



Can Institutional Good Governance and Intellectual Capital Affect University Quality?

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ABSTRACT

The present research examined the determinant factors of university quality, focussing on good university governance and intellectual capital. A survey on 136 B-accredited universities in Indonesia which involved 331 respondents at the managerial level was carried out. The data was analysed using structural equation modelling technique with the support of the Lisrel 8.8 statistical software. The finding of this research results indicated that both good governance and intellectual capital are critically important for university quality, where intellectual capital is a more dominant factor. The conclusions drawn from this study highlight the importance for policymakers to prioritize both enhancing the quality of lecturers and implementing effective university governance practices.

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INTRODUCTION

Meier et al. (2012) suggested that the escalation of higher education had to be the current highest priority. Rosser (2018) explained that the inefficiency of Indonesia's universities' quality came from the incapability of their graduates to compete with graduates from foreign universities. Higher education is essential as an infrastructure to produce human resources and gradually improve the qualities. It is vital to follow their purpose to develop and produce qualified talents in society (Zhang and Guo, 2014). A study by the World Bank (2006) stated that universities' in Pakistan has low quality emanated from several weaknesses in their governance, mostly from their poor accountability. Another significant factor has been the lack of response to fulfil the continuous demands of industrial labour, such as; resources in the digital economy (Henard and Mitterle, 2010). The inefficient Indonesian universities have originated from a few universities, particularly those from the private sector, which have not been accredited. In 2017, A-accredited universities in Indonesia comprised only 15 out of 3154 (0.47%). In 2018, the number doubled along with the increase of universities, 30 out of 3171 (0.94%). Moreover, in 2019, 39 out of 3129 (1.24%) attained A-accreditation. The poor governance of higher education has been the primary reason for these low numbers.

Henard and Mitterle (2010) explained that most universities have no autonomy to fund their activities, they rely heavily upon taxes levied on residents. Thus, the tax contributors monitor their accountabilities as their tax money funds them. Mollah and Zaman (2015) argued that world universities' low quality originated from their poor governance capacity to maintain quality, as seen from the indicators of; accountability, political stability, regulation effectiveness, and the university's international policies. The research by Bingab et al. (2018) also explained that good governance was essential, particularly for universities that received funding from residents via taxes. Another major factor impacting the quality of universities has been intellectual capital. There are very few doctoral lecturers in Indonesian universities, especially private universities. In 2017, the number of doctoral lecturers comprised 10,789 of 138,006 total lecturers (7.8%). The number improved slightly to 12,625 doctors out of 153,032 total lecturers (8.2%) in 2018 and 14,283 out of 181804 (7.85%) total lecturers in 2019. Notably, Indonesia has had the lowest number of doctoral lecturers compared to other ASEAN countries, such as; Malaysia or Singapore.

Mohammed et al. (2016) noted that intellectual capital with a qualified personnel proxy highly influenced university quality. Correspondingly, a study by Ng (2015) opined that qualified education relied heavily on; lecturers' quality, a well-established learning atmosphere, and a conducive learning environment. Higher education must consider and pay attention to the dynamic changes in trends and the modern environment. Such adaptation skills will influence the quality of universities. Beketova (2016) described that policies supporting environmental changes were the challenge for achieving a qualified education. Environmental changes encompass three significant scales: mega, macro, and micro. Such changes include; globalisation, technological advancement, demographical change, information revolution, remote teaching, funding, inter-institution competition, lecturers quality, and service quality. According to Oliver and Parrett (2018), the causes of environmental uncertainties were technological development and innovation, leading to global and economic changes. Due to these constant dynamics, universities require strong leadership to comprehend the holistic view of competitiveness and creativeness.

The influence of good university governance and high intellectual capital on the quality of tertiary institutions is a fundamental question that refers to the theoretical and empirical phenomena previously mentioned. Conceptually, the influences of; good university governance (Bingab et al., 2018; Oliver and Parrett, 2018), intellectual capital (Peteraf and Barney, 2003; Mohammed et al., 2016), and environmental uncertainty as a control variable (Lin and Lee, 2011; Nir and Sharma Kafle, 2013; Tan et al., 2016) have been proven to affect university quality. Nonetheless, reviewing prior literature, the evidence from these numerous studies has remained fragmented (partially verified). However, few studies have conducted empirical exploration with a simultaneous and holistic model comprising these three determinant variables. Hence, the present study will stand as an essential benchmark by filling the literature gap by proposing a new model to solve Indonesian higher education's quality problems.

THEORY, LITERATURE REVIEW, AND HYPOTHESES DEVELOPMENT

Total Quality Management Theory

According to Tjiptono (2004), Total Quality Management (TQM) is defined as organising businesses by maximising an institution's competitiveness through continuous improvements of; products, services, human resources, processes, and the environment. Thus, customers, work progress, quality development, and the responsibility of all employees become centres of innovation to create competitiveness that can drive output quality (Bukhori and Rahardja, 2012). Improvements in these services are related to customer satisfaction following the jargon as loyal customers will remain in the same market for years because of the consistency in maintaining satisfying products and services (Anderson et al., 2004; Gustafsson et al., 2005). The present research applied Total Quality Management as its principle framework to resolve the issues associated with; university governance, intellectual capital, and the anticipation of environmental uncertainty relative to university quality. Schindler et al. (2015) defined university quality as a university's capability to fulfil its designated vision and mission in an accredited, transformative, and accountable manner for its stakeholders.

In contrast, Murias et al. (2008) described university quality from three perspectives: functionality, effectiveness, and efficiency. From the functionality perspective, university quality balances results and higher education purposes. On the other hand, from the perspective of quality effectiveness, university quality is the balance between results and an activity's purpose. Finally, from the efficiency perspective, university quality is the balance between the output (results) and the inputs and processes. A study by Harvey and Williams (2010) depicted that factors required to raise a university's systematic quality included; management plan development, sustainable quality improvement, the responsible turnover of quality improvement to faculty, and improved output and procedural documentation. Thus, the present research applied University Quality as a balance between the expected output with a particular purpose of the university's activity. Six-dimensional criteria measured this variable: (1) Courses; (2) Learning outcomes; (3) Fulfillment of student needs; (4) Internalisation Process; (5) Research; (6) Supporting Services.

Good University Governance

Barrett (2002) defined good governance as a well-established organisation with a; valued culture, constructive policies, exact strategies, and the ability to communicate with stakeholders. Governance comprises activities related to the administration, supervision, and executive tasks required to develop a business strategy for monitoring an organisation's continuity. Shattock (2006) and Henard and Mitterle (2010) defined university governance as a constitutional form of university running. In this context, good university governance comprises a set of abilities to organise all university activities following strict protocols with the support of; structure, culture, appropriate policies, decent strategies, and beneficial collaborations with stakeholders. As measurement criteria, the present study referred to five dimensions: (1) Frameworks; (2) Management Orientation; (3) Participation; (4) Accountability and Transparency; (5) Autonomy.

The present research focused on the strong relationship between theoretical and empirical ideas to develop its hypotheses. Several types of research have strived to prove this relationship. Two of them included; Dao (2014) and Atan et al. (2016), who studied the reformation challenges between good governance and university quality in Vietnam. The research pictured that poor governance was proportional to the low quality of universities. Unfit governance was apparent from universities' disintegrated management. Consequently, there will be fragmentation in both control and authority.

According to Nadler et al. (2019), university governance was correlated with university quality. The characteristics of good governance in a tertiary institution comprise the existence of a faculty senate providing; access, disseminating assignments, and encouraging the participation of faculty members. Meanwhile, Dill and Soo (2004) explained that valid and reliable information transparency for stakeholders was significantly relevant to universities' quality. Thus, the present research proposed the following hypotheses:

H1: Good University Governance is associated with University Quality.

Intellectual Capital

Intellectual capital comprises an organisation's; knowledge, information, intellectual property, and experiences (Ghazzawi et al., 2020), representing essential elements in the management and assessment of the organisation, either internally or externally (Bounfour, 2005; Vidrascu, 2016). Fazlagic and Skikiewicz (2014) illustrated that Intellectual Capital was an organisation's ability to create knowledge by; utilising innovation, applying new initiatives, and instigating a positive relationship with its stakeholders. Tridharma presented intellectual capital in higher education as; teaching, research, and community service. For example, knowledge and insight from the learning process were correlated to developing student competencies. Another example was the publication of community service or academic research (Leitner, 2004). Furthermore, Wilton et al. (2006) defined intellectual capital as the non-financial and non-physical resources of an organisation that create the organisation's value, i.e., competence, skills, and employees' capacities to generate business value. The present research applied intellectual capital as a university's non-financial and non-physical resources entirely or partially maintained. It then contributes to value creation. This research developed three dimensional criteria to measure this value: (1) Human capital; (2) Network capital; (3) Structural capital.

Barbosa et al. (2016) and Yuliansyah et al. (2016) uncovered the relationship between intellectual capital and universities' performance, where human resources stood significantly as a knowledge source. Carroll and Tansey (2000) argued that the success of managing intellectual capital relied heavily upon the support of top management and organisational culture. An organisation that continuously maintains intellectual capital and constantly struggles to provide a constructive atmosphere will improve its organisational quality. Cricelli et al. (2018) discovered a different aspect of performance-related intellectual capital. The research stated that students' mobility and international graduates were essential to improve a university's performance. Quality strategies depend on an organisation's intellectual capital to maintain the competitiveness of both products and services (Wahyuni et al., 2022). Hence, this study proposed the following hypothesis.

H2: Intellectual capital is associated with University Quality

Environmental Uncertainty

Environmental uncertainty comprises an organisation's inability to precisely predict the impacts of various external environmental pressures (Hoque, 2004). The lack of capacity to recognise trends or potential associated events arises from the lack of information to predict future dynamics (Bateman and Snell, 2013). Wood (2001) argued that uncertainties had become a massive problem for higher education: the inability to view the quality of knowledge and determine between reality and perception. Priem (2001) suggested that uncertainties always refer to doubts concerning unexpected variations and potential. For example, global dynamics and the internationalisation of educational institutions have demanded changes to systems development and educational services policies, especially in higher education. In the present research, environmental uncertainty was recognised as a university's capability to identify the direction of an environment's changes and mitigate these changes' impact. Three dimensional criteria measured this variable: (1) Political Uncertainty Anticipation; (2) Technological Uncertainty Anticipation; (3) Market and Competition Uncertainty Anticipation.

Mecca and Morrison (1988) explained the urgency for education policy to anticipate future uncertainties by making strategic decisions and analysing organisational environmental factors and resources that change the environment. Utilising the best possible and available information also helps to anticipate future uncertainties. Research from Beketova (2016) concluded that higher education is vital for developing a nation. Therefore, higher education requires creating a capable and firm mutual learning system to assess the environmental impacts, internally and externally. According to Maley and Kramer (2014), global uncertainties associated with organisational performance were unvalued and poor management performance contributed to the globalisation of human resources.

However, the present study used Environmental Uncertainty as a control variable. Lin and Lee, 2011, Hasnan et al. (2016), Aprisma and Sudaryati (2020), Irwandi et al. (2020), and Astuty et al. (2021) indicated that Environmental Uncertainty affected performance in the entity. Consistent results were assumed to increase the accuracy of calculating the influence between the variables in this study. Based on the explanation above, this study's conceptual framework is shown in the figure below:

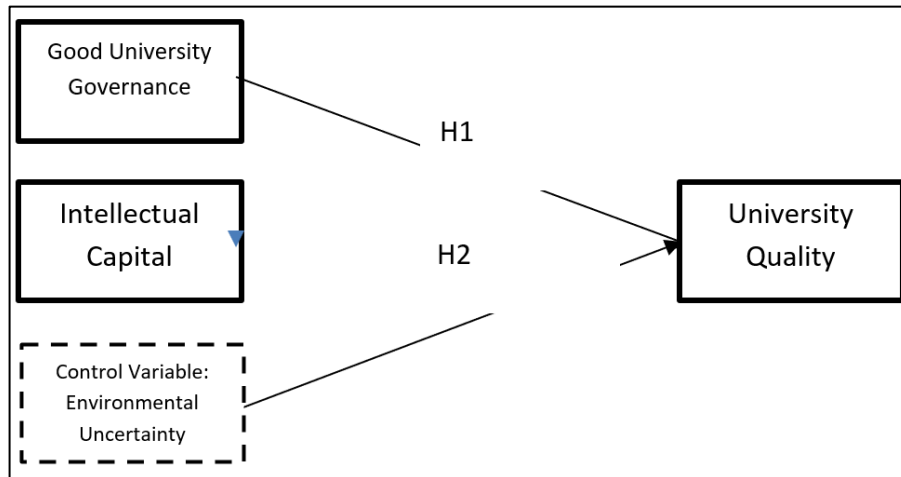


Figure 1 Conceptual Framework

METHOD

The present research applied a quantitative method by surveying 136 (out of 227) B-accredited private universities in Indonesia. Private tertiary institutions in Indonesia with B-accreditation were selected because such institutions still have many problems, such as; the quality of their lecturers' educational level, which is still minimal, facilities and infrastructure which are less supportive, especially in the regions, funding which is still minimal, and cooperation which remains low. In addition, the number of private A-accredited universities remains insignificant, with only 20 universities.

The present research used a questionnaire as its survey instrument. The study applied the Slovin method to calculate the minimum sample size. The Purposive Sampling Technique was used as the data collection method. The data were collected online and virtually from the sampled universities. The present study developed an interval scale between 1 (poor) to 5 (excellent) for every question. This study's descriptive statistics provided the; average values, standard deviations, and demographic data. This study also applied verificative analysis to derive the correlation between the research variables to attest to the hypotheses. The verificative or inferential analysis utilised the Structural Equation Modeling (SEM) technique. This study conducted the data analysis using the Lisrel 8.8 statistical software application.

RESULTS AND DISCUSSION

Results

The present study employed five intervals to measure the sampled data and information. Overall, the variables in this research averagely presented good scores (see Table 1). As illustrated in Table 1, although University Quality indicated a high score with an average of 3.46 out of 5 with a standard deviation of 1.11, it was still the lowest compared with other variables. This finding indicated that universities must strive harder to improve their quality. On the other hand, Good Governance had an average of 4.16 out of 5 with a standard deviation of 1.01. This result indicated a good performance compared with other variables. For Intellectual Capital, the score averaged 3.81 out of 5 with a standard deviation of 1.09. Finally, the Environmental Uncertainty variable depicted an excellent condition with an average of 3.63 out of 5 with a standard deviation of 1.22. Validity assessment is essential to measure whether research instruments are valid (Riadi, 2018). The results of the validity assessment of this study indicated that they were effective at measuring latent variables (Riadi, 2018).

Table 1 Descriptive Statistics and Scale-Based Scoring Categories

No	Variables	Mean Score	Deviation	Criteria
1	Good University Governance [gug]	4.16	1.01	Good
2	Intellectual capital [ic]	3.81	1.09	Good
3	Environment Uncertainty [eu]	3.63	1.22	Good
4	University Quality [uq]	3.46	1.11	Good

Source: Processed Data (2021)

The present study's validity assessment (see Table 2) showed that all indicators presented values greater than the critical point of 0.50 for the loading factor, proving that these indicators effectively measured the latent variables. Then, reliability assessment, according to Riadi (2018), is carried out by developing the Construct Reliability (CR) and Variance Extracted (VE) methods. Where the final results show (see Table 2) that all variables that achieve Composite Reliability with CR and VE values have fulfilled the rules of thumb of more than 0.70 and 0.50

Table 2 Validity and Reliability of Instrument Testing

Indicator	*SFL \geq .50	**CR \geq .70	***VE \geq .50	Result	Indicator	*SFL \geq .50	**CR \geq .70	***VE \geq .50	Result
GUG		.96	.89	Reliable	IC		.96	.89	Reliable
GUG1	.81			Valid	IC1	.82			Valid
GUG2	.89			Valid	IC2	.83			Valid
GUG3	.95			Valid	IC3	.76			Valid
GUG4	.91			Valid					
GUG5	.72								
EU		.97	.92	Reliable	UQ		.96	.87	Reliable
EU1	.96			Valid	UQ1	.68			Valid
EU2	.93			Valid	UQ2	.82			Valid
EU3	1.00			Valid	UQ3	.79			Valid
					UQ4	.72			Valid
					UQ5	.84			Valid
					UQ6	.81			Valid

Source: Processed Data (2021)

The present study assessed the structural model to check whether the proposed model was compatible with the data collected. This assessment used the Goodness of Fit Index (GOFI) method (Riadi, 2018). According to (Riadi, 2018), the goodness of fit statistical model results apply when 5 out of 10 indicators are considered fit, and the absolute fit index of the chi-square, or the RMSEA model, is accepted. The assessment results (See Table 3) showed that all values were higher than 0.90, concluding that the model is very suitable. Likewise, the RMSEA value with a P-Value of 1.000 was higher than 0.5, and the SRMR value, 0.014, was less than 0.05, indicating that the model was suitable. Finally, the [GFI; AGFI] with [0.98; .98] over 0.90 indicated that the model fitted well. Overall, this assessment concluded that all models had a perfect fit. After the model was declared fit, a structural model assessment was conducted. The goal was to test the exogenous latent variables with endogenous latent variables. This assessment was essential to show whether to accept or reject the hypotheses proposed from the theoretical framework of this research.

Furthermore, the present study also used the SEM method to obtain the values of the loading factors between latent variables to assess the hypothesis. This study applied a 95% confidence level with a 5% margin of error and one-tail hypothesis testing. Therefore, the critical value for the t-test was 1.64. This research became a measuring tool presenting all hypotheses that have received analysis. Table 3 depicts a summary of all the hypothesis testing. The Lisrel software application developed the formula for measuring the path coefficient as on Table 3.

Table 3 Result of Goodness of fit index Testing

No	Indicators	Critical Value	Estimation Value	Result
1	Chi-square	$p\text{-value} \geq .05$	1.0000	Perfect Fit
2	RMSEA	$RMSEA \leq .08$	0.0000	Perfect Fit
3	NFI	$NFI \geq .90$	1.00	Perfect Fit
4	NNFI	$NNFI \geq .90$	1.00	Perfect Fit
5	CFI	$CFI \geq .90$	1.00	Perfect Fit
6	IFI	$IFI \geq .90$	1.00	Perfect Fit
7	RFI	$RFI \geq .90$	1.00	Perfect Fit
8	SRMR	$SRMR \leq .05$.014	Perfect Fit
9	GFI	$GFI \geq .90$.98	Perfect Fit
10	AGFI	$AGFI \geq .90$.98	Perfect Fit

Structural Equations

$$UQ = 0.41 * GUG + 0.78 * IC + 0.28 * EU, \quad \text{Errorvar.} = 0.16, \quad R^2 = 0.84$$

(0.17) (0.20) (0.086) (0.033)
2.67 5.52 3.27 4.75

From the formula above, it can be seen that all of the predictor variables influenced University Quality, where Intellectual Capital was the highest predictor variable affecting University Quality, with a percentage of 78%. Accordingly, the value of R-Square (R²) of 0.84 was the value for simultaneous influences. In summary, predictor variables influenced University Quality by as much as 84%.

Statistically, the assessment outcomes were illustrated as follows: The first hypothesis resulted that the path coefficient score for the variable Good University Governance (GUG) to University Quality (UQ) was 2.67 times larger than the critical value of 1.64. This result meant that with a confidence level of 95% and $\alpha = 5\%$, H₀ was rejected, and H₁ was accepted. Thus, the direct influence coefficient GUG → UQ was significant. In summary, the first hypothesis stating that there was a significant and positive influence between Good University Governance To University Quality was accepted.

The second hypothesis presents that the variable Intellectual Capital (IE) path coefficient score to University Quality (UQ) was 5.52 times higher than the critical value of 1.64. This result shows that with a confidence level of 95% and $\alpha = 5\%$, H₀ was rejected, and H₂ was accepted. Thus, the direct influence coefficient IE → UQ was significant. In summary, the second hypothesis stating that there is a significant and positive influence between Intellectual Capital to University Quality was accepted.

The correlation between environmental uncertainty (as a control variable) and University Quality portrayed that the path coefficient score of the variable Environmental Uncertainty (EU) to University Quality (UQ) was 3.27 times higher than the critical value of 1.64. this outcome illustrated that with a confidence level of 95% and $\alpha = 5\%$., the direct influence coefficient EU → UQ was significant. In summary, there was a significant and positive influence between Environmental Uncertainty to University Quality. This result supported the previous statement that environmental uncertainty was constant, consistent with earlier studies, showing that Environmental Uncertainty was a control variable.

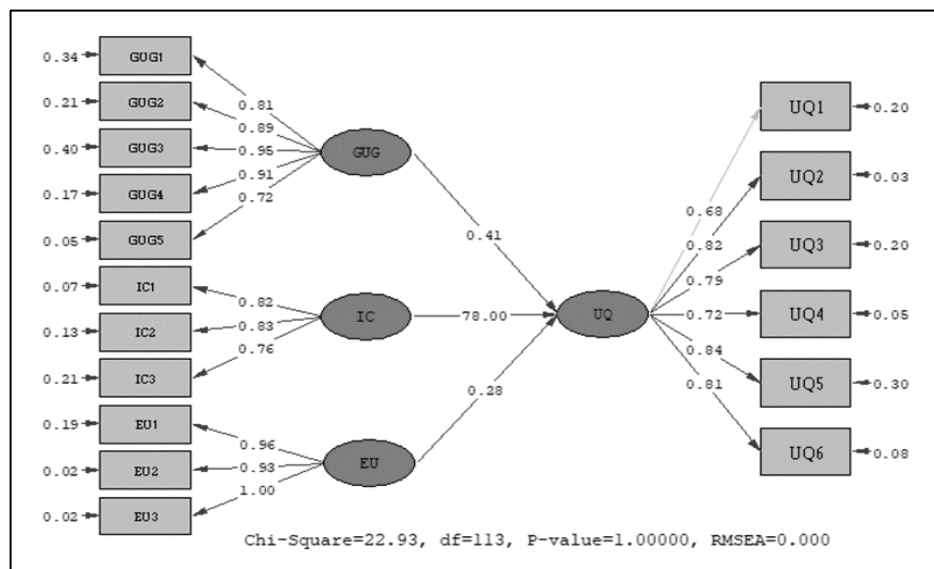


Figure 1 Full Model-Path Coefficient

Table 4 presents a summary of the results of hypothesis testing.

Table 4 Result of Hypotheses Testing

No	Path	Loading Factors	Critical Value	Path Coefficient	R ²	Result Hypotheses
1	GUG → UQ	2.67	1.64	0.41	0.84	Accepted
2	IC → UQ	5.52	1.64	0.78		Accepted

DISCUSSION

Correlation between Good University Governance and University Quality

The results of the hypothesis testing showed that good university governance contributed a positive and significant influence of 41% to university quality. This research showed that the better the good governance of a tertiary institution, the better the quality. This study's findings aligned with Nadler et al. (2019) and Dao (2014) that good governance will significantly improve the quality of tertiary institutions. Most respondents stated that their university had followed the accepted rules and established an organised management structure: a well-functioning internal quality control system, standards and procedures, accountability, transparency, and autonomy in managing the campus. They initiated quality control through standards setting, implementation, evaluation, management, and improvement of standards in their universities. They mention that everything was well documented to comply with; policies, standards, and comprehensive manuals or procedures to improve the quality of the university. Therefore, universities must be able to implement internal controls effectively to maintain their quality.

Correlation between Intellectual Capital and University Quality

The hypotheses testing results pinpointed that intellectual capital contributed positively and significantly to university quality at about 78%. This research showed that intellectual capital influenced the increase in university quality. The empirical findings related to this correlation showed that only a few doctoral lecturers were teaching at B-accredited universities. The survey results showed that only 20% to 30% of the lecturers in the sampled B-accredited universities held doctoral degrees. From a broader perspective, the number of doctoral lecturers in Indonesia is less than 21% of the entire lecturers.

Meanwhile, the number of doctoral lecturers was associated with; learning quality, graduates' competencies, and the number of Scopus publications. Besides, few lecturers; had academic positions or professorships, were teaching-certified lecturers or had abundant experience as guest lecturers or presenters. As a result of this situation, commitments from leaders, foundations, and governments to provide doctoral study opportunities are essential. Accordingly, university leaders must be committed to developing their human resources, including lecturers and supporting staff. This study's results aligned with Gan and Saleh (2008), who found a positive affiliation between intellectual capital and organisational quality. In the context of this research, organisational quality was shown to be similar to university quality. The results also resonated with Barbosa et al. (2016) findings that there was a correlation between intellectual capital and university quality.

Correlation between Environmental Uncertainty as a Control Variable and University Quality

The control and dependent variable testing results showed that environmental uncertainty positively and significantly influenced about 28% of university quality. Based on exposure to literature reviews, the results in this study proved that Environmental Uncertainty was a control variable that constantly influenced university quality and helped the accuracy of statistical test results, as found by Lee et al. (2011), Aprisma and Sudaryati (2020), Irwandi et al. (2020), and Astuty et al. (2021). Environmental uncertainty is a condition where universities face constraints and challenges in predicting the future environment's; direction, potential impacts, and the capabilities to anticipate such changes. In the present research, the higher a university's ability to predict future probabilities, the better its quality. University quality will gradually decline if universities cannot prevent environmental uncertainties. Environmental uncertainties are also related to technological advancement. As technological development is universal, universities must be aware and agile to adjust and transition. For example, to accommodate the COVID-19 pandemic, universities shifted their learning systems into virtual settings. In this case, it was critical for universities to be ready regarding the infrastructure for information and technology to prepare an integrated and accessible remote (online) system for all academic and non-academic activities. This research's findings aligned with the research of Beketova (2016), where higher education was found essential for The Nation's development. Hence, creating a qualified learning process with a well-established education system is vital to assessing future external or internal environmental impacts. To anticipate global changes, universities must; build a new model in the learning process, create a qualified education management system, and develop transparency and open-minded new models. This

research also aligned with Maley and Kramer (2014) that global uncertainties can affect organisational performance where management performances possess induplicate value.

CONCLUSION

The present research examined the relationship between good university governance (GUG) and intellectual capital (IC) with university quality (UQ). Based on the previously mentioned findings, this study concluded that good university governance, and intellectual capital, determined university quality. Among the three determinant factors, intellectual capital was the most dominant factor for improving the quality of tertiary institutions. The most significant indicator of intellectual capital was lecturer competency. Even though universities have established sound governance principles for aspects of governance, they remain suboptimal. To develop their competencies, universities should gradually improve compliance to allow them to; follow protocols, and achieve better management structures and quality control. Also, it is essential to present; reputable standard procedures, accountability and transparency, and autonomy to manage universities. Universities must continue strengthening their resources to anticipate the uncertain impacts; of globalisation, technological advances, and regulatory and policy changes.

The researchers conducted the present research during the COVID-19 pandemic, which was challenging for most respondents. However, the situation favourably influenced the respondents' psychological state to answer the study's questions. Although this research designed well-structured questions, there was still unavoidable bias. In addition, there were limitations in the application of the method. The cross-sectional survey still had limitations regarding the time frame for data collection. Thus, future research should consider different concepts, such as; longitudinal surveys, which understand the probability of collecting data over an extended period to increase its validity and reliability. Applying other moderating and control variables to improve research results is also recommended.

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