothesis is proposed:

Hypothesis 2:

Academic freedom has a positive and significant effect on Higher Education (HE) rating

Towards Excellence

Salmi, in his explanation at the 2nd Conference on WCUs, Shanghai 1-2 November 2007, explained that there are three main dimensions for a world-class tertiary institution: (1) concentration of talents, (2) abundant resources and (3) favorable government (Salmi, 2007). The third dimension of world-class universities according to Salmi is favorable government, which is good management of higher education reinforced by a supporting regulatory framework, a visionary leadership team (Hassan, Silong, Ismail, & Asmiran, 2011), an independent culture of excellence, a high spirit of competition in all aspects and the ability to make work and academic products in accordance with the needs of the community[1]. Based

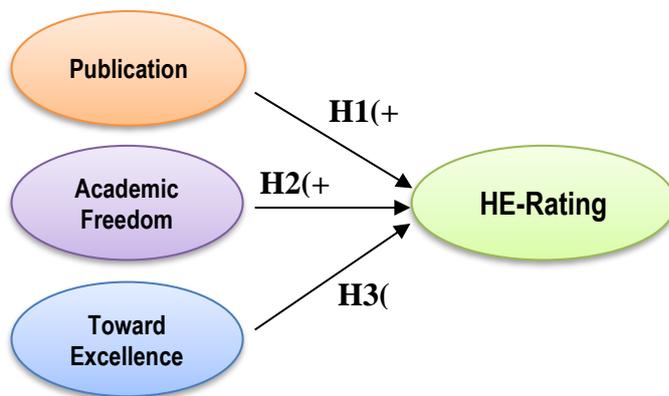
on the results of several studies related to the situation towards exclusion and ranking of universities, the final hypothesis is drawn:

Hypothesis 3:

The motivation towards excellence has a positive and significant effect on HE-rating.

Based on the phenomenon and study of several previous studies, the research paradigm that was successfully compiled this study is as follows in Figure 1 below:

Fig. 1. Research paradigm



Research Methodology

This study uses a survey method to interrogate the subject of research in higher education in Indonesia which is considered to have shown superior performance in an effort to enter the World Class Quality higher education. The study was conducted in 5 (five) state universities and 2 (two) private universities in Indonesia. The object of the study covers aspects of the research situation in each college, the freedom aspects of the academic situation, aspects of the campus situation towards excellence, the ranking of DIKTI and also the webometric ranking. Data collection uses purposive technique sampling with research instruments in the form of questionnaires to obtain primary data and processing data using descriptive analysis and chi-square analysis with SPSS 22 statistical tools and structural equation models using AMOS 20 statistical tools.

Results and Discussions

Data processing begins by testing all indicators on each variable dimension into the measurement model using the AMOS 20 statistical tool to test the validity and reliability and other outputs from the measurement model. The validity is tested by measuring the value of loading factors (λ) and the significance value (p value) at the significance level. Data will be said to be valid if the loading factors value is $\geq 0,5$ and significance probability ≤ 0.05 at the

significance level (Hair, Black, Babin, & Anderson, 2014). From the results of the initial measurement model, there are 2 (two) invalid indicators because the value of the loading factor is below 0.5 ($\lambda < 0.5$) so that the indicator is not feasible to be included in subsequent processing. The final results after revising the measurement model, obtained valid and reliable indicators as listed in Table 1 below:

Table 1: Result of Data Validity & Reliability

VARIABLE/INDICATOR	λ	
Publication		
Construct Reliability (CR) = 0,9 / Variance Extract (VE) = 0,5		
p3 : Self awareness to interact with online publication dissemination facilities (google scholar, Scopus, ORCID, SINTA, research gate, etc)	0,5470* **	V
p4: Research climate become a positive cultural force on campus	0,5154* **	V
p5: The university organizes collaboration of students and lecturers in research	0,6630* **	V
p6: Cross-disciplinary study was conducted	0,7893* **	V
p7: Collaborative research with other universities	0,7864* **	V
p8: Information related to research is easy to get in the library system	0,5463* **	V
p9: The university provides joint research facilities for lecturers with researchers from within and abroad	0,7063* **	V
Academic Freedom		
Construct Reliability (CR) = 0,9 / Variance Extract (VE) = 0,6		
af1: Freedom of election of officials	0,8191* **	V
af2: Freedom to propose opinion/creativity/feedback	0,8823* **	V
af3: Giving feedback is familiar, and arranged in the system	0,7235* **	V
af4: The university environment allows lecturers to share knowledge	0,5658* **	V
af5: Freedom to update of learning	0,7567* **	V
af6: Freedom of association with the outside environment	0,8260* **	V

af7: The freedom of feedback related to improving the quality of graduates	0,5988* **	V
af8: The freedom of choice of research publication media for the dissemination	0,7475* **	V
af9: Freedom to do community service for the utilization of science, professional service	0,7273* **	V
Toward Excellence Construct Reliability (CR) = 0,9 / Variance Extract (VE) = 0,5		
te1: Competition for achievement of academic and non academic as well as other achievements from students	0,7033* **	V
te2: Environment for sharing knowledge collaboratively	0,6915* **	V
te3: Award to university members who gave birth to innovations/which increased the intellectual capital of the organization	0,7283* **	V
te4: Leadership development at each university level is well managed	0,8248* **	V
te5: The university's internationalization has a strategic plan, a focused work program, definite & applied targets within the university	0,7788* **	V
te6: Many student activities to strengthen the independence of graduates	0,6913* **	V
te7: Effectiveness of cooperation between domestic and foreign universities has always been systematically managed at the university	0,8009* **	V
te8: Result of research/work of lecturer & student/knowledge are well managed	0,7207* **	V
te9: Continuous improvement has become a systemic habit	0,5995* **	V

Source: The results of the data processing using AMOS 20; V=Valid

The revised results in the measurement model show that the value of loading factors (λ) of each indicator in the publication variable, academic freedom, and toward excellence in this study is ≥ 0.5 , and the p value of all indicators in the above variables is *** (this means very small from 0.05). These results indicate that data on publication variables, academic freedom, and excellence were declared valid and very significant at a 5% confidence level. Next, the reliability of the research data is measured. Measurement of data reliability requires Construct Reliability (CR) ≥ 0.7 and Variance Extract (VE) ≥ 0.5 . The data is said to have "a good reliability" if $CR \geq 0.7$ and $VE \geq 0.5$, and the data is said to be "acceptable reliability" if the value of Construct Reliability is $0.6 \leq CR < 0.7$, whereas all the data must be in condition of good validity. (Hair, Black, Babin, & Anderson, 2014). The value of Construct Reliability and the value of Variance Extract can be calculated using the formula below:

$$CR = \frac{(\Sigma\lambda)^2}{(\Sigma\lambda)^2 + \Sigma e} \text{ where } \Sigma e = \Sigma(1 - \lambda^2) \text{ (Hair et al., 2014)(1)}$$

$$VE = \frac{\Sigma\lambda^2}{\Sigma\lambda^2 + \Sigma e} \text{ (Hair et al., 2014)(2)}$$

Based on the measurement results using Amos 20.0, it was found that all construct reliability values on publication variables, academic freedom, and toward excellence were ≥ 0.7 and all variance values extracted on publication variables, academic freedom, and toward excellence were ≥ 0.5 , so it can be concluded that all data on publication variables, academic freedom, and toward excellence are reliable. Furthermore, structural measurements (structural model) were made to get answers to the research questions proposed, and specifically, to measure the amount of direct, indirect and total influence between variables, and further to determine the opportunities of each university that is included in Dikti ranks in achieving World Class Quality. Figure 2 below is a structural model in this study:

Fig. 2. Structural Model

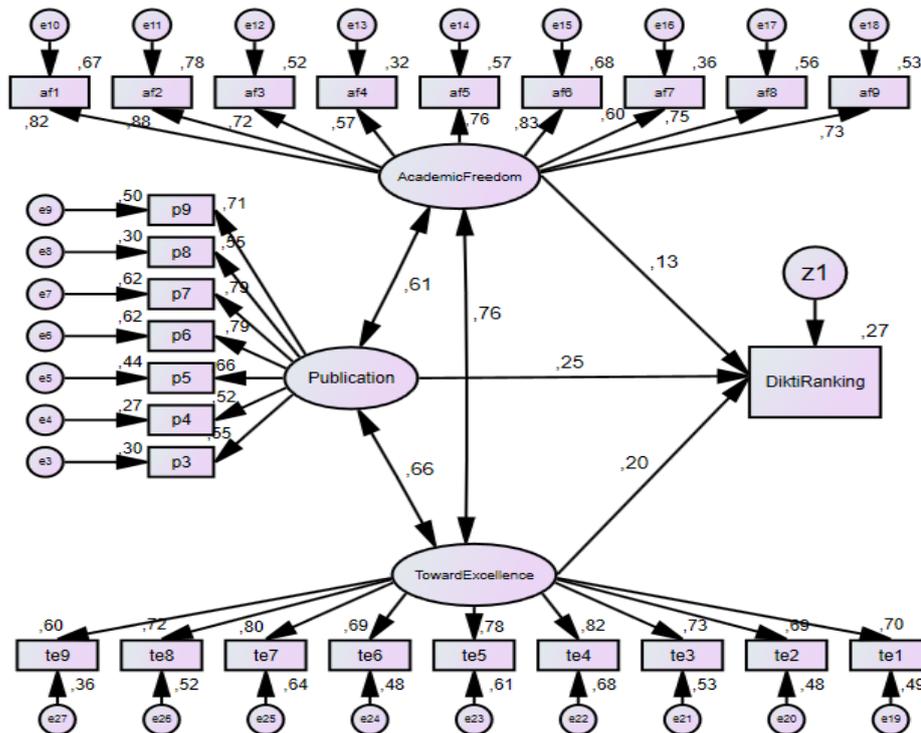


Table 2: Direct effects dan p value

	Publication	Academic Freedom	Toward Excellence
DiktiRanking	0.25	0.13	0.20
p-value	0,019 (sig.)	0,415 (not sig.)	0.245 (not sig.)

Source : Result data processing with AMOS 20

The structural model of the study in Table 2 above, significantly shows that the ranking of DIKTI at universities in Indonesia by 25% is strongly influenced by the performance of the university's publications themselves, both from PTN and PTS. High publication performance can be realized with the presence of self-awareness from lecturers who have an online account related to the lecturers' self-recognition of research and publication efforts, the university's arrangement of cross-disciplinary research, joint research with researchers inside / outside domestic and foreign universities, the arrangement of lecturer and student research collaborations and the creation of a superior research climate that is a positive cultural force within the campus environment. Conversely, academic freedom and the situation towards excellence have not shown significant results in influencing Dikti ranking. This can be seen from the large influence on each of these variables which is only 13% and 20%, and where the p value is not significant.

In addition to analyzing the structural model, this research also analyzed the opportunity strength of state and private universities that were sampled in this study to obtain World Class Quality positions or even gain recognition as a World Class University later on from several world ranking institutions. The test results show that higher education institutions in the best 10 Dikti rankings have an opportunity toward World Class Quality at an average of 81%, while public and private tertiary institutions that are ranked $11 \leq \text{Dikti Ranks} \leq 50$ have opportunities toward the average World Class Quality by 77%, and the remaining institutions have an average chance of 43% for the campus to be able to get recognition of a campus that is of global quality. This result is obtained significantly through a comparative test at the 5% significance level with the result of p value < 0.05 as in Table 3 below:

Table 3: Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	Avg_pb	1,148	,542	4,494	1	.034	3,153
	Avg_te	1,377	,551	6,252	1	.012	3,961
	Constant	-8,167	1,995	16,761	1	,000	,000

a. Variable(s) entered on step 1: Avg_pb; Avg_te

Source : Result data processing with SPSS 22

Seeing the results obtained from structural measurement and comparative tests between the institutions which were in DIKTI rank, in terms of opportunities towards World Class Quality, it was found that publication variables occupy the most contributing position in campus ranking both nationally (Dikti Ranking), and internationally (QS ranking and Cybermetrics Lab or webometrics). For this reason, researchers explored things related to increasing lecturer publications in both PTN and PTS. Below are the tables and graphs which collate the results obtained from processing the chi-square analysis using the SPSS 22 statistical tool.

Table 4: Comparative test of gender affected on publication

		Publication				Total
		< 2	2 – 5	6-10	>10	
Gender	Man	7	13	16	19	55
	Female	3	23	7	9	42
Total		10	36	23	28	97

Pearson Chi-Square, Value = 9,907^a, df = 3, Asymp. Sig. (2-sided) = 0,019

Table 5: Comparative test of education level affected on publication

		Publication				Total
		< 2	2 – 5	6-10	>10	
Education Level	Magister	3	22	7	4	36
	Doctoral	7	14	16	24	61
Total		10	36	23	28	97

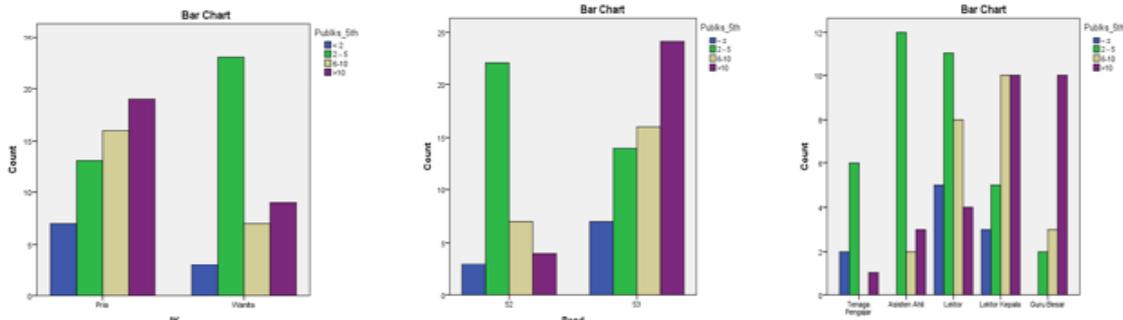
Pearson Chi-Square, Value = 15,791^a df = 3, Asymp. Sig. (2-sided) = 0,001

Table 6: Comparative test of academic position affected on publication

		Publication				Total
		< 2	2 – 5	6-10	>10	
Academic Position	instructor	2	6	0	1	9
	expert assistant	0	12	2	3	17
	lectors	5	11	8	4	28
	lector head	3	5	10	10	28
	Professor	0	2	3	10	15
Total		10	36	23	28	97

Pearson Chi-Square, Value = 35,350^a df = 12 Asymp. Sig. (2-sided) = 0,000

Fig. 3. (a) Comparative test of gender affected on publicatio, (b) education level affected on publication, (c) academic position affected on publicaton



Based on the results of the chi square test using the SPSS 22 statistical tool above, it was found that the p-value of the three tests was below the alpha value of 0.05 (or $p\text{-value} \leq 0.05$), then it was empirically and significantly stated that the lecturer publications in several state and private universities in Indonesia are determined (based on) by the sex of the lecturer, the last level of education, and the functional position of the lecturer (teaching staff/expert assistant /senior lecturer/associate professor/professor).

It was also found that the supporting indicators for improving the performance of lecturer publications were lecturers' self-awareness to obtain self-recognition for the research and publications that had been carried out, university regulations on cross-disciplinary research, joint research, collaboration, and a superior research climate that was cultured in the environment campus.

Conclusion

The results of this study confirm that the most important thing related to the capability of Indonesian universities in managing their organizations to achieve recognition as Global Quality Universities is highly dependent on the ability of universities to develop management systems related to the creation of quality research situations. This is indicated by the results of the analysis of structural equation modelling, where the study situation variable has a significant effect of 25% on the ranking of universities in Indonesia. The other variables studied were the variables of academic freedom and the situation towards excellence which did not have a significant effect on the ranking of universities in Indonesia.

Based on the results of the Confirmatory Factor Analysis (CFA) in the measurement model, it was found that the research situation in higher education could be improved by several indicators that proved valid, reliable, and significant in improving the quality and quantity of research and publications in Indonesian universities. These indicators include; (1) Universities need to raise self-awareness of educative staff (research lecturers) to interact with online systems related to publications (such as google scholar sites, Scopus IDs, ORCID, SINTA, research gates and others); (2) Universities need to promote a superior research climate as a



positive cultural force in the campus environment; (3) Universities need to encourage collaboration between students and lecturers in research; (4) Higher education needs to intensify research across fields of science; (5) The habit of conducting research collaboration with other universities / campuses needs to be fostered; (6) Universities need to provide facilities in information systems to support research activities; (7) Provision of joint research facilities for lecturers with researchers from within and outside the country regulated by the institution.

The results of the study also found that the quality and quantity of research produced by research lecturers in higher education is based on (determined) the gender of the lecturer, the last level of education of the lecturer and the academic position held by the lecturer. The quality and quantity of research is also determined from several indicators that have been successfully identified from the confirmatory factor analysis (CFA) process above. The next important result is the opportunity of several universities in Indonesia in an effort to achieve World Quality University status. This research confirmed that universities in Indonesia that made the 10th best ranking from the dictation ranking (≤ 10) on average, had the opportunity to be recognized as World Class Quality College on average of 81%, while PTN and PTS that were ranked $11 \leq \text{Dikti Rank} \leq 50$ had this opportunity averaging at 77%, and the remaining institutions, on average, have an opportunity of 43% to achieve campus recognition of global quality.



REFERENCES

- Altbach, P. G. (2004). Globalization and The University: Myths and Realities in an Unequal World. *Tertiary Education and Management Journal*, 1.
- Altbach, P. G. (2007). The logic of mass higher education. *Tradition and Transition - The International Imperative in Higher Education*, (January), 274. <https://doi.org/10.1007/978-94-6209-338-6>
- Altbach, P. G., & Knight, J. (2007). The Internationalization of Higher Education: Motivations and Realities. *Journal of Studies in International Education*, 11(3–4), 290–305. <https://doi.org/10.1177/1028315307303542>
- Altbach, P. G., Reisberg, L., & Rumbley, L. E. (2009). Trends in Global Higher Education : Tracking an Academic Revolution Trends in Global Higher Education. *Higher Education*, 22. <https://doi.org/10.1016/j.bse.2004.04.006>
- Blanco-Ramírez, G., & Berger, J. B. (2014). Rankings, accreditation, and the international quest for quality: Organizing an approach to value in higher education. *Quality Assurance in Education*, 22(1), 88–104. <https://doi.org/10.1108/QAE-07-2013-0031>
- Cantwell, B., & Maldonado-Maldonado, A. (2009). Four stories: confronting contemporary ideas about globalisation and internationalisation in higher education. *Globalisation, Societies and Education*, 7(3), 289–306. <https://doi.org/10.1080/14767720903166103>
- Collins, F. L., & Park, G. S. (2016). Ranking and the multiplication of reputation: reflections from the frontier of globalizing higher education. *Higher Education*, 72(1), 115–129. <https://doi.org/10.1007/s10734-015-9941-3>
- Dhillon, S. K., Ibrahim, R., & Selamat, A. (2015). Factors associated with scholarly publication productivity among academic staff: Case of a Malaysian public university. *Technology in Society*, 42, 160–166. <https://doi.org/10.1016/j.techsoc.2015.04.004>
- Frey, B. S., & Rost, K. (2010). DO RANKINGS REFLECT RESEARCH QUALITY ? Bruno S . Frey and Katja Rost * I . Introduction. *Journal of Applied Economics*, 13(1), 1–38. [https://doi.org/10.1016/S1514-0326\(10\)60002-5](https://doi.org/10.1016/S1514-0326(10)60002-5)
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). *Multivariate Data Analysis. Prentice-Hall, Inc* (Vol. 1). <https://doi.org/10.1038/259433b0>
- Hassan, Z., Silong, A. D., Ismail, I. A., & Asmiran, S. (2011). Developing new generation of educational leaders for world class university. *Procedia - Social and Behavioral Sciences Social and Behavioral Sciences*, 15, 812–817.



<https://doi.org/10.1016/j.sbspro.2011.03.190>

Millot, B. (2015). International rankings: Universities vs. higher education systems. *International Journal of Educational Development*, 40, 156–165. <https://doi.org/10.1016/j.ijedudev.2014.10.004>

Neave, G. (2002). Academic freedom in an age of globalisation. *Higher Education Policy*, 15, 331–335.

Plewa, C., Ho, J., Conduit, J., & Karpen, I. O. (2016). Reputation in higher education: A fuzzy set analysis of resource configurations. *Journal of Business Research*, 69(8), 3087–3095. <https://doi.org/10.1016/j.jbusres.2016.01.024>

Salmi, J. (2007). *Creating World Class Universities in Developing Countries*. Shanghai Jiao Tong, China.

Shin, J.C. and Kehm, B. (2013). The World-Class University in Different Systems and Contexts. In *Institutionalization of World-Class University in Global Competition*. London: Springer.

Soutar, G. N., & Turner, J. P. (2002). Students' preferences for university: a conjoint analysis. *International Journal of Educational Management*, 16(1), 40–45. <https://doi.org/10.1108/09513540210415523>

Vlasov, P., & Kiseleva, A. (2017). Ideology and Distortions of the Entrepreneurial Concept. The Results of Conflict in Organizational Culture. *International Journal of Emerging Trends in Social Sciences*, 1(2), 90-96.

1. Jabarullah, N.H. and H. Iqbal Hussain, *The effectiveness of problem-based learning in technical and vocational education in Malaysia*. Education+ Training, 2019.