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### Models for Assessing Higher Education Quality: The Most Suitable for Developing Countries - A Literature Review

Abukar Mukhtar Omar<sup>1\*</sup>, David Onen<sup>2</sup> & Irene Etomaru<sup>2</sup>

<sup>1</sup> SIMAD University, P. O. Box 630 Mogadishu, Somalia.

<sup>2</sup> Makerere University, P. O. Box 7062, Kampala, Uganda.

\* Author for Correspondence ORCID ID: <https://orcid.org/0000-0003-3845-8976>; Email: [abukar@simad.edu.so](mailto:abukar@simad.edu.so)

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*Quality Assessment Models, Higher Education, Student-Centric Approach, Developing Countries.*

This literature review addresses the absence of consolidated documentation on quality assessment models in higher education, aiming to provide a unified and accessible resource. It responds to three key research questions: detailing the originators, purposes, features, and distinctions of identified models, conducting comparative analyses to discern differences and similarities, and determining the most suitable model for measuring higher education quality in developing countries. The study illuminates the intricate landscape of quality assessment models, revealing shared emphases on service quality, survey instrument utilisation, a multidimensional approach, and commitment to continuous improvement. A notable student-centric approach permeates various models. The study found the HEQAM model by Noaman et al. most suitable for developing countries due to its streamlined and adaptable nature, focusing on administrative, physical, and support systems. The study emphasises the urgent need for a consolidated overview of these models, underscoring their collective contribution to student-centred frameworks. It recommends the HEQAM model for adoption in resource-constrained environments. It suggests further research to explore its implementation in diverse contexts. This review contributes valuable insights, fostering informed decision-making and excellence in educational institutions.

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**INTRODUCTION**

The assessment of quality in higher education is a pivotal and dynamic domain essential for shaping the future landscape of academia, driven by the escalating demand for exceptional educational experiences and outcomes (Chen & Chen, 2010). This demand has led to the development of diverse models to gauge the quality of higher education institutions and programs, reflecting the multifaceted nature of quality assessment in this domain (Hamann & Beljean, 2020). However, despite the proliferation of these models, a significant gap exists in the field. While numerous quality assessment models have been proposed, there has been a conspicuous absence of concerted efforts to consolidate these models into a unified and accessible document.

Moreover, there is a notable scarcity of endeavours to comprehensively discuss these models' originators, purposes, main features, and distinctions. This lack of detailed documentation hampers the understanding of potential applications. It impedes the identification of differences and similarities among these models. This literature review addressed these issues, comprehensively exploring and evaluating existing quality assessment models in higher education. The study went beyond documentation, providing insights into model developers, purposes, features, and comparative analyses. The overarching goal was to contribute to the field by offering a consolidated resource for researchers and practitioners and, notably, to select a model deemed particularly suitable for measuring the quality of higher education in the context of developing countries. This research problem underscores the imperative for a thorough overview and evaluation of existing quality assessment models in higher education. This article endeavours to fill this gap by synthesising existing research and elucidating the fundamental models instrumental in assessing the quality of higher education.

The study of quality assessment in higher education holds paramount importance due to its pivotal role in shaping the future of academia amid the escalating demand for exceptional educational experiences and outcomes (Chen & Chen, 2010). The dynamic nature of this domain has given rise to various models designed to gauge the quality of higher education institutions and programs, reflecting the multifaceted aspects inherent in quality assessment (Hamann & Beljean, 2020). The significance of this problem lies in the critical need to bridge a substantial gap that persists within the field. Despite the proliferation of diverse quality assessment models, there has been a conspicuous absence of concerted efforts to consolidate these models into a unified and accessible document. This lack of consolidation presents a pressing issue as it hampers the comprehensive understanding of each model's potential applications, intricacies, and nuances.

Furthermore, the shortage of endeavours to discuss the originators, purposes, main features, and distinctions among these models impedes scholarly discourse and engagement. The absence of detailed documentation challenges researchers and practitioners in identifying the most suitable models for their specific needs and contexts. Therefore, the study of this problem holds significant importance as it aims to address these critical gaps by thoroughly exploring and evaluating existing quality assessment models in higher education.

The study goes beyond mere documentation by delving into the backgrounds of model developers, the intended purposes behind each model, and their distinctive features. The research offers valuable insights that contribute to the overall understanding of the diverse landscape of quality assessment in higher education through comparative analyses. The overarching goal of the study is to provide a consolidated resource that not only informs researchers and practitioners about

the available models but also aids in the selection of a model deemed particularly suitable for measuring the quality of higher education, especially in the context of developing countries. In essence, this research problem addresses the imperative need for a thorough overview and evaluation of existing quality assessment models in higher education, making a substantial contribution to the field's scholarship and practice.

### Research Questions

This research was explicitly structured to address three research questions to achieve this overarching goal. These questions were:

- What are the comprehensive details, including originators, purposes, main features, and distinctions, for each identified quality assessment model in higher education?
- How do the identified quality assessment models in higher education differ from and resemble each other when subject to thorough comparative analyses?
- Which quality assessment model is most suitable for measuring higher education quality in developing countries, and how does it demonstrate effectiveness in such contexts?

In pursuit of answers to these research questions, a literature review design was preferred. The selection of a literature review design was deemed apt for several reasons. Firstly, it enabled a thorough exploration of existing knowledge, theories, and empirical studies relevant to the research problem, which centres on the absence of consolidated information on quality assessment models in higher education. This design facilitated the synthesis of information dispersed across diverse sources, offering a holistic understanding of the subject. Secondly, the research questions necessitate an examination of a broad range of scholarly works to gather detailed insights into each quality assessment model. A literature review design allowed for the synthesis and organisation of this varied information, meeting the need for comprehensive details on the

originators, purposes, main features, and distinctions of each identified model.

### LITERATURE REVIEW

The evaluation of higher education quality is a multifaceted process that encompasses various dimensions, including students' evaluations of teaching, satisfaction levels, and engagement with learning (Wang et al., 2018). Strengthening students' objectivity and participation in the assessment process is essential for enhancing effectiveness. This involves extending the evaluation beyond individual student achievements to include self-assessment and criteria for evaluating the overall quality of institutions (Berzina et al., 2017). The EFQM excellence model and the RISE model are proposed as potential tools to address this imperative, providing comprehensive frameworks for assessing the quality of higher education (Dinu and Popescu, 2015; Sann et al., 2023).

Despite various surveys and instruments based on different theories for quality assurance in higher education, potential conclusions and discrepancies highlight the evaluation landscape's complexity (Zeng et al., 2023; Bergseth et al., 2014). Bridging this gap requires a comprehensive understanding of the evolving landscape, influenced by the dynamic needs of students, employers, and society, especially in the context of technological and global transformations (Noaman et al., 2017; Altbach et al., 2019).

The transformation of higher education into a service industry and the 'student as a customer' approach underscore the growing market orientation of institutions, necessitating accountability and quality assurance through performance indicators (Yildiz & Kara, 2015; Brachem & Braun, 2018). Recognising students as primary customers and stakeholders, with their perceptions of quality shaped by curriculum content, learning experiences, and institutional resources, becomes paramount (Allam et al., 2018; Galeeva, 2016).

In addressing these challenges, higher education institutions must consider the interests of various stakeholders, including governments, employers, and students, to contribute efficiently (Habib et al., 2019). A stakeholder approach that considers diverse demands can significantly influence institutional success. Despite the involvement of various stakeholders, students emerge as primary customers and stakeholders, emphasising the need to investigate service quality from their perspectives and identify critical quality factors in tertiary education (Galeeva, 2016).

Models like HEISQUAL and HEdPERF serve as frameworks designed to measure and validate quality from students' standpoints, offering comprehensive insights into various dimensions of service quality in higher education (Abass, 2020; Abdullah, 2006). Additionally, models such as the "service quality measurement in HE in India" and instruments developed by Teeroovengadum et al. (2016) highlight the pivotal dimensions of service quality from both student and employer perspectives, providing a nuanced understanding of the multifaceted nature of quality in higher education (Senthilkumar & Arulraj, 2011; Jain et al., 2013; Rodman et al., 2013).

Efforts to explore quality dimensions from an employee standpoint, as seen in Asif et al.'s (2013) study, contribute further to a comprehensive understanding of quality in higher education. Emphasising the implementation of quality standards for global acceptance and accreditation, Noaman et al. (2013) highlight the role of e-services, infrastructure, and administrative services in enhancing education quality, showcasing the importance of a holistic approach.

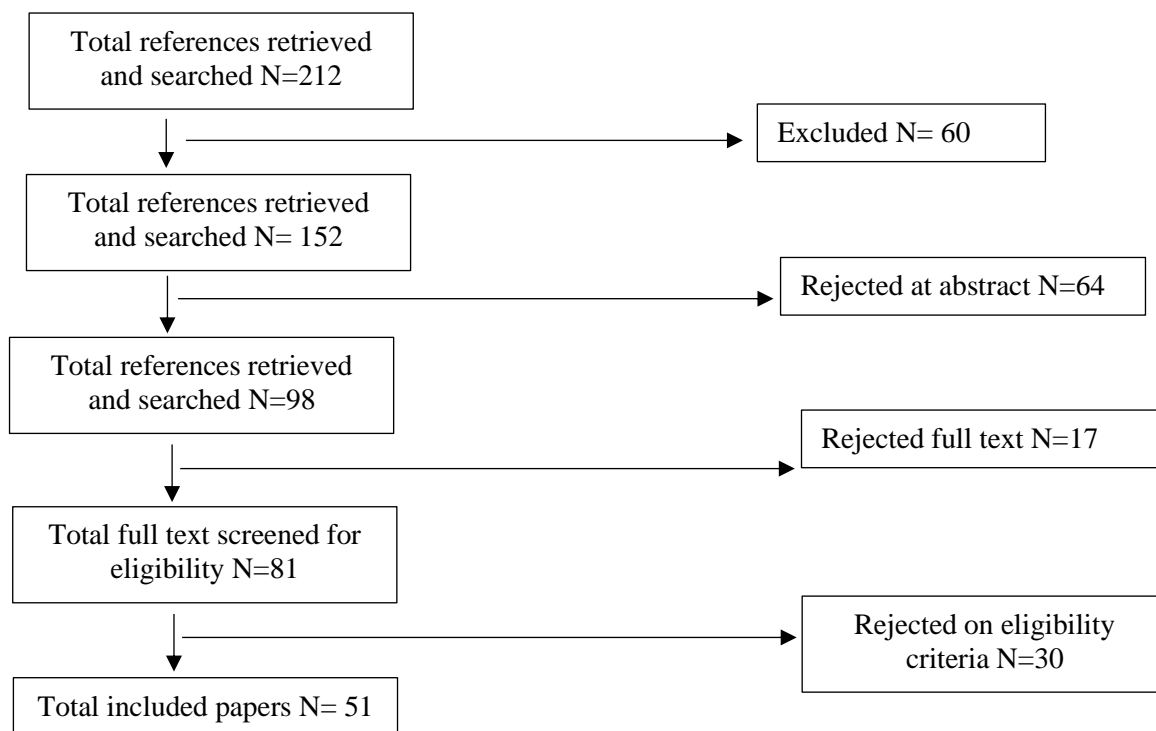
While the literature underscores ongoing efforts to develop appropriate approaches to assessment and implement them in complex educational systems, it also reveals potential gaps in the existing

literature. These gaps include discrepancies in conclusions drawn from different assessment systems, the evolving nature of quality assessment models in response to changing higher education landscapes, and the need for more comprehensive frameworks to address the multifaceted dimensions of quality in higher education. The current study aims to bridge these gaps by detailing the originators, purposes, features, and distinctions of many higher education quality assessment models. It also provided a comparative analysis to discern differences and similarities and determine the most suitable model for measuring higher education quality in developing countries.

## METHODOLOGY

To substantiate the rationale for this review, an extensive examination of existing literature was conducted across multiple databases, including Google Scholar, Scopus, ProQuest, Wiley, Sage, Taylor and Francis, Springer Link, and Emerald, in the domain of quality assessment in higher education. Employing a preliminary keyword search for "models for assessing quality in higher education," an initial pool of 212 matching items was identified, with the scope limited to citations and abstracts. Publications spanning 2000 to 2023 were exclusively considered for further evaluation, and the remaining were excluded.

The selection process, detailed in *Figure 1*, ultimately narrowed down the initial pool of 81 papers to a final set of 51 papers, adhering to three critical criteria: i) the studies must address quality assessment models in higher education, ii) the research methodology must be delineated, and iii) the research findings must be fully accessible. The subsequent phase of the study involves a comprehensive examination of these 51 selected articles, focusing on understanding their purpose, methodology, key findings, and recommendations.

**Figure 1: Study selection process review**

To ensure the rigour and relevance of the chosen studies, as shown in *Figure 1*, the researchers rigorously assessed each article against predefined standards and criteria. Information was systematically collected from articles meeting these criteria, and their quality and potential biases were meticulously evaluated. This meticulous process guaranteed that the selected studies were both contemporary and significant in contributing to the existing body of knowledge. Additionally, the authors scrutinised the abstracts and concluding remarks of the remaining publications for alignment with the study's objectives. The final set of 51 articles, obtained after this meticulous screening process, underwent a thorough review. The articles were meticulously categorised based on their addressed topics, research aims, and findings. This structured methodology ensures the inclusion of relevant and high-quality literature in the subsequent stages of the review, facilitating a nuanced exploration of the landscape of quality assessment models in higher education.

## RESULTS

### Research Question 1

The first research question in this study was, “What are the comprehensive details, including originators, purposes, main features, and distinctions, for each identified quality assessment model in higher education? The selected literature was thoroughly reviewed to answer this question, and the results are presented in *Table 1*.

**Table 1: Model types, developers, purpose, and primary features**

No.	Model Type	Developers	Purpose	Main Features
1.	SERVQUAL (Service Quality model often used to assess the quality of services, including in higher education).	Parasuraman et al. 1988 (cited in Abdullah 2006) in the United States.	Measure perceived service quality through the gaps between service performance (P) and client expectations (E).	<ul style="list-style-type: none"> <li>• Comprises 22 items distributed across five quality dimensions.</li> <li>• Dimensions include reliability, assurance, tangibles, empathy, and responsiveness.</li> <li>• Clients rate their expectations and perceptions of a specific company's services.</li> <li>• Uses a 7-point scale ranging from "Strongly disagree" to "Strongly agree."</li> <li>• Quality is assessed by calculating the differences between perceived performance and expectations.</li> </ul>
2.	SERVPERF Model:	Cronin and Taylor, 1992 (cited in Abdullah 2006) in the United States.	Measure perceived service quality as a direct assessment of performance (Q = P).	<ul style="list-style-type: none"> <li>• Single-dimensional scale with 22 items used solely for measuring service delivery.</li> <li>• Clients rate the delivery of services based on their perception without assessing expectations.</li> <li>• It uses a 7-point scale ranging from "Strongly disagree" to "Strongly agree."</li> <li>• Reduces the number of questions clients need to answer by focusing only on service performance.</li> <li>• Claims to be more effective than SERVQUAL in providing an accurate service quality index.</li> </ul>
3.	HEdPERF Model: (Encompasses six dimensions for evaluating higher education service quality).	Developer: Abdullah (2006).	The HEdPERF (Higher Education Performance) instrument was developed based on Cronin and Taylor's (1992) SERVPERF survey but adapted specifically for the higher education industry. Its purpose is to measure service quality in higher education institutions by considering academic and non-academic components, providing a more industry-specific assessment.	<ul style="list-style-type: none"> <li>• Items essential for students to fulfil their study obligations are managed by administrative personnel.</li> <li>• Encompasses the responsibilities of academic staff, including teaching, supervising, advising, and research.</li> <li>• This signifies the importance of higher education institutions in projecting a positive professional and corporate image.</li> <li>• Involves issues like approachability, ease of contact, availability, and convenience for students.</li> <li>• Focuses on the importance of offering a wide range of acceptable and reputable academic programs or flexible specialisations.</li> </ul>
4.	Transformative Quality Model:	Harvey and Green (1993)	Conceptualises quality in education as transformative, emphasising the continuous process of student transformation.	<ul style="list-style-type: none"> <li>• Views education as a service contributing to the enhancement and empowerment of students.</li> <li>• This is neglected in many studies on service quality in higher education.</li> <li>• Recognises education as more than a service and focuses on continuous student transformation.</li> </ul>

No.	Model Type	Developers	Purpose	Main Features
5.	HESQUAL (Higher Education Service Quality)	Teeroovengadum et al. (2016).	Integrates technical and functional aspects of service quality, providing a comprehensive measure for higher education service quality.	<ul style="list-style-type: none"> <li>• Hierarchical model that distinguishes technical (transformative) and functional aspects.</li> <li>• Technical service quality is conceptualised as transformative quality.</li> <li>• Provides a more comprehensive measure than existing models.</li> <li>• Aims to address the limitations of SERVQUAL and incorporates the transformative quality perspective.</li> </ul>
6.	HEQAM (Higher Education Quality Assessment Model)	Noaman et al. (2013).	Streamlined assessment focusing on administrative, physical, and support systems.	<ul style="list-style-type: none"> <li>• The simplified framework is suitable for institutions with specific needs or limited resources.</li> <li>• Assessments in administrative, physical, and support systems.</li> <li>• Provides a straightforward approach to higher education quality evaluation.</li> </ul>
7.	RISE Model (Focuses on Relevance, Impact, Significance, and Excellence in Higher Education Quality)	Song et al. (2022).	Emphasises the multidimensional nature of higher education quality, focusing on relevance, impact, significance, and excellence.	<ul style="list-style-type: none"> <li>• Dimensions include alignment with stakeholder needs, societal and environmental effects, importance of contributions, and process/result superiority.</li> <li>• Recognises the diverse aspects contributing to quality in higher education.</li> <li>• Offers a multidimensional perspective on quality assessment.</li> </ul>
8.	HiEduQual Model (Centres on evaluating the service quality of higher education institutions, considering various dimensions)	Latif et al. (2017).	Centres on evaluating the service quality of higher education institutions.	<ul style="list-style-type: none"> <li>• Constructs include teacher quality, administrative services, knowledge services, extracurricular activities, continuous improvement, and leadership quality.</li> <li>• Emphasises the effectiveness of higher education through various dimensions.</li> <li>• Excluded in this study due to limited constructs compared to HEQAM.</li> </ul>
9.	PDCA Cycle Model (Used for evaluating service quality in higher education courses).	Tóth and Surman (2019).	Framework for evaluating service quality in higher education courses, utilising 26 items categorised based on the PDCA cycle.	<ul style="list-style-type: none"> <li>• Utilises the PDCA cycle for course evaluation.</li> <li>• Effective for evaluating service quality in higher education courses.</li> <li>• It was not chosen for this study due to its lack of suitable constructs for comprehensive higher education quality assessment compared to HEQAM.</li> </ul>
10.	CEQAM (Comprehensive Educational Quality Assurance Model)	Boyle and Bowden (1997)	A comprehensive framework for educational quality assurance.	<ul style="list-style-type: none"> <li>• Lacks a specific instrument for evaluating service quality.</li> <li>• Focuses on a broad perspective of educational quality assurance.</li> <li>• Developed to ensure overall quality across various dimensions of education.</li> </ul>
11.	UNIQUAL (Focuses on assessing	Sann et al. (2023)	Assessing university services during the COVID-19 pandemic.	<ul style="list-style-type: none"> <li>• Limited in scope compared to HEQAM.</li> </ul>

No.	Model Type	Developers	Purpose	Main Features
	university services, particularly during the COVID-19 pandemic).			<ul style="list-style-type: none"> <li>• Designed explicitly for evaluating university services during the unique context of the COVID-19 pandemic.</li> <li>• Addresses challenges and changes faced by universities during the pandemic.</li> </ul>
12.	HEISQUAL (Higher Education Internal Service Quality)	Abass (2020).	Emphasises students as primary stakeholders, incorporating operational and technological service quality dimensions.	<ul style="list-style-type: none"> <li>• Comprehensive, emphasising students as primary stakeholders.</li> <li>• Includes operational and technological service quality dimensions.</li> <li>• I was not chosen for this study, aligning with the primary focus on validating constructs by Noaman et al.</li> </ul>
13.	PESPERF	Yildiz and Kara (2009)	Introduced for physical education and sports science.	<ul style="list-style-type: none"> <li>• Robust model designed for physical education and sports science.</li> <li>• It is not aligned with the broader objective of evaluating higher education quality across various schools.</li> </ul>
14.	EFQM Excellence Model: (European Foundation for Quality Management)	The European Foundation for Quality Management (EFQM).	The EFQM Excellence Model is a framework for organisational excellence. It is not exclusively designed for higher education but can be adapted to various contexts, including universities.	<ul style="list-style-type: none"> <li>• The model provides an integrated framework for assessing and improving organisational performance.</li> <li>• It takes a holistic approach, considering leadership, strategy, people, partnerships, resources, processes, products/services, and results.</li> <li>• Organisations can use the EFQM model for self-assessment to identify strengths and areas for improvement.</li> <li>• It emphasises continuous improvement and learning.</li> <li>• The model includes a results section that assesses the outcomes and impact of organisational activities.</li> <li>• Organisations can use the model for benchmarking against recognised excellence standards.</li> </ul>
15.	OECD Assessment of Higher Education Learning Outcomes (AHELO):	The Organisation for Economic Co-operation and Development (OECD).	An international initiative aimed at assessing and comparing the learning outcomes of higher education students globally	<ul style="list-style-type: none"> <li>• AHELO seeks to measure generic skills, such as critical thinking and problem-solving, rather than subject-specific knowledge.</li> </ul>
16.	Baldrige Excellence Framework for Higher Education:	The Baldrige Performance Excellence Program.	Adaptation of the Baldrige criteria for education, focusing on performance excellence in higher education institutions	<ul style="list-style-type: none"> <li>• The framework covers leadership, strategy, customers, measurement, analysis, knowledge management, workforce, operations, and results.</li> </ul>



No.	Model Type	Developers	Purpose	Main Features
17.	Quality Matters (QM).	Maryland Online, a consortium of community colleges in Maryland, USA	A faculty-centred, peer-review process to certify the quality of online and blended courses	<ul style="list-style-type: none"> <li>• QM uses a rubric to evaluate various aspects of online courses, including course design, learner support, and assessment.</li> </ul>
18.	AACSB International Accreditation	The Association to Advance Collegiate Schools of Business (AACSB)	Focuses on business education, emphasising continuous improvement and high-quality standards.	<ul style="list-style-type: none"> <li>• The accreditation process assesses strategic management, participants, learning and teaching, and academic and professional engagement.</li> </ul>
19.	TEF (Teaching Excellence Framework)	The Higher Education Funding Council for England (HEFCE) is now part of the Office for Students.	They are used in the UK to assess and recognise excellent teaching in higher education institutions.	<ul style="list-style-type: none"> <li>• TEF assesses teaching quality, learning environment, and student outcomes.</li> </ul>
20.	QS Stars Rating System	QS Quacquarelli Symonds	Rates universities worldwide on various criteria, including teaching, employability, research, internationalisation, facilities, innovation, inclusiveness, and specialist criteria.	<ul style="list-style-type: none"> <li>• The system provides a rating of one to five stars based on performance in various categories.</li> </ul>
21.	CHEA Platform (The Council for Higher Education Accreditation)	The Council for Higher Education Accreditation (CHEA).	A quality assurance initiative for higher education institutions, focusing on accreditation and quality improvement	<ul style="list-style-type: none"> <li>• The platform involves accreditation processes that evaluate institutional mission, ethics, student learning and support, and resources.</li> </ul>

The analysis of the diverse quality assessment models for higher education institutions in *Table 1* highlights a rich landscape of approaches with varying purposes and features. SERVQUAL and SERVPERF, originating in the United States, employ different strategies—one measuring perceived service quality through gaps between performance and expectations, while the other directly assesses performance (Abdullah, 2006). HEdPERF, tailored for higher education, encompasses academic and non-academic components for a comprehensive assessment. The Transformative Quality Model uniquely conceptualises education as transformative, emphasising continuous student empowerment (Hamann & Beljean, 2020). HESQUAL integrates technical and functional aspects, addressing the limitations of SERVQUAL (Abass, 2020). HEQAM streamlines assessment to administrative and support systems, providing a straightforward approach (Latif et al., 2017). The RISE Model focuses on relevance, impact, significance, and excellence, offering a multidimensional perspective (Song et al., 2022). The HiEduQual Model emphasises various dimensions of higher education service quality (Latif et al., 2017). Models like the PDCA Cycle Model and UNIQUAL respond to unique contexts, addressing course evaluation and the

COVID-19 pandemic. The EFQM Excellence Model is a holistic framework for organisational excellence adaptable to various contexts (Dinu & Popescu, 2015).

In contrast, the OECD AHELO initiative aims to internationalise learning outcomes assessment. The AACSB International Accreditation and TEF focus on accrediting institutions based on specific criteria, while the QS Stars Rating System rates universities worldwide on various criteria (Hyndman & Liguori, 2022). The CHEA Quality Platform emphasises accreditation and quality improvement. Overall, these models collectively contribute to a nuanced understanding of quality in higher education, reflecting diverse perspectives and responding to unique challenges and contexts within the academic landscape.

## Research Question 2

The second question was, “How do the identified quality assessment models in higher education differ from and resemble each other when subject to thorough comparative analyses? To achieve this, the findings obtained from research question 1 were analysed to discern the similarities and differences among the various models. The results of the similarities and differences are presented in *Tables 2* and *3*.

**Table 2: Similarities among the quality assessment models**

No.	Parameter	Key Similarities
1.	Focus on Service Quality	Many models, including SERVQUAL, SERVPERF, HESQUAL, and HiEduQual, primarily focus on assessing service quality in general or higher education institutions.
2.	Use of Survey Instrument	Most models utilise survey instruments or questionnaires with Likert-type scales to gather data. These scales typically range from "Strongly Disagree" to "Strongly Agree," providing a standardised format for respondents to express their opinions.
3.	Multidimensional Approach	Several models, such as SERVQUAL, HEdPERF, HESQUAL, and HiEduQual, adopt a multidimensional approach, considering various aspects or dimensions of service quality. These dimensions may include reliability, assurance, tangibles, empathy, responsiveness, etc.
4.	Adaptation and Modification	Some models, like HEdPERF, are adaptations or modifications of earlier models. HEdPERF, for instance, builds upon the SERVPERF survey but tailors it specifically for the higher education industry.
5.	Continuous Improvement.	The emphasis on continuous improvement is evident in several models, such as the PDCA Cycle Model and AACSB International Accreditation. These models acknowledge the need for ongoing efforts to enhance and maintain quality in higher education.

No.	Parameter	Key Similarities
6.	Student-Centric Approach	Many models, including HEdPERF, HEISQUAL, and HiEduQual, emphasise the importance of students as primary stakeholders. They consider factors such as teacher quality, administrative services, knowledge services, and extracurricular activities from a student perspective.
7.	Incorporation of Technical and Functional Aspects	Models like HESQUAL incorporate technical (transformative) and functional aspects, providing a more comprehensive measure of higher education service quality.
8.	Recognition of Diverse Aspects of Quality	The RISE Model explicitly recognises the multidimensional nature of higher education quality, focusing on relevance, impact, significance, and excellence. This highlights an acknowledgement of the diverse aspects contributing to quality.

**Table 3: Differences among the quality assessment models**

No.	Parameter	Key differences
1.	Scope and Specificity	Models differ in their scope and specificity. For instance, some models like SERVQUAL and SERVPERF are broad service quality models applicable across various industries. In contrast, others like HEISQUAL and HiEduQual are specifically designed for higher education institutions.
2.	Dimensions Considered	The dimensions considered in each model vary. For example, while SERVQUAL focuses on traditional service quality dimensions, models like HEdPERF and HiEduQual encompass a broader range, including academic and non-academic components.
3.	Transformative Perspective	The Transformative Quality Model stands out for its conceptualisation of education quality as transformative, emphasising the continuous process of student transformation. This perspective is less common in other models.
4.	Assessment Focus	Models like HEQAM streamline their assessment to specific areas such as administrative, physical, and support systems, providing a straightforward approach. In contrast, models like RISE and HiEduQual consider a more comprehensive range of dimensions.
5.	International Assessment vs. Institutional Accreditation	Models like AHELO focus on international assessment and comparison of learning outcomes. In contrast, others like AACSB International Accreditation and TEF are more concerned with accrediting institutions based on specific criteria.
6.	Response to Unique Contexts Vs. Holistic Organizational Excellence	Some models, such as UNIQUAL and the PDCA Cycle Model, are designed to address unique contexts like the COVID-19 pandemic or course evaluation through the PDCA cycle. The EFQM Excellence Model differs because it is a holistic framework for organisational excellence rather than specifically assessing service quality. It considers various aspects such as leadership, strategy, people, partnerships, and results.
7.	Rating System	The QS Stars Rating System distinguishes itself by globally evaluating universities on diverse criteria, assigning a one to five-star rating based on performance across multiple categories, in contrast to more narrowly focused or reputation-centric ranking systems.
8.	Accreditation Emphasis	In contrast, ranking systems such as QS Stars prioritize a broader spectrum of criteria beyond accreditation processes, encompassing aspects such as facilities, inclusiveness, and social responsibility, using a one to five-star scale for a more comprehensive evaluation of universities worldwide.

The results in *Table 2* reveal several vital similarities among the diverse models designed for assessing the quality of higher education. Notably, a shared focus on service quality is observed across models such as SERVQUAL, SERVPERF, HESQUAL, and HiEduQual, reflecting a shared emphasis on evaluating the quality of services provided in educational institutions (Abdullah, 2006; Latif et al., 2017). Additionally, using survey instruments with Likert-type scales is widespread, providing a standardised means to collect data and gauge respondents' opinions. Many models, including SERVQUAL, HEdPERF, HESQUAL, and HiEduQual, adopt a multidimensional approach, considering various aspects such as reliability, assurance, tangibles, empathy, and responsiveness, contributing to a comprehensive evaluation of service quality. The adaptation and modification of earlier models are evident in instances like HEdPERF, which builds upon the SERVPERF survey, showcasing a trend of refining and tailoring assessment tools for the higher education context.

Furthermore, a shared commitment to continuous improvement is notable in models like the PDCA Cycle Model and AACSB International Accreditation, emphasising the need for ongoing efforts to enhance and maintain quality in higher education (Abdel-Meguid, 2022). The student-centric approach is another commonality, with models like HEdPERF, HEISQUAL, and HiEduQual emphasising the significance of students as primary stakeholders and considering various factors from a student perspective (Abbas, 2020). Incorporating technical (transformative) and functional aspects in models like HESQUAL adds depth to the assessment, providing a more comprehensive measure of higher education service quality (Abbas, 2020). Finally, explicitly recognising the multidimensional nature of higher education quality in the RISE Model, focusing on relevance, impact, significance, and excellence, highlights a shared acknowledgement among models of the diverse aspects of higher education quality. These commonalities collectively reflect a concerted effort to create robust, adaptable, and

student-centred frameworks for evaluating and enhancing the quality of higher education services.

The findings in *Table 3* underscore the diversity and specificity in assessing higher education quality. Notably, variations in scope and specificity are evident, with models like SERVQUAL and SERVPERF offering broad applications across industries. At the same time, HEISQUAL and HiEduQual are finely tuned for higher education contexts (Abbas, 2020). The dimensions considered also diverge, showcasing the comprehensiveness of models like HEdPERF and HiEduQual, which extend beyond traditional service quality aspects to incorporate academic and non-academic components. The Transformative Quality Model introduces a unique perspective, emphasising continuous student transformation, a departure from the more conventional views present in other models. Assessment focus varies, with models like HEQAM adopting a streamlined approach to specific areas.

In contrast, RISE and HiEduQual embrace a broader spectrum of dimensions. The distinction between the two models, exemplified by AHELO, and institutional accreditation models like AACSB International Accreditation and TEF highlights the differing objectives in evaluating learning outcomes globally versus accrediting institutions based on specific criteria. Some models, such as UNIQUAL and the PDCA Cycle Model, demonstrate adaptability by addressing unique contexts like the COVID-19 pandemic or course evaluation through the PDCA cycle (Harvey & Green, 1993). The EFQM Excellence Model departs by presenting a holistic framework for organisational excellence, going beyond service quality to consider leadership, strategy, people, partnerships, and results. The QS Stars Rating System introduces a standardised rating approach for universities on various criteria. At the same time, models like AACSB International Accreditation and CHEA Quality Platform underscore the pivotal role of accreditation processes in evaluating strategic management,

participant learning, and academic and professional engagement. These differences reflect the multifaceted landscape of higher education quality assessment, catering to diverse needs, perspectives, and contexts within academia.

### Research Question 3

The third and last research question was “Which quality assessment model is considered the most suitable for measuring higher education quality in developing countries, and how does it demonstrate effectiveness in such contexts?” Data obtained from the analysis of findings from research questions 1 and 2 were used to answer this question. The findings of the study revealed that among the models presented, the HEQAM (Higher Education Quality Assessment Model) by Noaman et al. (2013) appears to be the most suitable for measuring the quality of higher education in the context of developing countries. Several factors contribute to this recommendation:

- *Streamlined Assessment:* HEQAM focuses on administrative, physical, and support systems, providing a simplified framework. This streamlined approach is advantageous for institutions in developing countries with potentially limited resources, making implementation more feasible and practical.
- *Specifically Tailored:* HEQAM is designed to suit institutions with specific needs or limitations. This adaptability is crucial in developing countries, where higher education institutions may face unique challenges and require a model that can be tailored to their circumstances.
- *Straightforward Evaluation:* The model offers a straightforward approach to higher education quality evaluation, making it accessible for institutions that may not have the resources for complex or extensive assessment processes. This simplicity is beneficial in ensuring broader applicability.

- *Comprehensive Coverage:* While streamlined, HEQAM still covers administrative, physical, and support systems, addressing key components essential for effective higher education delivery. This comprehensive coverage ensures a well-rounded evaluation despite the simplified framework.
- *Alignment with Resource Constraints:* Given the potential resource constraints in developing countries, HEQAM's emphasis on administrative, physical, and support systems aligns with the critical areas that institutions in such contexts must focus on for improvement.
- *Practical Implementation:* The practicality of HEQAM makes it suitable for adoption and implementation in developing countries, facilitating a more efficient and focused improvement process.

While HEQAM offers advantages for institutions in developing countries, it is essential to note that the choice of a model should also consider the institution's specific context, goals, and available resources. Additionally, engaging stakeholders and ensuring local relevance in the assessment process is crucial for the model's effectiveness in capturing the unique dynamics of higher education in developing countries.

### DISCUSSION

The comprehensive analysis of diverse quality assessment models for higher education institutions offers a nuanced understanding of the multifaceted landscape in this domain. The findings align with existing literature, emphasising the pivotal role of quality assessment in shaping the future of academia and meeting the increasing demand for exceptional educational experiences (Chen & Chen, 2010; Hamann & Beljean, 2020). Models such as SERVQUAL, SERVPERF, HEdPERF, Transformative Quality Model, HESQUAL, HEQAM, RISE Model, HiEduQual Model, and others collectively contribute to addressing this demand, showcasing adaptability to unique challenges and contexts, as

demonstrated by models like the PDCA Cycle Model and UNIQUAL responding to course evaluation and the COVID-19 pandemic (Song et al., 2022). Despite this proliferation, a significant gap exists, emphasising the urgent need for a consolidated overview and evaluation of existing quality assessment models in higher education. This research problem underscores the importance of the study in providing a systematic resource that organises and evaluates these diverse models, fostering informed decision-making and excellence in educational institutions.

The comparison and cross-referencing of identified models with existing literature further underscore the significance of addressing the research problem. Various models, such as Teeroovengadum et al.'s (2016) hierarchical framework, Noaman et al.'s (2017) HEQAM model, and Song et al.'s (2022) RISE model, align with literature emphasising the complexity of quality assessment in higher education. Despite their comprehensiveness, excluding models like HiEduQual and HEISQUAL reflects a focus on validating constructs and addressing the specific research problem (Latif et al., 2017). Applying Noaman et al.'s methodology outside the Middle East context aligns with the literature's emphasis on adapting and evolving models to diverse higher education contexts.

The findings from *Table 3* highlight diverse approaches to assessing higher education quality, showcasing variations in scope, specificity, and dimensions considered across models. Models like SERVQUAL and SERVPERF adopt a broad approach to service quality assessment (Abdullah, 2006). At the same time, HEISQUAL and HiEduQual are finely tuned for higher education contexts (Abbas, 2020). The models exhibit a spectrum of dimensions. HEdPERF and HiEduQual stand out for their comprehensive assessments, covering academic and non-academic components (Teeroovengadum et al., 2016). Despite this diversity, commonalities emerge, such as focusing on service quality, using survey instruments, a multidimensional approach, and a commitment to continuous improvement.

These shared practices reflect a collective effort to create robust, adaptable, and student-centred frameworks for evaluating higher education quality.

*Table 2* reveals distinctions in assessment focus, with some models adopting a streamlined approach to specific areas (e.g., HEQAM). In contrast, others embrace a broader spectrum of dimensions (e.g., RISE and HiEduQual) (Teeroovengadum et al., 2016). Differences between international assessment models and institutional accreditation models underscore varied objectives in evaluating learning outcomes globally versus accrediting institutions based on specific criteria (Abbas, 2020). Adaptability is demonstrated by UNIQUAL and the PDCA Cycle Model, addressing unique contexts such as the COVID-19 pandemic or course evaluation (Song et al., 2022). The EFQM Excellence Model departs from traditional service quality aspects, presenting a holistic framework for organisational excellence (Dinu & Popescu, 2015). Models like AACSB International Accreditation and the CHEA Quality Platform underscore the pivotal role of accreditation processes. These differences reflect the multifaceted landscape of higher education quality assessment, catering to diverse needs, perspectives, and contexts within academia.

In contrast to the observed diversity, the comparison with other models, such as Teeroovengadum et al.'s hierarchical framework and Noaman et al.'s (2013) HEQAM model, highlights the complementary nature of these approaches. Teeroovengadum et al.'s (2016) comprehensive model offers a holistic assessment that is valuable for institutions seeking an inclusive overview. With its streamlined approach, Noaman et al.'s HEQAM model suits institutions with specific needs or limited resources. The RISE model by Song et al. (2022) emphasises the multidimensional nature of higher education quality. Each model contributes distinct strengths and insights, offering valuable perspectives depending on specific contexts and evaluation objectives.

The HEQAM (Higher Education Quality Assessment Model) by Noaman et al. (2017) is the most suitable for measuring the quality of higher education in developing countries. This preference is rooted in the model's streamlined assessment approach, focusing on administrative, physical, and support systems, making it feasible for institutions with potential resource constraints. HEQAM's adaptability is crucial for addressing unique challenges faced by higher education institutions in developing countries. Its straightforward evaluation process ensures accessibility for institutions lacking resources for complex assessments while maintaining comprehensive coverage of essential components (Noaman et al., 2017). This simplicity, specificity, and practicality make HEQAM an effective tool for evaluating and enhancing the quality of higher education in developing countries despite other models offering distinct strengths.

## CONCLUSION

In conclusion, this study thoroughly examines diverse quality assessment models for higher education institutions, shedding light on the intricate landscape in this domain. The findings resonate with existing literature, emphasising the pivotal role of quality assessment in shaping the future of academia and meeting the growing demand for outstanding educational experiences. The comparison and cross-referencing of identified models with existing literature further emphasise the significance of addressing the research problem, revealing diverse approaches to assessing higher education quality and highlighting commonalities that reflect a collective effort to create robust, adaptable, and student-centred frameworks. The HEQAM (Higher Education Quality Assessment Model) by Noaman et al. emerges as the most suitable for measuring the quality of higher education in developing countries, with its streamlined approach addressing administrative, physical, and support systems. Institutions and policymakers in developing countries should consider adopting the HEQAM model for its suitability in resource-constrained environments. Future research could

explore its implementation and effectiveness in diverse higher education contexts, contributing additional insights to the field of quality assessment.

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