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Opportunities, Challenges and Strategies for AI-Assisted Improvement of Quality Assurance in Higher Education: A Case Study of Lingnan University in Hong Kong, China

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Abstract: This study focuses on Lingnan University (LU) in Hong Kong, China, deeply analyzing its quality assurance situation. Through the analysis of the 2019 audit report of LU by the Quality Assurance Council (QAC) under the University Grants Committee of Hong Kong, China, the strengths and limitations of the university in governance, programme quality assurance, programme delivery, and student participation and support services are revealed. The AI-assisted solutions discussed in this study are innovative but face limitations in feasibility and practicality. Therefore, alternative approaches that integrate AI and human expertise are proposed, such as developing a hybrid data analysis platform, establishing an External Advisory Board, formulating an AI-assisted e-learning strategic plan, and creating a dual-layered feedback system. These solutions aim to address issues like weak key performance indicators, insufficient external engagement, underdeveloped e-learning, and imperfect feedback mechanisms. Meanwhile, the study emphasizes the need to pay attention to ethical issues in AI applications, such as responsibility definition, data privacy, and over-reliance. By balancing AI and human decision-making, LU is expected to improve its quality assurance processes, enhance educational quality, and adapt to the digital transformation trend in higher education.

Keywords: Lingnan University; quality assurance; artificial intelligence; educational quality; ethical Issues

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1. Introduction

1.1. Background

In Hong Kong, China, the Quality Assurance Council (QAC), under the University Grants Committee (UGC), evaluates and improves higher education (HE) institutions' quality [1]. It audits universities to evaluate teaching, learning, governance, and student support mechanisms, aiming to find areas for improvement and promote best practices. Its recommendations guide universities in enhancing educational frameworks. In 2019, the QAC audited Lingnan University (LU), a liberal arts institution. The audit praised LU's governance, the involvement of stakeholders in quality assurance (QA), and student engagement, but also identified issues such as underdeveloped e-learning, ineffective program delivery, flaws in QA mechanisms, and inadequate student feedback collection. The e-learning strategy lacked a structured framework, and the university did not implement comprehensive feedback mechanisms [2].

Quality assurance (QA) in HE is crucial. It ensures educational quality, promotes sustainable development, enhances international competitiveness, and helps students meet industry requirements. However, in practice, it faces challenges such as inconsistent

standards, limited resources, subjective evaluations, and excessive bureaucracy. To address these, strategies include promoting international cooperation, increasing investment, standardizing evaluation, and focusing on substance. This report focuses on four key limitations identified by the QAC at Lingnan University (LU). The proposed solutions blend AI insights and faculty efforts to boost digital learning, student engagement, and feedback systems, enabling LU to meet modern academic needs while keeping a student-centred focus.

1.2. Research Purpose

This study aims to explore the strengths and weaknesses of Lingnan University in governance, course quality assurance, course delivery, and student participation and support services through an in-depth analysis of its quality assurance status. Through analyzing the 2019 QAC audit report of Lingnan University, this study reveals the university's performance in the aforementioned fields and proposes improvement plans that integrate Artificial Intelligence (AI) with human expertise. The study simultaneously emphasizes ethical issues that need to be addressed in AI applications, such as responsibility definition, data privacy, and over-dependence. By balancing AI and human decision-making, it is expected that Lingnan University can improve its quality assurance process, enhance educational quality, and adapt to the digital transformation trend in higher education.

1.3. Research Significance

1.3.1. Theoretical Significance

Currently, there is relatively little research on the application of AI in higher education, especially in the Asian region. This study not only fills the research gap in this field but also enriches the theoretical framework of education quality assurance. It provides a new perspective and theoretical support for higher education institutions on how to effectively utilize AI technology in the context of digital transformation. In addition, the study also explores the mode of collaboration between AI and humans, providing a theoretical basis for the integration of future educational technology and educational practice.

1.3.2. Practical Significance

It proposes specific improvement strategies for the quality assurance of Lingnan University, such as developing a hybrid data analysis platform and an AI-assisted strategic plan for online learning. These strategies not only help solve the current problems faced by LU, but also provide practical experience for other higher education institutions to learn from. In addition, the study also emphasizes ethical issues that need to be addressed in AI applications, such as responsibility definition, data privacy, and excessive dependence, and proposes corresponding solutions, providing practical guidance for higher education institutions on how to balance technology and ethics in AI applications.

2. Literature Review

2.1. The Importance of QA

Quality Assurance (QA) is crucial in the higher education as it ensures educational quality, promotes sustainable development, enhances international competitiveness, and helps students meet industry demands. Universities worldwide regard QA as a key priority for maintaining and enhancing the quality of their academic programs. Two decades ago, the US federal government mandated that accreditation organizations — the primary mechanism for quality assurance in higher education in the United States — review institutions' practices in assessing student learning outcomes [3]. With the development of the times, globalization and popularization have posed new challenges to higher education,

and many countries have begun to try new forms of quality assurance. For example, Australia and Ireland have adopted new national qualification frameworks to provide international recognition of academic degrees, help graduates compete in the global market, and promote external quality assurance [4,5].

The new quality assurance framework in Ontario, Canada, attempts to balance multiple demands by integrating accountability and curriculum improvement, and aims to use Degree Level Expectations as a mechanism to link curriculum enhancement with measuring the impact of university education on students [6]. Helsinki University in Finland has adopted a series of internationalization strategies to continuously improve its quality assurance system. These include collaborating with leading international universities and research institutions, and actively participating in organizations such as the European University Association (EUA), thereby enhancing the internationalization of its quality assurance system [7,8]. Meanwhile, Bogue pointed out that quality assurance is not only a matter of technical systems, but also involves individual moral and ethical dimensions [9]. For example, the moral dimension of quality assurance is reflected in the efforts of administrative personnel and faculty members to uphold educational standards and address academic misconduct. Therefore, Quality Assurance is a complex and multidimensional challenge that requires finding a balance between technological systems and personal values to better contribute to the quality of higher education.

2.2. The Current Status of Artificial Intelligence Assisted Teaching

The application of Artificial Intelligence (AI) in higher education quality assurance has an enormous impact. It can significantly improve the quality of education, optimize the teaching process, and enhance students' learning experience. The use of AI technologies in higher education is rapidly expanding, particularly in China and the United States. The wide range of applications of AI, from language learning to student management, demonstrates its diverse potential in higher education [10]. Li and Xie noted that the emergence of Generative Artificial Intelligence (Gen AI) has introduced new opportunities and challenges to the quality assurance of higher education [11]. They proposed a collaborative strategy combining Gen AI and artificial solutions, as well as suggestions for strengthening interdisciplinary cooperation, continuous monitoring, and international exchange.

Next, Akinwalere and Ivanov clearly explained how AI can be used to improve learning outcomes. They provided examples demonstrating how AI technology helps education systems leverage data to enhance equity and quality in higher education, thereby promoting the sustainable development of education. In addition, AI-assisted teaching also plays an important role in secondary schools [12]. Li et al. explored the behavior, motivation, and attitudes of middle school students using ChatGPT, emphasizing the importance of educational activities and proposing that ChatGPT can serve as an academic aid tool, providing instant answers and explanations to help students improve their academic abilities [11,13]. However, a major application of AI in higher education is learning analytics, which predicts students' behavior and performance through big data and machine learning. Most research in this field is conducted by computer scientists and has not yet been widely implemented in higher education institutions [14]. Consequently, Bearman et al. also pointed out that the development of AI requires the higher education sector to rethink its definition, responsibilities, and teaching practices [15]. Therefore, researchers need to further investigate the discourse, responsibility allocation, and impact of AI on teaching and learning.

3. The Summaries of Four Sections of QAC Audit Report

Four key aspects from sections of the QAC report were analyzed by ChatGPT. The analyzed aspects and their corresponding codes are shown below in Table 1. Additionally, the contents of the AI-generated summaries and human analyses are presented in Table 2.

Table 1. The Code of Key Aspects from QAC.

Key Aspects	Original Code in QAC	New Code
Governance, Management, University Planning and Accountability	The First Aspect	Section 1
Approach to Programme Quality Assurance	The Second Aspect	Section 2
Programme Delivery, Including Pedagogical Approaches, Learning Environments and Resources, Scheduling	The Fourth Aspect	Section 3
Student Participation and Student Support Services	The Seventh Aspect	Section 4

Table 2. The AI Summarized Key Aspects and Human-Made Accuracy Analysis.

AI Summarized	Human Made (Accuracy Analysis)
Section 1: Governance, Management, University Planning and Accountability Governance Structure and Changes: LU's governance of Lingnan Institute of Further Education (LIFE) aims to set strategic directions and oversee QA. The 2017 merger of LIFE and Community College at Lingnan University (CCLU) was a major change, with LU Council now having closer oversight. However, there are still some unclear aspects in the governance relationships between LU Council, LU Senate, and LIFE's Board of Governors, especially regarding academic award approvals. For example, the Board of Governors' role as the supreme governing body' and its accountability to LU Council need to be clarified to ensure consistency with relevant ordinances and statutes. Leadership and Committee Structure: The role of the Supervisor of the Director of LIFE has been important for communication but has potential conflicts. The committee structure within LIFE is complex, considering its limited resources, and needs review to ensure efficient functioning. This includes examining terms of reference, membership, and effectiveness evaluation methods. Performance Monitoring: While LU's Strategic Plan includes SD operations, it requires stronger Key Performance Indicators (KPIs) to track LIFE's progress. Currently, there are only two KPIs related to curriculum development, lacking quantitative measures and alignment with LU's strategic objectives. Additionally, data analysis systems for monitoring and enhancing LIFE's performance need improvement.	AI has done a quite good job to summarize the key aspects of QAC report. However, it still lacks of some in-depth details and needs to be adjusted by human. For example, about the 2017 merger of LIFE and CCLU, AI highlights the lack of clarity regarding academic award approvals among the LU Council, LU Senate, and LIFE's Board of Governors, but overlooks the pre-merger limitations in LU Council's oversight under the dual-structure and how the post-merger scenario enhanced strategic decision-making and enrollment management. When it comes to degree awarding and duty fulfillment, AI simply notes that the LU Senate fails to fully discharge its responsibilities without detailing the transfer process of the degree-awarding review power for LIFE students and the relevant regulatory framework. Regarding management positions and committee structures, AI emphasizes optimizing the committee structure from a resource-utilization perspective without elaboration of the purpose and projected lifespan of the position. Concerning strategic planning and performance indicators, AI merely states the requirement for more robust KPIs to monitor LIFE's progress without itemizing specific issues.

Section 2: Approach to Programme QA QA Framework: LU emphasizes the quality of LIFE's programs and has similar QA processes for SD and degree-level programs. LIFE has adapted LU's QA framework, but it lacks systematic external input in areas like program design and review. For instance, while there are some examples of external professional input, it is not a result of consistent QA policies. Implementation of Outcome-based Approach to Teaching and Learning (OBATL): LIFE is implementing the OBATL, but understanding among staff varies. Some intended learning outcomes are poorly worded, and the links between assessment strategies and learning outcomes are sometimes weak. A comprehensive plan is needed to ensure staff have a deep understanding of OBATL. Data Collection and Benchmarking: LIFE collects data on program quality through various means such as student evaluation surveys and annual program reports. However, data analytics is in the early stages, and benchmarking at the program level is also at an early stage. There is a need to develop procedures for benchmarking with peer institutions to improve program quality.	Regarding program QA, AI simply points out the absence of systematic external input without specific details. For the implementation of the OBATL, AI presents a more generalized description without demonstrating the varying levels of teacher understanding through examples like poorly-worded learning outcomes and tenuous links between assessment strategies and learning outcomes. In data collection and analysis, AI generally indicates that data collection and benchmarking are in the initial phase and require reinforcement without elaborating on diverse data-collection methods and existing issues.
Section 3: Programme Delivery, Including Pedagogical Approaches, Learning Environments and Resources, Scheduling Learning Environments and Resources: LIFE recognizes the importance of suitable learning environments and resources. It has a dedicated building with facilities like a learning resource centre and access to LU's facilities. However, e-learning is in an early stage of development, and there is no systematic approach to promoting it. For example, e-learning activities mainly involve using the virtual learning environment for administrative purposes and uploading teaching materials. Pedagogical Approaches: LIFE aims to adopt teaching approaches that align with program design and curriculum. While it uses methods like small-class teaching and practical learning, the pedagogical repertoire is somewhat limited, relying heavily on lectures and traditional assessments. This does not fully reflect the learning-centredness of OBATL. QA of Programme Delivery: Annual Programme Reports (APRs) and Periodic Programme Reviews (PPRs) are the main mechanisms for enhancing	Concerning the learning environment and resources, AI offers a more concise summary of learning environments and resources. AI also directly indicates that e-learning is in its infancy and lacks a systematic promotion approach without describing in detail the current state. When it comes to program delivery, AI simply states that the teaching repertoire is restricted and relies heavily on traditional methods without providing detailed insights into the mono-form teaching methods and their incongruence with the OBATL concept based on teacher and student feedback. AI didn't offer to introduce the feedback-collection methods and the role of APRs and PPRs in enhancing program delivery in detail.

program delivery. PPRs are more systematically followed through than APRs. These reviews help in evaluating program delivery and making improvements, but there is still room for enhancing the implementation of OBATL and broadening the range of pedagogical approaches.	
Section 4: Student Participation and Student Support Services Student Participation in Governance: LIFE is committed to student participation in governance, but constitutional issues have led to the absence of student representatives on the Academic Committee in 2018/19. The university and LIFE are taking steps to address this and encourage student engagement in governance activities. Student Support Services: LIFE provides a wide range of support services, including counselling, career planning, and language enhancement. It also offers extracurricular activities like the Life Enrichment and Appreciation Programme (LEAP) to promote whole person development. These services are well-designed and valued by students, but participation rates in some activities, such as service-learning tours, could be increased. Monitoring and Evaluation: The Student Development Office (SDO) tracks participation rates in activities, but there is a lack of evaluative data. Student feedback on LEAP and the Language Enhancement Programme (LEP) is generally positive, but there is a need to strengthen data collection and analysis, such as adding comment sections to feedback instruments and developing a new student learning experience survey.	In the area of student participation and student support services, AI mentions that constitutional issues led to the absence of student representatives in 2018/19 without specifying the unresolved constitutional issues. For student support services and activities, AI offers a brief description and lists various services and activities in detail without pointing out the low participation rate in service-learning tours. In activity evaluation and improvement, AI points out the Student Development Office (SDO) tracks participation rates and lacks evaluation data. AI also generally states that data collection and analysis need to be enhanced, and new survey tools need to be developed, but without specific measures to develop new survey tools and improve feedback mechanisms.

4. Strengths and Limitations of Each Section

4.1. Section 1: Governance, Management, University Planning and Accountability

Senior management is focusing on improving enrolment and reducing the budget deficit. Decision-making is improving due to governance and management reforms. Academic oversight and strategic planning focus on undergraduate education and KPI development. LU and LIFE are managing enrolment well.

They provide a stable economic base for SD activities, meet targets and reduce the budget deficit. LU has tighter control over LIFE's operational decisions. Following their merger in 2017, LIFE strengthened its financial base and made better strategic choices. LIFE's AC & LU Senate's SCAQA are reviewing LIFE's academic policy. Work on new quantitative metrics to monitor the Strategic Plan's progress continues.

Governance relationships and conflicting leadership roles are unclear. Committee structure inefficient; KPIs and data analysis weak. Difficult to assess contributions to strategic goals. Who's in charge at LU? Board of Governors described as 'supreme governing

body', but LU Statute 6 says it's the University Council. The LU Senate is not properly performing its duties related to sub-degree programs. Currently, only Board of Governors decisions are recorded, not all powers. The role of "Supervisor of the Director of LIFE" creates conflicts and reduces position value. LIFE is small with limited resources. Its current structure has a disproportionate number of committees, and plans to add at least one more. This can lead to inefficiencies. LIFE's plan includes only two KPIs related to curriculum development, lacks comprehensive performance measures, and contains inconsistent KPIs. Underdeveloped data systems make it hard to track LIFE's contribution to the university's strategic objectives.

4.2. Section 2: Approach to Programme QA

The institution's commitment to quality is evident in its data collection, student feedback mechanisms and review and improvement initiatives. LU's LIFE programmes are guided by written policies that define objectives and monitor quality. LIFE staff use various methods to collect relevant data, such as staff/student meetings and student assessment surveys. These data sources provide a comprehensive perspective on programme quality. CTLE data are used to measure student satisfaction. APR and PPR are part of the programme's formal evaluation. LIFE has active SSCCs with formal guidelines, and records show changes made following student feedback. This shows that their views are being listened to. LIFE carries out reviews, after which plans are made to improve the programmes. PPRs have been successful in identifying areas for improvement in AD programmes.

However, shortcomings are emerging. OBATL implementation is incomplete, external involvement in quality assurance is weak, data aggregation and analysis is ineffective, and programme-level benchmarking is in its early stages. Staff perceptions of OBATL's impact are mixed. There are issues such as ineffective ILOs and links between evaluation strategies and ILOs. Staff members must gain a thorough understanding of OBATL and its implementation. LIFE's QA policies and procedures do not systematically integrate input from industry, employers and academic stakeholders. External input often reflects individual opinions rather than formal institutional feedback. External perspectives should be integrated more systematically. Data at institutional level is poorly linked to data collected at course level. Better analysis of data is needed, for example on pass, probation and drop-out rates. Benchmarking at the programme level is still at an early stage within LIFE. It does not have procedures for establishing benchmarking relationships. This limits its ability to compare programme design, content and delivery.

4.3. Section 3: Programme Delivery, Including Pedagogical Approaches, Learning Environments

LIFE's strengths lie in its learning environment, diverse teaching methods, effective feedback and improvement mechanisms. Its own campus building has a Learning Resource Centre and a Self-Access Language Centre, and students also have access to LU's extensive facilities. LIFE programmes use a variety of teaching methods: small classes, projects and practical learning. Students and alumni say that small classes are good for learning. Students, employers and guidance counsellors also say that work placements and internships are valuable as they provide practical and hands-on experience. LIFE also uses effective feedback mechanisms. Feedback on teaching and learning is collected through the SSCCs and CTLE. It is presented in the APR and PPR. PPR committees' recommendations on student issues help improve programmes.

OBATL has gaps in implementation. Pedagogical methods are limited, e-learning is underdeveloped, and there is a lack of strategic vision. As of the 2018/19 academic year, LIFE had not implemented the OBATL. There is little detail on OBATL in the QMH, which focuses on mapping rather than programmes. OBATL is not mentioned in the Academic Regulations, highlighting its incomplete integration. LIFE's teaching methods are mainly lectures, tests and exams, which contradicts the student-centred approach of OBATL. This

requires new pedagogical strategies to meet OBATL's needs and improve learning. LIFE's e-learning is in its infancy with no development strategy and staff need better teaching methods. E-learning is limited to uploading teaching materials, which fails to exploit its full potential. LIFE must define clear teaching strategies and learner experience. LIFE should focus on implementing the OBATL, diversifying teaching methods, and investing in e-learning to improve programme quality.

4.4. Section 4: Student Participation and Student Support Service

LIFE's focus is on the development of the whole student, providing support and ensuring positive experiences through student involvement in governance. LIFE is committed to the holistic development of its students, offering a wide range of extra-curricular activities and support services. LEAP helps broaden students' horizons, while LEP effectively develops their language skills. Both are important for overall student development. LIFE's SDO provides support services, including counselling, orientation, peer mentoring and service learning abroad. Special attention is given to overseas and SEN（Special Educational Needs）students. LIFE values student involvement in governance, with representation on committees. Students are positive about the extra-curricular activities and support services. LEAP and LEP activities meet student needs and enhance learning.

The Academic Committee lacks student representation. Participation in service learning is low, as is assessment data and incomplete feedback. In 2018/19 there was no student representation due to constitutional issues, weakening student influence in academic governance. Resolving this is essential for inclusive decision-making. Participation in learning trips is currently low. Participation in experiential and community-based learning trips remains low, and efforts are needed to increase student engagement in these valuable opportunities. The SDO only monitors participation, not effectiveness. This hampers improvement of LEAP and LEP services and activities. There is no comments section in the feedback collection mechanism. This prevents students expressing views, making improvements difficult.

5. AI-Proposed Solution to One Limitation and the Evaluation on Solutions AI-Proposed via Traditional Research Method in Each Section

The human-made evaluation on the solution AI-proposed can be seen in Table 3.

Table 3. Human-Made Evaluation.

AI Proposed Solution	Human Made (Evaluation: Flexibility, Efficacy, Pro and Con)
In Section 1: Weak KPIs and Data Analysis The current strategic plan for LIFE has only two KPIs, both related to curriculum development, with no quantitative performance evaluation measures. There is a lack of alignment between LU and LIFE's KPIs, and underdeveloped data analysis systems for monitoring and enhancing LIFE's performance, making it hard to track LIFE's contributions to the university's strategic objectives. The AI-proposed solution is to develop a comprehensive data analytics platform. Machine learning algorithms can analyze data from sources	Addressing the limitation involves developing a comprehensive data analysis platform using machine learning algorithms to analyze enrolment, student performance, and financial data for customized KPIs alignment with LU's goals and real-time insights. In terms of feasibility, data availability exists in many institutions [16], but data integration and privacy issues [17] should be resolved. Technical capabilities vary. While universities use IT, advanced machine-learning skills are required. Organizational preparation is also crucial because institutional change requires stakeholder acceptance [18]. Regarding efficacy, it can enhance decision-making by providing data-driven insights for allocating resources [19] and enabling continuous performance monitoring. It is in line with the trend of HE accountability [16]. The advantages include improved strategic alignment, positive planning, and data-driven responsibility. However,

like enrolment numbers, student performance, and financial data. This will generate customized, quantitative KPIs for LIFE that align with LU's strategic goals. Predictive models can forecast enrolment trends, and these KPIs can be integrated into a dashboard for real-time performance insights.	there are drawbacks. Data quality and bias can mislead decision-making [20]. Additionally, over-reliance on technology has led to the neglect of human judgment in educational decision-making [21].
In Section 2: Weak External Engagement in QA In this aspects, the limitation is the incomplete implementation of the OBATL. Staff have an uneven understanding of its impact on curriculum design, pedagogy, student learning assessment, and programme evaluation. There are issues like poorly worded intended learning outcomes and weak links between assessment strategies and ILOs. A comprehensive plan is needed. The AI-proposed solution is to develop an AI-powered training and support system. Natural language processing (NLP) algorithms can analyze curriculum documents, intended learning outcomes, and assessment strategies to find areas for improvement. The system can provide personalized training modules for staff based on their knowledge gaps, recommend relevant resources, and monitor their progress over time, adjusting the training content accordingly.	The AI-proposed solution has feasibility. The current trend of digital transformation in HE indicates that many institutions are already investing in digital infrastructure and data-related technologies [22]. It provides a basic technological foundation for implementing an AI-powered system. However, the successful implementation depends on the availability of high-quality curriculum documents, expected learning outcomes, and assessment strategies in digital format. As pointed out by Hou et al. that some institutions struggle with the management and quality of data. Also, the degree of staff acceptance is crucial [16]. As Kalmus & Nikiforova argue, some staff were resistant to change and reluctant to use a new AI-based training system [23]. For efficacy, this solution aligns with the current emphasis on data-driven improvement in HE [19]. The AI system can identify specific areas for improvement of implementation of OBATL by analyzing curriculum-related data. The benefits show AI-powered system provides a scalable, effective training method. It delivers on-demand, custom training. Its ability to continuously monitor and adjust training content ensures relevance. This aligns with the concept of continuous improvement in quality management [19].t also provides relevant resources, improving employees' access to the latest information and best practices. However, there are drawbacks. An important issue is the accuracy of NLP algorithms. As discussed by Pashby and Andreotti, algorithms can be biased, leading to incorrect analysis of course materials and learning outcomes [20]. There's also the issue of over-reliance on technology, which can lead to the neglect of human interaction and collaboration in professional development. Implementing and maintaining such an AI system requires significant financial and technical resources. Institutions with limited budgets found it difficult to afford the necessary software, hardware and technical support [17].

In Section 3: Underdeveloped E-learning E-learning in LIFE is in its infancy. There is no systematic institutional strategy to promote and develop it, and currently, it is mainly used for administrative tasks, falling short of its potential. The AI-proposed solution is for AI to assist in creating a strategic e-learning plan. By analyzing teaching and learning data, it can identify courses and learning areas that would benefit from e-learning integration. AI-driven learning management systems can provide personalized learning experiences for students, and AI can also help promote e-learning among staff by providing usage analytics and demonstrating its benefits.	Institutions generate teaching and learning data for QA, which can be used for AI-based identification of suitable e-learning courses. However, the solution's effectiveness hinges on data quality, and implementing AI - driven learning management systems demands significant tech investment and staff training, which is a challenge for some institutions [17]. Regarding efficacy, using AI in e-learning aligns with the HE digital transformation trend [22]. AI can pinpoint ideal e-learning areas, offer personalized learning, and enhance student engagement and outcomes [19] It can also encourage staff to adopt e-learning through usage analytics. This solution has clear benefits, like enabling quick e-learning program development, meeting students' diverse needs, and improving teaching-learning efficiency. But it also has drawbacks. AI systems may face privacy and security issues due to student data sensitivity [17], and over-reliance on technology might reduce crucial learning aspects[21].
In Section 4: Feedback Limitations Feedback collection for LEAP and LEP activities lacks a comment section. This restricts students from fully expressing their thoughts, making it challenging to understand their experiences in depth and make targeted enhancements. The solution generated by AI is to use AI-based sentiment analysis and data mining techniques. By analyzing student feedback from various sources, AI can extract evaluative data, determine students' sentiment, identify common themes, and analyze correlations between student performance and participation in support services. This data can be used to prioritize improvements, allocate resources effectively, and design better-targeted services.	AI solutions leveraging sentiment analysis and data mining for feedback enhancement face feasibility, effectiveness, and trade-off challenges. Digitized education produces vast student feedback data from surveys, online courses, and forums, offering rich sources for AI analysis [22] Privacy and security are important issues. Jooste and Hagenmeier highlighted this in the context of South African HE policy. Ensuring that student data is handled correctly is essential. Furthermore, the effectiveness of AI algorithms depends on the quality and structure of the data. Unstructured feedback data can pose a challenge to accurate analysis [17]. This solution aligns with the current trend of data-driven decision making in HE [19]. By extracting assessment data and identifying common themes, AI can help institutions understand the student experience better. It can reveal areas of dissatisfaction or satisfaction, allowing for targeted improvements. Analyzing the correlation between student performance and support services can also optimize resource allocation. This solution's benefits are clear: rapid, efficient feedback processing enables timely decision-making and improved services. However, sentiment analysis can misinterpret feedback, leading to inaccurate conclusions. Pashby and Andreotti discuss the potential bias in algorithms leading to unfair resource allocation or neglect. AI alone can lack the human review's depth [20].

6. Modified Solution with Explanation and Potential Outcomes

6.1. Weak KPIs and Data Analysis

First of all, developing a hybrid data analysis platform is necessary. Integrate AI-driven data analysis with human expertise to ensure that the KPIs are not only data-driven but also contextually relevant to LU's strategic objectives [16]. Moreover, AI should be used to process large-scale data (e.g., enrollment trends, student performance, financial data) and generate customized KPIs, while human experts review and refine these KPIs to ensure they align with LU's long-term goals [19]. Thirdly, a KPI Review Committee

would be established. A cross-functional committee should be created, comprising senior leadership, academic staff, and data analysts to oversee the development and implementation of KPIs [24]. Lastly, Staff should be cultivated with data literacy. Institutions should provide training programs for staff and faculty to enhance their data literacy and their ability to interpret and utilize data effectively.

The modified solution combines the strengths of AI-driven data analytics with human expertise to address the limitations of weak KPIs and data analysis identified in the QAC report. By developing a hybrid data analytics platform, establishing a KPI Review Committee, and enhancing data literacy among staff, LU can improve governance, strategic planning, and resource allocation. The potential outcomes include increased transparency, better decision-making, and long-term sustainability, positioning LU as a leader in data-driven HE management.

6.2. Weak External Engagement in QA

LU can improve QA processes in several ways. First, an external advisory board should be established to ensure alignment with industry needs and global standards. Second, LU should develop a systematic method for integrating feedback into QA processes, using AI to analyze large volumes of feedback data while relying on human experts to interpret and implement actionable insights. Third, strengthen partnerships with industry through joint initiatives such as internships, research projects and industry-led workshops. These provide students with real-world experience and keep programmes relevant. Fourth, LU should implement a continuous improvement framework that incorporates external feedback. AI can be used to track external recommendations and measure their impact on programme quality, while human experts ensure alignment with LU's strategic objectives. Staff must learn to engage with stakeholders and use feedback in QA processes, so external engagement must be a practice across the institution.

The modified solution will enable LU to improve programme quality, enhance industry collaboration and increase stakeholder engagement. Potential outcomes include better alignment with strategic goals, increased graduate employability and long-term sustainability [25].

6.3. Addressing Underdeveloped E-Learning at LU

The 2019 report on LU's QAC audit found that e-learning had been developed for administration but not learning. To address this issue, e-learning must be student-focused and use modern technology, as suggested by Gui et al. [26].

An AI-based diagnostic tool should be developed to assess LU's digital readiness, analyse data on engagement, adaptability and digital literacy, and identify priority courses for digital transformation. Also develop personalised AI learning pathways for students. Faculty should be trained in digital pedagogy through a structured faculty development programme. Research shows that blended learning models improve student engagement and outcomes [27]. A structured e-learning policy at LU should set out guidelines for digital curricula, faculty training and technology-enhanced assessments. This dual approach ensures that technology enhances rather than replaces interactive learning, while preserving LU's flexibility in small group instruction. Modernising the e-learning framework with AI-powered LMS and curriculum reform will help LU maintain excellence and student-centred values. LU's digital learning environment will be more engaging.

6.4. Enhancing Student Feedback Mechanisms

The QAC Audit Report 2019 noted that evaluation surveys at LU have limitations in the provision of qualitative feedback channels. Without opportunities for open-ended feedback, LU has not maximized its ability to capture students' views in greater depth to improve the curriculum and services. This needs a dual-layered feedback system between

AI and structured human-centered evaluation methods. The first type of component is the instantiation of an AI-powered real-time feedback dashboard [28]. AI can leverage natural language processing (NLP) to analyze sentiment trends and discover recurring issues in course evaluations, student forums, and digital feedback submissions. As this will rapidly point out to LU where they need to spend their intervention resources, they can operate faster and answer more promptly.

The second component adds structured qualitative feedback channels in addition to the AI-driven analysis. LU should establish incorporation of Open-ended response sections, where AI helps categorize responses with faculty doing a deeper qualitative review of student concerns [29]. And LU focus Groups and Advisory Panels for Students to engage directly with faculty and administrators to discuss student feedback, making it contextualized and actionable [30].

The integrated approach improves student voice representation and also strengthens the institutional responsiveness to feedback. Human-centered evaluation ensures LU's liberal arts culture and preserves values of interactive learning and student engagement, along with AI for efficient data processing. LU brings embedded structured qualitative insights into decision-making, sustaining a continuous improvement cycle in teaching effectiveness, student satisfaction, and overall academic quality.

7. Reflection on AI vs Human

7.1. Reflection on Solutions Proposed by AI and Human

AI offers innovative solutions for educational development, but its suggestions lack in-depth detail and overlook operational difficulties such as data format differences and update frequency issues during data integration. Also, AI-proposed solutions often rely too heavily on technological capabilities and have insufficient feasibility assessments, such as when developing training systems for OBATL implementation without considering data quality and employee acceptance.

Human-proposed solutions are more grounded in experience and traditional research. They are less innovative but can better integrate with existing systems and promote improvement measures. Humans can analyze problems in practical scenarios, like pointing out pre-merger governance structure limitations and degree-granting review power transfer details. When proposing solutions, humans consider resources, personnel, and culture; optimizing LIFE's committee structure based on its **resource constraints** is more feasible.

7.2. AI-Related Ethical Issues

When using AI, aside from balancing its and humans' roles in decision - making, ethical issues must be considered. One major concern is the difficulty in assigning responsibility when AI-made decisions cause problems. In an AI-driven learning management system with incorrect learning paths, it's hard to say if developers, data providers, or users are at fault. Relevant laws and systems are needed, and model transparency is crucial [31].

Another issue is privacy. AI training and application rely on a lot of data, including sensitive personal information. Using AI for student feedback analysis may invade student privacy. "Therefore, institutions must have strict data management and protection mechanisms". Moreover, over-dependence on AI should be avoided. In education, over-relying on AI analysis can neglect human educational experience and judgment, weakening educators' professional abilities. Thus, we should use AI rationally, keep human dominance, and make sure AI serves educational goals [32].

8. Conclusion

The QAC audit of LU in HK highlighted various strengths and limitations across different aspects of the institution. The QAC's role in evaluating and enhancing HE quality is significant, but its implementation faces challenges such as standard discrepancies,

resource constraints, subjective reviews, and over-formalization. AI-proposed solutions offer innovative approaches, yet they have limitations in feasibility and practicality. Modified solutions that integrate AI with human expertise show promise in addressing issues like weak KPIs, external engagement, e-learning development, and feedback mechanisms. When using AI, ethical issues regarding responsibility, data privacy, and over-reliance must be considered. By balancing AI and human decision-making, LU can improve its quality assurance processes, enhance educational quality, and adapt to the digital transformation trend in higher education.

References

1. C. K. Y. Chan, "Professional development and quality assurance in teaching and learning for Hong Kong higher education," in *The Changing Academic Profession in Hong Kong*, Dordrecht: Springer, 2017, pp. 109–123, doi: 10.1007/978-3-319-56791-4_6.
2. R. K. Chand, O. Darojat, M. Hassan, M. M. Quezada, O. J. Inegbedion, and G. Ubachs, Global Quality Perspectives on Open, Flexible and Distance Learning 2023: Oceania Region. Vancouver: Commonwealth of Learning, 2024.
3. P. Ewell, "Twenty years of quality assurance in higher education: What's happened and what's different?," *Qual. High. Educ.*, vol. 16, no. 2, pp. 173–175, 2010, doi: 10.1080/13538322.2010.485728.
4. D. Dill, "Quality assurance in higher education: Practices and issues," in *The 3rd International Encyclopedia of Education*, 3rd ed., P. Peterson, E. Baker, and B. McGaw, Eds., Oxford: Elsevier, 2010, pp. 377–383. ISBN: 9780080448947.
5. P. G. Altbach and J. Knight, "The internationalisation of higher education: motivations and realities," *J. Stud. Int. Educ.*, vol. 11, no. 3/4, pp. 290–305, 2007, doi: 10.1177/1028315307303542.
6. K. Nicholson, "Quality assurance in higher education: A review of the literature," *Council of Ontario Universities Degree Level Expectations Project*, McMaster University, Jan. 3, 2011.
7. J. Ursin, M. Huusko, H. Aittola, U. Kiviniemi, and R. Muhonen, "Evaluation and quality assurance in Finnish and Italian universities in the Bologna process," Qual. High. Educ., vol. 14, no. 2, pp. 109-120, 2008, doi: 10.1080/13538320802278222
8. A. Y. C. Hou, R. Morse, and W. Wang, "Recognition of academic qualifications in transnational higher education and challenges for recognizing a joint degree in Europe and Asia," *Stud. High. Educ.*, vol. 42, no. 7, pp. 1211–1228, 2017, doi: 10.1080/03075079.2015.1085010.
9. E. G. Bogue, "Quality assurance in higher education: the evolution of systems and design ideals," *New Dir. Inst. Res.*, no. 99, pp. 7–18, 1998, doi: 10.1002/ir.9901.
10. H. Crompton and D. Burke, "Artificial intelligence in higher education: the state of the field," *Int. J. Educ. Technol. High. Educ.*, vol. 20, no. 1, p. 22, 2023, doi: 10.1186/s41239-023-00392-8.
11. Y. Li and M. Xie, "Navigating international challenges of quality assurance in higher education: a synergy of Gen-AI and human-made solutions," *GBP Proc. Ser.*, vol. 3, pp. 186–192, 2025, doi: 10.71222/bk845x09.
12. S. N. Akinwalere and V. Ivanov, "Artificial intelligence in higher education: challenges and opportunities," *Border Crossing*, vol. 12, no. 1, pp. 1–15, 2022, doi: 10.33182/bc.v12i1.2015.
13. R. Yang, "Research on motivation and behavior of ChatGPT use in middle school students," *Int. J. New Dev. Educ.*, vol. 5, no. 19, pp. 69–77, 2023, doi: 10.25236/IJNDE.2023.051911.
14. T. Bates, C. Cobo, O. Mariño, and S. Wheeler, "Can artificial intelligence transform higher education?," *Int. J. Educ. Technol. High. Educ.*, vol. 17, pp. 1–12, 2020, doi: 10.1186/s41239-020-00218-x.
15. M. Bearman, J. Ryan, and R. Ajjawi, "Discourses of artificial intelligence in higher education: a critical literature review," *High. Educ.*, vol. 86, no. 2, pp. 369–385, 2023, doi: 10.1007/s10734-022-00937-2.
16. A. Y. C. Hou et al., "The implementation of self-accreditation policy in Taiwan higher education and its challenges to university internal quality assurance capacity building," *Qual. High. Educ.*, vol. 24, no. 3, pp. 238–259, 2018, doi: 10.1080/13538322.2018.1553496.
17. N. Jooste and C. Hagenmeier, "Policy framework for the internationalisation of higher education in South Africa: a compass for comprehensive internationalisation?," *J. Stud. Int. Educ.*, vol. 26, no. 4, pp. 415–435, 2022, doi: 10.1177/10283153221105318.
18. J. K. Hudzik, "Changing paradigm and practice for higher education internationalisation," in *An Introduction to Higher Education Internationalisation*, F. Maringe and N. Foskett, Eds. London: Routledge, 2013, pp. 47–60. ISBN: 9788834324455.
19. K. Nasim, A. Sikander, and X. Tian, "Twenty years of research on total quality management in Higher Education: A systematic literature review," High. Educ. Q., vol. 74, no. 1, pp. 75–97, 2020, doi: 10.1111/hequ.12227.
20. K. Pashby and V. de Oliveira Andreotti, "Ethical internationalisation in higher education: interfaces with international development and sustainability," *Environ. Educ. Res.*, vol. 22, no. 6, pp. 771–787, 2016, doi: 10.1080/13504622.2016.1201789.
21. S. Stein, "Critical internationalization studies at an impasse: making space for complexity, uncertainty, and complicity in a time of global challenges," *Stud. High. Educ.*, vol. 46, no. 9, pp. 1771–1784, 2019, doi: 10.1080/03075079.2019.1704722.

22. H. de Wit, "Internationalisation of higher education: an introduction on the why, how and what," in *An Introduction to Higher Education Internationalisation*, H. de Wit, Ed. Milan, Italy: Centre for Higher Education Internationalisation, Università Cattolica del Sacro Cuore, pp. 13–46, 2013. ISBN: 9788834324455.
23. J. E. Kalmus and A. Nikiforova, "To accept or not to accept? An IRT-TOE framework to understand educators' resistance to generative AI in higher education," *arXiv preprint*, arXiv:2407.20130, 2024, doi: 10.48550/arXiv.2407.20130.
24. A. Y. C. Hou, C. Hill, K. H. J. Chen, and S. Tsai, "A comparative study of international branch campuses in Malaysia, Singapore, China, and South Korea: regulation, governance, and quality assurance," *Asia Pac. Educ. Rev.*, vol. 19, no. 4, pp. 543–555, 2018, doi: 10.1007/s12564-018-9550-9.
25. A. Y. C. Hou, "Quality assurance of joint degree programmes: what Asia can learn from Erasmus Mundus joint degree programmes in Europe," *Globalisation Soc. Educ.*, vol. 18, no. 1, pp. 19–29, 2020, doi: 10.1080/14767724.2019.1690083.
26. G. Gui, Y. Li, and Y. Lin, Eds., *E-Learning, E-Education, and Online Training: 9th EAI International Conference, ELEOT 2023, Yantai, China, August 17-18, 2023, Proceedings, Part III*, vol. 545. Cham, Switzerland: Springer Nature, 2024. ISBN: 9783031514715.
27. Y. Chen, A. Y. C. Hou, and L. Huang, "Development of distance education in Chinese higher education in perspectives of accessibility, quality and equity under COVID-19," *Asian Educ. Dev. Stud.*, vol. 11, no. 2, pp. 356–365, 2022, doi: 10.1108/aeds-05-2020-0118.
28. K. Guo, M. Pan, Y. Li, and C. Lai, "Effects of an AI-supported approach to peer feedback on university EFL students' feedback quality and writing ability," *Internet High. Educ.*, vol. 63, p. 100962, 2024, doi: 10.1016/j.iheduc.2024.100962.
29. R. F. Kizilcec et al., "Perceived impact of generative AI on assessments: comparing educator and student perspectives in Australia, Cyprus, and the United States," *Comput. Educ. Artif. Intell.*, vol. 7, p. 100269, 2024, doi: 10.1016/j.caeai.2024.100269.
30. M. J. Danner, J. Kinzie, J. W. Pickering, and T. M. Paredes, *Using Focus Groups to Listen, Learn, and Lead in Higher Education*. New York, NY: Routledge, 2018. ISBN: 9781003448563.
31. M. Busuioc, "Accountable artificial intelligence: holding algorithms to account," *Public Adm. Rev.*, vol. 81, no. 5, pp. 825–836, 2020, doi: 10.1111/puar.13293.
32. F. Pedro, M. Subosa, A. Rivas, and P. Valverde, *Artificial Intelligence in Education: Challenges and Opportunities for Sustainable Development*, UNESCO, 2019.