

The role of Kaizen and human resource quality on the quality assurance system in medical students

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Abstract

The quality of the education system is the foremost factor for the success of the students as well as the academia at large, and therefore, needs the focus of regulators and researchers alike. The current article investigates into the role of human resource (HR) quality and Kaizen on the quality assurance system in the context of the high school environment in Indonesia. The current research also analyzes the moderating role of national higher education policies among the associations of HR quality, Kaizen and the quality assurance system in the high school environment in Indonesia. The primary sources of data collection have been adopted by the researchers using survey questionnaires. The medical students are the respondents targeted by the researchers selected based on purposive sampling. The researchers have adopted primary data analysis tools such as Smart-PLS to test the hypotheses and check the validity and reliability of the items and constructs. The findings indicated that HR quality and Kaizen have a positive association with quality assurance systems within the high school environment in Indonesia. The outcomes also revealed that national higher education policies significantly moderate among the association of HR quality, Kaizen and quality assurance system in the high school environment in Indonesia. These outcomes provide valuable insights for policymaking regarding assessment and improvement of the quality assurance system in the education sector in the country.

Keywords: Human resource quality, Kaizen, quality assurance system, national higher education policies, medical student

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Introduction

Over the past few decades, quality assurance efforts of higher education have intensified significantly due to their demonstrable effectiveness vis-a-vis the education sector performance. Governments have been urged to create national quality assurance and accrediting bodies by members of the public as well as institutional stakeholders demanding accountability in higher education. The European Network of Quality Assurance-ENQA, the International Network of Quality Assurance Agencies for Higher Education-INQAAHE, and the United Nations Educational, Scientific, and Cultural Organization-UNESCO are examples of organizations that collaborate and share information regarding quality standards, and practices (Arab, 2020; Brookes, 2020; Conradie, Pitchford, Barnes, & Short, 2020; Sedlar, Bruns, Walker, Kerns et al., 2017; Vermeulen, Gouse, Delpont, Louw et al., 2020; Zheng, Cai, & Ma, 2017). Quality assurance, quality assessment, quality improvement, and quality development are some of the terms that have been coined and used to refer to comparable principles of increasing higher education quality. While several definitions of quality assurance exist, they ultimately serve the same purpose: to ensure that students obtain a high-quality, relevant education and are issued credentials that are widely recognized by governments and companies (Ajah, Ajah, & Obasi, 2020; Bomfim, Ferreira, Rodrigues, Pontes et al., 2020; Carnerud, Jaca, & Bäckström, 2018; CARVALHO, Cogo-Moreira, Jansen, Souza et al., 2020; Chiarini, Baccarani, & Mascherpa, 2018; Deogaonkar, 2020). Chiarini et al. (2018) proposed that "Systematic management and evaluation techniques are implemented by higher education institutions and systems in order to monitor performance against objectives, and to assure the delivery of quality outputs and quality improvements,". Quality assurance aids in the recognition of award standards, aids in public accountability, aids in student choice, aids in the improvement of teaching, learning, and administrative processes, and aids in the dissemination of best practices with the goal of improving higher education systems as a whole (Aydin, Ağan, & Aydin, 2020; DUBE, 2020; Mukama, 2020; Nwabachili & Ezeokeke, 2020; Reimann, 2020; Rzqoo, 2020).

Through different initiatives, the Indonesian government has been implementing substantial and fundamental reforms in Higher Education since 1986. The drive to reform and improve higher education in Indonesia continued until 1995 when the fourth Long-Term Development of Higher Education – Framework ushered in a new paradigm of university management (Matthews & Mokoena, 2020; Ncube & Koloba, 2020; Precone, Dundar, Beccari, Turanli et al., 2018; Rašidagić & Hesova, 2020; Stopić, 2020; Uludağ, Bardakçı, Avşaroglu, Çankaya et al., 2021). One of the most essential aspects of Indonesia's higher education reforms is quality assurance. The Indonesian Higher Education Long Term Strategy 2003–2010 focuses on three areas of reform: (1) quality as the foundation for national competitiveness; (2) autonomous management; and (3) organizational health. One of the HELTS 2003-2010 outcomes has been to urge all Indonesian higher education institutions to design and implement quality assurance systems. This quality assurance mechanism is used to ensure that high standards are maintained in teaching and research. In addition, the system is anticipated to be used as a tool for continual improvement in all aspects of higher education institution operations (Akpur, 2020; Andrade, González-Víllora, Casanova, & Teoldo, 2020; Arau, 2020; Castedo, Alonso, & Pino, 2020; Costa, Costa, & Martínez, 2020; Heland-Kurzak, 2020; Maulana, Wahyuddin, & Ningsih, 2020; Octarra & Hendriati, 2018; Sari, 2019). The major goal of HELTS 2003-2010 is to attain a higher level of higher education in Indonesia, which is a national policy plan of the Indonesian government. In Part II Chapter III Point E of the HELTS 2003–2010, it was stated that: In a healthy organization, constant quality improvement should become the major priority.

Internally driven quality assurance should be institutionalized inside each organization's standard procedure, and external parties may be involved in this process. Quality improvement, on the other hand, should seek to provide outputs and results as part of public responsibility, because quality is a priority for all stakeholders. In 2003, the directorate of academic initiated quality assurance initiatives in all public and private institutions, based on the HELTS 2003-2010 strategy. The directorate of

academic published several books and guidelines to aid in the implementation of quality assurance, including Guidelines for Internal Quality Assessment of Higher Education and Guidelines for External Quality Assessment of Higher Education, as well as another eleven books titled 'Good Practices in Higher Education Quality Assurance (Ajah et al., 2020; Çetinavci, 2020; Darani & Moghaddam, 2020; Metcalfe, Soboroff, & Kelley, 2020; Mursidi, Raharjo, Sugiyo, & Yulianto, 2020; Salavrakos, 2020; Sholihah, Rummingsih, Riadi, & Atanjuani, 2020). All of the above referred work intends to inspire or motivate stakeholders to adopt quality assurance in higher education. According to the guidelines, internal and external quality assurance systems are included in quality assurance in higher education systems. Internally driven mechanisms and externally structured mechanisms organized by The National Accreditation Agency of Higher Education (BAN-PT) or any other agency can be used by higher education institutions to conduct and manage quality assurance.

The quality of education is the foremost factor for the success of the student and education system in any country and therefore, needs the immediate focus of regulators and researchers alike. Therefore, the article investigates the role of HR quality and Kaizen on the quality assurance system in the high school environment in Indonesia. The present study addresses a number of gaps in the literature like 1) Kaizen being one of the important topics of education, has still not reached its peak, 2) there is a lack of evidence regarding Kaizen in higher secondary level education in particular in Indonesia, 3) Dewi, Imron, Wiyono, Arifin et al. (2020) investigated the Kaizen implementation in medical doctors in Indonesia where the present study a) is on higher secondary level education, b) in the Indonesian context, c) is designed as an empirical study. 4) The present study adds national higher education policies as a moderating variable which has not been done before. The significance of the present study is 1) it will highlight the importance of writing skills for university students especially in Indonesia, 2) the study will also help academic professionals understand the importance of writing skills/abilities for students.

The structure of the present study is composed of several phases. The first phase includes an introduction and after an introduction, the second phase of the study deals with evidence regarding students' critical thinking skills, teachers' intellectual skills, students learning, and student writing abilities in light of past studies. The third phase of the study throws light on the methodology applied to collect the data regarding students' critical thinking skills, teachers' intellectual skills, students learning, and student writing abilities and analyze its validity. The fourth phase compares the study results with the findings of other authors about the same subject and thus, approves these results. The paper ends with proper study implications, conclusions, and future recommendations.

Literature Review

Changing world of innovation has paved the way for many philosophies that stress upon the importance of a quality assurance system. Every organization, including educational institutions, strive for better and continuous improvement especially in the higher secondary schools of Indonesia. Ferreira and Saurin (2019), examined the theoretical perspectives of Kaizen among the students of healthcare. It is an exchange of sociological and technological systems for better upgradation of students, especially in the context of healthcare institutions. Using different frameworks by considering the factors of innovativeness and quality assurance system, the study showed positive findings. Results state that the propositions of Kaizen in medical students help to uplift the quality assurance system. Suárez-Barraza, Rodríguez-González, and Hart (2019), investigated the standards accreditation and core values of Kaizen in the quality assurance systems of medical students. To improve the quality of educational services, the philosophy of Kaizen assumes a significant reputation in the quality assurance system. Employing theoretical and statistical methods, the study indicated the significant contribution of Kaizen to the quality assurance system. Janjić, Todorović, and Jovanović (2020), analyzed the benefits and factors of Kaizen and its implementation in the fields of various students. For a better quality assurance system across various fields pursued by students, the better transition of kaizen is found to be a supportive and motivational force. The strategic and theoretical orientation of elected factors interpreted significant

improvement in the quality assurance system. The finding shows that Kaizen implementation through improvement, development, and empowerment helps enhance the quality assurance system.

Higher secondary schools of Indonesia have applied the kaizen for its maintainability and uplifting of quality assurance systems. Cherrafi, Elfezazi, Hurley, Garza-Reyes et al. (2019), assessed the model of kaizen among the challenging lean and green sustainability enhancement for the quality assurance system. Improvement in quality assurance systems through various ideas and innovation reflects the integrated approach of the Gemba-Kaizen model. This model is developed to ascertain the impact of kaizen and its essentials toward the development and sustainability of quality assurance systems. Cannas, Pero, Pozzi, and Rossi (2018), emphasized events and complexity reduction by the implication of kaizen among the different fields of students. Quality assurance system is the main organized element that could be significantly enhanced through adaptation of kaizen. Various factors related to kaizen are taken into consideration by applying statistical and theoretical techniques. The finding shows that kaizen is proposed as a standard element that is required to maintain the quality assurance system. Borch (2020), analyzed the evaluation process which is a mandatory requirement of the quality assurance system. Therefore, the kaizen is the prominent mode through which students obtain enough ideas of innovation to apply over quality assurance for check and balance and also improvement. Using the logarithmic approaches and various tools, the factors are comprehensively examined. Studies show the kaizen is a significant element that uplifts the level of student capabilities vis-a-vis refurbishing the quality assurance system. Ma and Yu (2018), examined the implementation and structures of kaizen with respect to the quality assurance system by introducing new concepts to meet different challenges. These challenges are effectively overcome by higher secondary students because of significant kaizen usage. Statistical and theoretical approaches indicated a significant impact of kaizen over the quality assurance system in terms of maintainability and sustainability.

H1: Kaizen significantly influences the quality assurance system of the high school environment in Indonesia.

A competitive environment in organizations and within +students has involved the positive role of human resource quality for the maintainability of quality assurance among medical students. Makhecha, Srinivasan, Prabhu, and Mukherji (2018), investigated the practices and quality of human resources with respect to the maintainability of quality assurance systems in various fields. The strategic evolvement of human resource quality extensively highlighted the gaps that affect the quality assurance systems. Using various statistical and theoretical techniques with inductive models, results indicated positive results. Finding show the significant influence of human resource quality on quality assurance systems. Tasavori, Eftekhar, Elyasi, and Zaefarian (2021), analyzed various uncertain environments that are maintained by human resource quality for the better establishment of quality assurance systems. The turbulent environments for students are precarious due to the unstable quality of human resources. Therefore, the capabilities of human resources are termed as dominant factors following the application of various methodologies. Findings indicate that positive and significant demonstration of human resource quality enhances the systems of quality assurance. Simon (2020), established the link between human resource management and service quality among the private hospitals and medical students of India. Interacting the role of human resource quality with the quality assurance system of the medical field is termed as positive intention and denotes a positive service climate. Different factors related to human resource quality are taken into account for determining its influence by using statistical models. Study shows accuracy and effectiveness of human resource quality increases the sustainability of quality assurance systems.

Human resource quality involves many factors that enable the quality assurance of Indonesian higher secondary schools. Laguna, Poell, and Meerman (2019), described the role of human resource practices among the systems of quality assurance and practitioners posing their fields.

The construction of different theories and various models over the quality of human resources demonstrated its influences and impacts. Findings indicate that improved human resource quality also improves the quality assurance system in secondary schools of medical students. S. Chen, Fan, Zhang, and Zhang (2021), ascertained the oriented role of human resource management over the creativeness of teams with significant effects of strength and harmony. Both of the factors are linked with the quality of human resources that uplifts the systems of quality assurance. Collective adaptation of various econometric models and statistical techniques rendered positive contributions to human resource quality. Findings show the positive effects and impacts of human resource quality on the quality assurance system. Rahnema (2020), interpreted educational quality assurance by effective implication of human resource quality in the higher secondary institutions of Bangladesh. For achieving these intrinsic goals and qualifications, human resource quality is an important measure. The coherence of statistical and theoretical approaches revealed significant findings. Human resource quality is a dominant measure that impacts the quality assurance system in positive ways. Chu and Westerheijden (2018), investigated the adaptability of higher education that requires significant human resource quality for meeting the quality assurance system. Various factors pertaining to quality assurance and human resources are involved to balance the trust and improvement among them by using a qualitative approach. The study states the significant evolution of quality assurance by positive adaptation of human resource quality in the context of higher secondary education.

H2: Human resource quality significantly impacts the quality assurance system of the high school environment in Indonesia.

Universities are acknowledged as the main denominator by policy-makers responsible for fostering innovation, resilience, and regional development especially among higher secondary schools of Indonesia. P. Chen and Hsieh (2019), examined the leadership of women after the adoption of higher education policies in Taiwan. Kaizen is the dominant approach that assists and facilitates innovation and significant establishment of higher education policies enhances the students' caliber. The election of various factors related to kaizen and higher education policies are assessed by various governed models. Studies indicate vertical and horizontal divisions of national higher education dominating among kaizen and quality assurance system. Monfredini (2019), discussed the linkage among popular classes and university students along with the tendencies of higher education policies. It is the transition of knowledge and incorporation of innovative ideas among higher secondary school students that helps maintain quality assurance systems. Using materialistic approaches and incorporation of innovation, higher education policies are dominating between the kaizen, ideas, innovation, and quality assurance systems. Villar-Fidalgo, Escudero, and Somonte (2019), evaluated the circumstances and challenges faced by students of various fields due to inadequate techniques and planning. Effective higher education policies induce a dominant role among the quality assurance system and kaizen. Latest strategies and statistical techniques are applied to study the elected factors of educational policies and kaizen. The result demonstrated the feasibility of kaizen and its contribution to the affordability of quality assurance systems.

Policies of national higher education drive different capabilities among students of higher secondary schools of Indonesia in terms of maintaining quality assurance by using kaizen. Uludağ et al. (2021), examined the participation of students in the quality assurance system and managing kaizen. This participation is interpreted by the significant adaptation of the higher education policy approach with different dimensions. Findings indicated that national higher education policies have a moderating effect among the quality assurance and kaizen. Wynne and Satchwell (2020), investigated the creation of a quality assurance system by the dominance of higher education policies to support the process and standards of tertiary education. A quality assurance system is helpful in not only mentoring but also in coaching higher secondary institutions. Using statistical and theoretical approaches, the study showed the moderating influence of higher education policies among the kaizen and quality assurance. Kim, Choi, and Park (2020), assessed the notion of higher education policies with the relativeness of

innovativeness and quality assurance among college students. The presence of different educational policies is homogenous for the higher secondary schools that develop kaizen capabilities. ANOVA and regression analysis are applied to the selected factors. Findings show that educational policies have a moderating impact upon the relationship between the quality assurance system and kaizen. Salmi and D'Addio (2021), explored the extensive private and social benefits of higher education policies that generate access and success to achieve economic and social efficiency. The promotion of national higher education policies develops innovative skills among the students. Statistical and strategic approaches examine the significant linkage among these factors. Findings demonstrate the moderating effects of national higher education policies upon the quality assurance system and kaizen.

H3: National higher education policies significantly and positively moderate the relationship between kaizen and the quality assurance system of the high school environment in Indonesia.

Higher education policies helped the students in organizing the human resource improvements that impact and sustain the quality assurance systems in higher secondary schools of Indonesia. Diogo (2020), explored various cultural policies that are refurbished by the establishment of higher education policies in the students of different countries. It benefits practitioners who are facilitated by higher education policies and are able to contribute toward quality assurance. The hybrid model is applied by considering the factors and dimensions of higher education policies. The finding shows that quality assurance systems are bottom-up by the significant quality human resources having the moderating effect of national educational policies. Tham (2019), examined the impacts of higher education policies on academic policy and human resource quality among different scholars. Higher educational policies are promoted by various countries to promote better retaining of human resource quality. Using factors of human resource quality and quality assurance system, various statistical and theoretical techniques have been induced. Findings point to the significant and dominant impact of higher education policies over the elected factors. Bastas and Altinay (2019), interpreted the policies and management of human resources in the context of educational practices of students in various secondary and university institutions. The qualitative nature of assurance systems is required to be ordered in such a way that students of medical and different fields could be organized. Using sampling methods and thematic analysis, significant educational policies at the national level have a dominant impact among quality of human resources and quality assurance systems. Noda, Kim, Hou, Lu et al. (2021), explored the relationship between learning outcomes and quality assurance internally among the universities of Taiwan and Japan. It is the quality of human resources and mechanisms of human resources that dominate over the quality assurance system. On the basis of the learning outcomes, quality assurance, and other factors, various statistical approaches have been applied. The study revealed the outcome of higher education policies is significant according to external requirements.

As a result, various efforts regarding national higher education policies are facilitate by the higher secondary schools of Indonesia.

In addition, Pham and Nguyen (2020), assessed the role of quality assurance and academic staff in educational institutions. Significant higher education reforms possess increment instability of quality assurance systems. Statistical and econometric analysis depicted the positive moderating influence of higher education policies that improve the quality of human resources and quality assurance systems. Brooks (2020), pointed out the significant differences among quality assurance systems and human resource quality but applied higher education policies as the dominant factor. Different factors are taken into consideration by applying pluralistic and voluntary approaches. The study shows the significant and moderating role of national higher education policies that asserts their dominance over a quality assurance system as well as human resource quality. Jungblut, Vukasovic, and Steinhardt (2020), investigated the organizational levels and systems of higher education policies that help higher secondary schools manage the quality of human resources. Numerous factors related to human resources and education policies are examined by applying statistical and strategic approaches. The study highlighted the prominence of higher education policies in terms of their influence on quality

assurance and human resource quality.

H4: National higher education policies significantly and positively moderate the relationship between human resource quality and quality assurance system of the high school environment in Indonesia.

Research Methods

The article investigates the role of HR quality and Kaizen on the quality assurance system in the high school and also analyzes the moderating role of national higher education policies among the associations of HR quality, Kaizen and the quality assurance system in the high school environment in Indonesia. The primary source of data collection has been adopted by the researchers and survey questionnaires were used for gathering data. The questionnaires use the “five-point Likert scale” starting with “strongly disagree” and ending with “strongly agree”. The researchers have adopted the purposive sampling technique to select the high schools for analysis, selecting the top fifty high schools from the province of Jakarta, Indonesia. In addition, the researchers also selected the respondents using purposive sampling with medical students being selected as the respondents. Thus, 525 surveys were sent to the selected medical students during a personal visit. After five days, only 292 valid responses were received that showing a 55.62 per cent response rate.

The researchers have used primary data analysis tools such as Smart-PLS to test the hypotheses and validity and reliability of the items and constructs. This tool is considered an appropriate statistical tool because it operates effectively even when data set is large or a complex model is used by the researchers (Hair, Hollingsworth, Randolph, & Chong, 2017; Ishak & Mansor, 2020; KIRAL, 2020). In addition, the researchers have used two predictors, such as human resource quality (HRQ) with eight items and Kaizen (KZN) with five items. Moreover, the researchers have also used national higher education policies (NHEP) as the moderating variable with six items and quality assurance system (QAS) as the dependent variable with ten items. Figure 1 highlighted the study framework based on the understudy constructs.

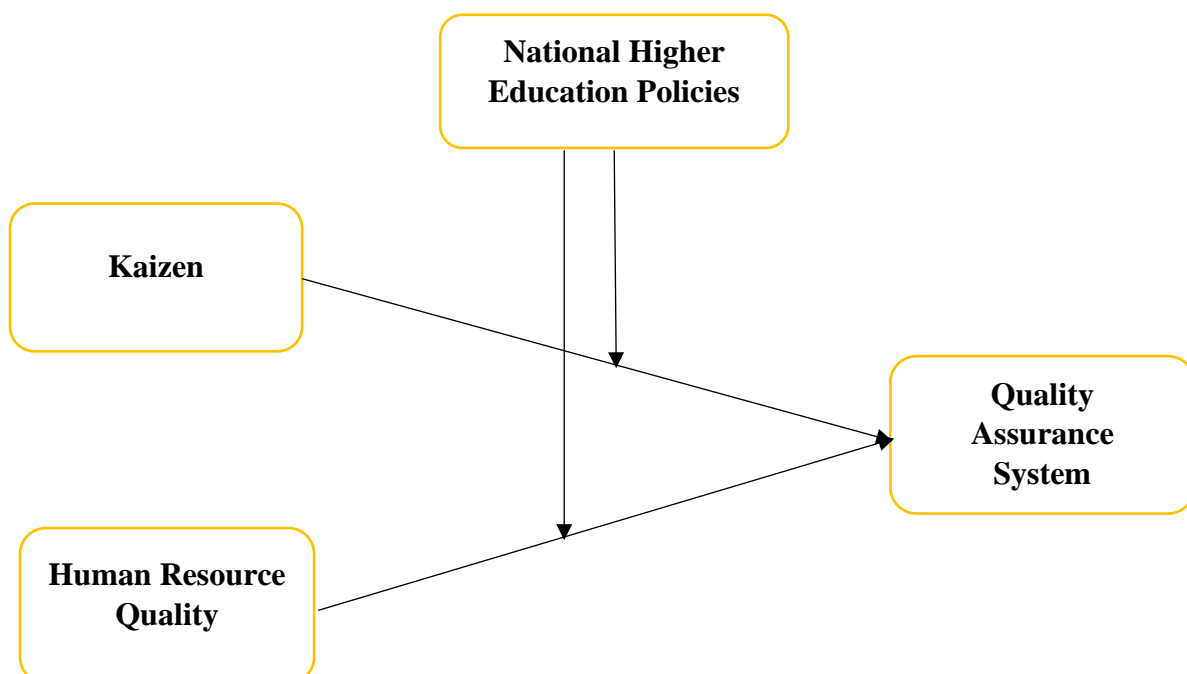


Figure 1: Theoretical Model

Research Findings

The study findings show the convergent validity that expose the association between the

understudy items. The results highlight that average variance extracted (AVE) and factor loadings values are not lower than 0.50. In addition, the findings also investigate that the composite reliability (CR) along with Alpha values are also not smaller than 0.70. Thus, the findings show a high association between items and valid convergent validity. Table 1 highlights the figures related to convergent validity.

Table 1: Convergent Validity

Constructs	Items	Loadings	Alpha	CR	AVE
Human Resource Quality	HRQ1	0.930	0.975	0.979	0.871
	HRQ2	0.946			
	HRQ3	0.936			
	HRQ4	0.941			
	HRQ5	0.944			
	HRQ6	0.901			
	HRQ8	0.936			
	Kaizen	KZN1			
KZN2		0.872			
KZN3		0.880			
KZN4		0.886			
KZN5		0.864			
National Higher Education Policies	NHEP1	0.953	0.959	0.968	0.834
	NHEP2	0.829			
	NHEP3	0.952			
	NHEP4	0.954			
	NHEP5	0.827			
	NHEP6	0.954			
Quality Assurance System	QAS1	0.586	0.890	0.913	0.570
	QAS10	0.796			
	QAS2	0.799			
	QAS3	0.793			
	QAS4	0.645			
	QAS6	0.805			
	QAS8	0.796			
	QAS9	0.788			

The study findings also show the discriminant validity that exposed the association between the constructs. The researchers have used the Fornell Larcker to test discriminant validity. The results highlighted that the statistics that showed the association with the variable itself are not lower than the statistics that highlighted the association with other constructs. Thus, the findings revealed a low association between variables and valid discriminant validity. Table 2 highlights the figures related to the Fornell Larcker.

Table 2: Fornell Larcker

	HRQ	KZN	NHEP	QAS
HRQ	0.933			
KZN	0.415	0.873		
NHEP	0.498	0.378	0.913	
QAS	0.472	0.392	0.504	0.755

In addition, the researchers have also used cross-loadings to test discriminant validity. The results highlighted that the statistics that highlighted the association with the item itself are not lower than the statistics that highlighted association with items of other constructs. Thus, the findings revealed a low association between variables and valid discriminant validity. Table 3 presents the figures related to the cross-loadings.

Table 3: Cross-loadings

	HRQ	KZN	NHEP	QAS
HRQ1	0.930	0.383	0.465	0.425
HRQ2	0.946	0.403	0.457	0.445
HRQ3	0.936	0.410	0.450	0.422
HRQ4	0.941	0.379	0.473	0.436
HRQ5	0.944	0.398	0.462	0.449
HRQ6	0.901	0.359	0.471	0.466
HRQ8	0.936	0.378	0.469	0.434
KZN1	0.354	0.861	0.292	0.338
KZN2	0.357	0.872	0.342	0.351
KZN3	0.351	0.880	0.306	0.329
KZN4	0.370	0.886	0.345	0.318
KZN5	0.375	0.864	0.361	0.370
NHEP1	0.457	0.330	0.953	0.458
NHEP2	0.442	0.372	0.829	0.470
NHEP3	0.460	0.333	0.952	0.461
NHEP4	0.461	0.331	0.954	0.449
NHEP5	0.444	0.372	0.827	0.466
NHEP6	0.456	0.327	0.954	0.450
QAS1	0.354	0.187	0.278	0.586
QAS10	0.305	0.297	0.377	0.796
QAS2	0.397	0.319	0.493	0.799
QAS3	0.426	0.359	0.446	0.793
QAS4	0.330	0.233	0.244	0.645
QAS6	0.398	0.315	0.382	0.805
QAS8	0.304	0.284	0.398	0.796
QAS9	0.319	0.340	0.359	0.788

Moreover, the researchers have also used the Heterotrait Monotrait (HTMT) to test discriminant validity. The results highlighted that the statistics of HTMT ratio are not bigger than 0.90. Thus, the findings revealed a low association between variables and valid discriminant validity. Table 4 shows the figures related to the HTMT ratio.

Table 4: Heterotrait Monotrait Ratio

	HRQ	KZN	NHEP	QAS
HRQ				
KZN	0.437			
NHEP	0.514	0.400		
QAS	0.504	0.427	0.535	

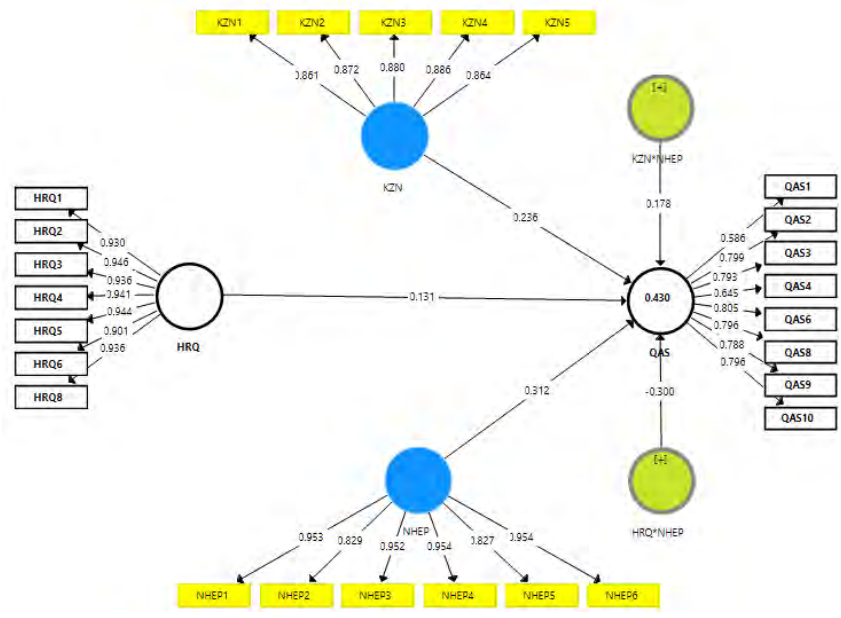


Figure 2: Measurement Model Assessment

Finally, the findings indicated that HR quality and Kaizen have a positive association with quality assurance systems in the high school environment in Indonesia and therefore, the study accepts H1 and H2. Moreover, the outcomes also revealed that national higher education policies significantly moderate among the relationship between HR quality, Kaizen and quality assurance system in the high school environment in Indonesia and therefore, we accept H3 and H4. Table 5 and Figure 3 highlight the statistics related to the path analysis.

Table 5: Path Analysis

Relationships	Beta	S.D.	T Statistics	P Values	L.L.	U.L.
HRQ -> QAS	0.131	0.070	1.871	0.032	0.014	0.237
HRQ*NHEP -> QAS	-0.300	0.057	5.256	0.000	-0.398	-0.206
KZN -> QAS	0.236	0.055	4.269	0.000	0.153	0.337
KZN*NHEP -> QAS	0.178	0.047	3.788	0.000	0.102	0.256
NHEP -> QAS	0.312	0.050	6.265	0.000	0.243	0.393

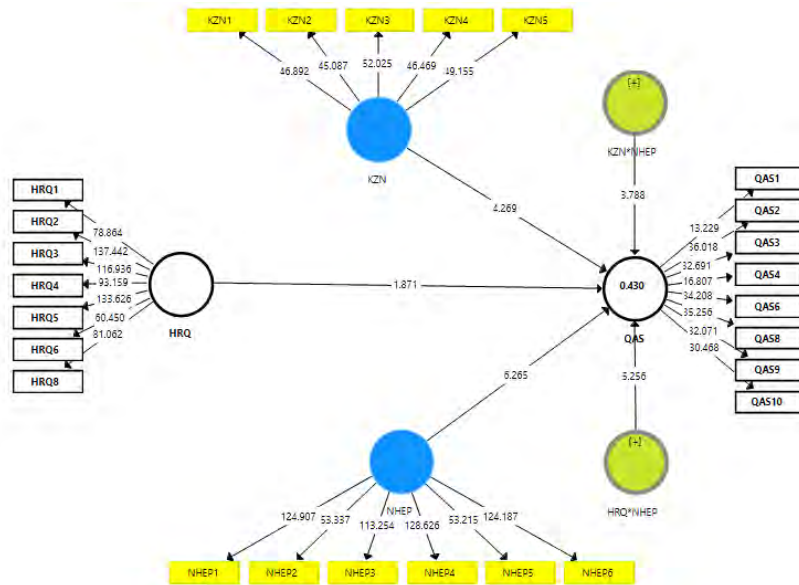


Figure 3: Structural Model Assessment

The outcomes also revealed that national higher education policies significantly and positively moderate the association between Kaizen and quality assurance system in the high school environment. Figure 4 highlights the moderating impact of national higher education policies.

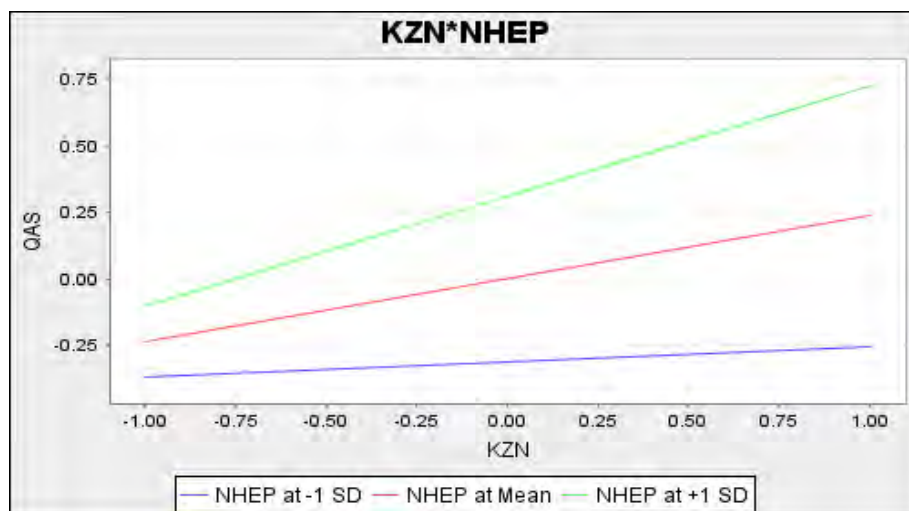


Figure 4: KZ*NHEP

The outcomes also revealed that national higher education policies significantly and negatively moderate the association between HR quality and quality assurance system in the high school environment. Figure 5 highlights the moderating impact of national higher education policies.

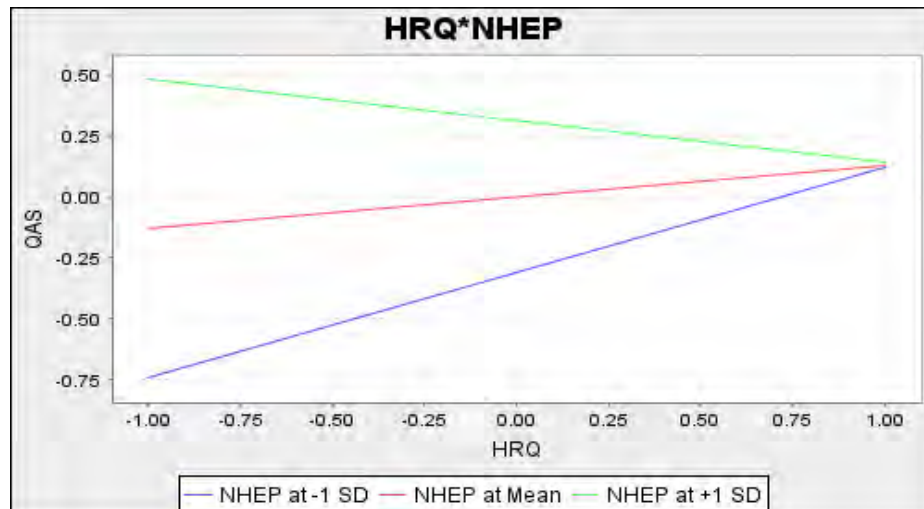


Figure 5: HRQ*NHEP

Discussion

The study results have indicated that the implementation of Kaizen has a positive association with the quality assurance system within educational institutions. These results are supported by the previous study of Prayuda (2020), which states that through the effective implementation of Kaizen, a healthy or supportive environment is provided to the staff, teamwork is improved, institutional personnel are encouraged to improve their engagement, and the functioning of the educational institution is improved consistently. This helps achieve the objective of a quality assurance system within the educational institution. These results are in line with the past study of Kregel (2019), which implies that the implementation of the six steps to the kaizen approach, that is, recognition of opportunity, exploration of new ideas, breaking the objective down into sub-objectives, planning the tasks, test, monitoring progress and adapting the schedule, move on to the next objective, maintains the quality of resources, and effectiveness of educational processes which is conducive to quality assurance systems. The study results have indicated that human resource quality has a positive association with quality assurance systems within the educational institution. These results are supported by the previous study of Anyango, Kamaduuka, and Kaahwa (2020) which states that educational institutions where human resources, both managerial and teaching staff have relevant knowledge, cognitive, and physical abilities to bring newness in functioning, removing all problems in the face, it is easy to implement total quality management practices. These results are also in line with the previous study of Rahman, Santosa, and Sihotang (2020), which shows that if the management personnel within the educational institution have the knowledge and training of new technology and processes used to attain information as well as teach or train the students, the quality of educational resources, sources of learning, learning environment, and performance valuation for students can be improved or assured.

The study results have revealed that national higher education policies are a moderator between the implementation of Kaizen and the quality assurance system within the educational institution. These results agree with the past study of Kumar (2019), which states that if the national higher education policies are designed in such a manner that it is compulsory for all the higher educational institutions like universities to keep their functioning according to up-to-date educational requirements, the Kaizen approach can more effectively be implemented which leads to the implementation of the quality assurance system. These results are also in line with the previous study of Fonseca and Domingues (2018), which states that under effective national higher educational policies, the kaizen approach and quality assurance system can be effectively implemented. The study results have revealed that national higher education policies are a moderator between the human resource quality and the quality assurance system within the educational institution. These results

agree with the past study of Alam, Sarkar, and Chowdhury (2019). This study states that the favorable national higher education policies assist the management of educational institutions in terms of implementing the principles of Kaizen, a business approach designed especially for continuous improvement in the quality of the organization. Thus, positive and favorable national higher education policies motivate and assist the institutional management in establishing a quality assurance system. These results match with the past study of Alzafari and Ursin (2019). According to this study, effective national higher education policies accelerate the process of improvement in the quality of human resources and assist in implementing a quality assurance system. Therefore, in the presence of effective national higher educational policies, improvement in the quality of the human resources can be more effective in implementing a quality assurance system within the educational institution.

Implications

The current study carries both theoretical and empirical implications. This study has vital importance in the theoretical world for its contribution to the literature on education progress. This study throws light on the quality assurance system in the context of an educational institution. It analyzes the influences of the implementation of Kaizen and human resource quality on the establishment of a quality assurance system within the educational institution. The influences of the implementation of Kaizen and human resource quality on the establishment of quality assurance system have mostly been analyzed within the context of industrial organizations, very little research has been made which analyzes the implementation of Kaizen and human resource quality and their impact on the establishment of quality assurance system within the education system. However, our study, because of the analysis of the influences of the implementation of Kaizen and human resource quality on the establishment of quality assurance system within the education system, is a valuable extension to literature. The current study examines moderating influences of national higher education policies on the mutual association between the implementation of Kaizen and human resource quality and the establishment of a quality assurance system within the education system. The influences of national higher education policies on implementing the quality assurance system within the education system have been analyzed in the past literature, but the moderating role of national higher education policies between the implementation of Kaizen and human resource quality and the establishment of quality assurance system within the education system has not been paid much attention. Therefore, our study makes a pioneer contribution in the existing body of literature. This research provides insights for policymaking regarding the assessment and improvement of quality assurance systems in the education sector in the country. The current study also hold significance and relevance for the educational sector of emerging economies like Indonesia. This study offers a guideline for higher educational institutions like universities and the educational ministry. It helps and guides them while they are formulating their policies to manage institutions with all their educational functions in different departments. This study has been conducted to highlight ways to improve and assure the quality of all resources, processes, and education to produce a batch of students skilled enough to perform efficiently in their social and professional life. This study guides as to how the quality assurance system can be effectively implemented within educational institutions through the implementation of Kaizen and improvement in human resource quality.

Conclusion and Limitations

Though Indonesia has a large educational system, the higher educational institutions like universities are still limited in number when compared to the population of the country. These higher educational institutions are responsible for preparing the students to become artists, scientists, doctors, businessmen, researchers, writers, and philosophers. Therefore, it is the need of the hour to focus on the performance and development of higher educational institutions or universities. The present study was conducted with a view to promote higher education in private universities in

Indonesia by highlighting ways to improve the quality assurance system within the institutions. The object of the study was to examine the role of the implementation of Kaizen and human resource quality in effectively implementing the quality assurance system within the educational institution and to check the influences of national higher education policies on the association between the implementation of Kaizen and human resource quality and the establishment of quality assurance systems within an educational institution. The authors collected data regarding the implementation of Kaizen and human resource quality on the establishment of a quality assurance system within the educational institution as well as the role of national higher education policies from the private universities of Indonesia. The data collected and analyzed were used to extrapolate results about the association among understudy constructs and the implementation of a quality assurance system. The results showed that under the effective implementation of a business philosophy kaizen, there must be a continuous improvement in the operational and teaching processes, the technology and equipment applied, and skills of the human resources. This will help implement a quality assurance system. The results of the study also showed that skills, knowledge, cognitive abilities, experience, and behavior of human resources help improve and assure the quality of the overall educational institution. The results also indicated that the national higher educational institutions assists implement Kaizen, improve quality of human resources, and effectively implement quality assurance system in an educational institution. Thus, the Kaizen and human resources quality can help implement quality assurance system in the educational institution in an effective and meaningful way.

The current study has several limitations despite its theoretical and empirical significance. The authors or researchers in future are expected to address these limitations. The study examines the influences of only three factors, that is, the implementation of Kaizen, human resource quality, and national higher education policies on the establishment of a quality assurance system within the educational institution. In an educational institution, the quality assurance system can also be affected by other factors like organizational policies, information systems, and technology adoption, but none of these factors have been discussed in this study. Consequently, the study is not comprehensive enough. For this reason, it is up to new researchers to focus on additional factors affecting the quality assurance system within an education system. This study collected data pertaining to the influences of the implementation of Kaizen, human resource quality, and national higher education policies on the establishment of a quality assurance system within the educational institution from private universities of Indonesia. The authors have confined the validity of this study to Indonesia, a single developing country, to universities in the educational sector, and to only private institutions. The authors in future are recommended to analyze influences of the implementation of Kaizen, human resource quality, national higher education policies on the establishment of quality assurance system within the education institution in more countries or regions across the world.

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