Exploring the Mediatory Effect of Academic Quality on Computer-Based Examinations and Student Satisfaction of State Universities in Sri Lanka: A Concept Paper

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ABSTRACT

This concept paper outlines a future study investigating the mediating role of academic quality in the relationship between computer-based examination and student satisfaction in Sri Lankan state universities. Students, as the primary beneficiaries of educational services, require a high level of satisfaction with academic activities provided by universities. In this context, maintaining academic quality is essential for fostering students' satisfaction. The effectiveness of educational services hinges on their capability to meet established quality standards, which students recognize and appreciate as an effective educational experience. Notably, the way of delivering academic activities, including examination, influences academic quality. Students highly consider how examinations are conducted to ensure their satisfaction with the process, as examinations are one primary method of assessing their performance. The initiatives implemented during the COVID-19 pandemic have led to a significant transformation in examination methods, with traditional examinations shifting to computer-based examinations. This underscores the importance of conducting a thorough inquiry into their effect. While prior research has extensively explored shifts in lecture modes, the effects of examination modalities on academic quality and student satisfaction remain underexplored. This study seeks to address this gap by examining the effect of computer-based examinations on student satisfaction through academic quality and developing a robust conceptual framework for future research, reviewing the literature. A deductive research approach will be employed, utilizing a structured online questionnaire to gather data from students. The study will employ descriptive statistical analyses, including charts, tables, and summary measures to provide a clear understanding of the sample characteristics. Structural equation modelling (SEM) will be used to test the proposed conceptual framework. The findings of this future study are expected to provide critical insights into computer-based examinations, academic quality, and student satisfaction in state universities.

Keywords: Academic quality, Computer-Based Examination, Student satisfaction.

INTRODUCTION

Higher education plays a pivotal role in fostering intellectual development, equipping individuals with essential skills, and contributing to societal advancement by preparing them for the complexities of an ever-evolving world. Student satisfaction serves as a critical metric for assessing academic success and institutional performance, particularly in universities, as it reflects the extent to which students' expectations align with their educational experiences. Cornillez (2019) underscores student satisfaction as a vital quality indicator in higher education institutions. Satisfied students demonstrate greater engagement, improved academic performance, and a stronger commitment to their studies, leading to enhanced retention rates and positively impacting institutional reputation. Thus, identifying and addressing the attributes students perceive as high-quality may support academic staff to tailor offerings to meet student-oriented expectations effectively. The quality of higher education is fundamental to shaping student satisfaction and institutional success, encompassing two critical dimensions: "Academic Quality" and "Service Quality." Academic quality focuses on achieving desired learning outcomes through the acquisition of knowledge and skills in specific domains. Key academic activities, such as engaging lectures, comprehensive assessments, impactful projects, rigorous research, and practical evaluations, play a pivotal role in ensuring academic rigor. On the other hand, service quality encompasses the institutional

services provided to students, both tangible and intangible. This includes faculty interaction, university facilities, and the institution's reputation, all of which significantly influence student satisfaction, reputation and institutional success (Saleem et al., 2017). While considerable attention has been devoted to the concept of service quality (Aslam et al. (2023), Nadela et al. (2023), etc.) the literature reveals a notable gap in exploring academic quality. This serves as the primary motivation for the study. When considering academic activities, examinations are crucial as universities evaluate the students' performance through the examinations. Constructive alignment between assessment and learning objectives improves educational outcomes (Biggs & Tang,2020). This study, therefore, emphasizes the role of examinations within the broader scope of academic activities. Basically, in Sri Lanka, continuous assessments, mid-semester examinations and end-semester examinations can be seen in the state university system as the performance evaluation methods.

UNESCO (2020) highlights how curricula geared toward global competencies improve preparedness for the modern workforce. This shows that students expect more practical orientation in education and adaptability to adapt to modern techniques. Previously, most of the academic activities were conducted in highly physical modes. With COVID-19, most countries transitioned to online education platforms as the primary means of providing educational services during that time. This shift involved using various tools, such as Zoom, Google Classroom, and Microsoft Teams. The usage of computer platforms for examinations has also increased. Many scholars studied students' perceptions of this change. However, the initiative that began with the COVID-19 pandemic has continued, and now it has become a trend in adapting to modern techniques. Binsaif et al. (2021) mentioned that numerous universities around the globe have begun transitioning to computerized systems because of specific drawbacks associated with paper-based examinations, including human errors in grading answer sheets and bias marking, wastage of resources, and student satisfaction issues. Since Sri Lanka aims to be a global educational hub, it recognizes high student mobility and digital learning as key factors for improving student satisfaction in higher education (Chandramohan, 2019). Therefore, most of the Sri Lankan universities practice hybrid methods for their academic activities. Examinations are also conducted in blended ways. Since performance evaluation is one of the critical academic activities, the way of conducting the examinations needs to be considered when deciding the academic quality. Kharbat & Daabes (2021) found that most students were dissatisfied with online examination tools during the COVID-19 pandemic and preferred not to continue using them. Said (2021) reported no significant difference in students' grades despite the sudden shift to online education and that the unplanned transition did not lead to a poor learning experience as anticipated. Binsaif et al. (2021) concluded that computer-based exams are perceived as fairer than paper-based ones, as they eliminate human grading bias, reduce stress, and enhance student performance. It's apparent that the method of administering examinations is closely linked to student satisfaction and the overall quality of their academic experience. In the context of Sri Lankan state universities, students face several practical challenges during computer-based examinations, primarily stemming from issues related to infrastructure and digital access. However with these situations numerous studies have examined the relationship between student satisfaction, service quality, and online education. Saleem et al. (2017) found a positive correlation between service quality and student satisfaction. Onditi and Wechuli (2017) and Cornillez (2019) explored the link between instructional quality and student satisfaction. Peñalvo et al. (2021) studied the impact of COVID-19 on higher education, while Nadela et al. (2023) focused on how service quality dimensions affect student satisfaction. Perera and Abeysekera (2019) examined the connection between service quality and student satisfaction using SERVQUAL dimensions. Said (2021) analyzed the impact of the shift to online learning during the COVID-19 lockdown, and Acharya et al. (2021) found that most students were dissatisfied with online classes during the pandemic. While many studies focus on student satisfaction, service quality, and online education, there is a noticeable gap in research concerning the examination modes in higher education. As a whole, how academic services are delivered places significant importance on student satisfaction, including the methods used to conduct examinations when considering academic quality. Students have different perspectives towards computer-based examinations. The mediatory effect of academic quality on the relationship between computer-based examinations and student satisfaction remains underexplored clearly. This knowledge gap highlighted the need to understand students' perspectives on the fairness of computer-based examinations. To address these the following research questions were developed.

1. What is the role of computer-based examinations on the student satisfaction of state universities in Sri Lanka?

2. What is the role of academic quality in the relationship between the computer-based examinations and the student satisfaction of state universities in Sri Lanka?

To address this lacuna, this study aims to investigate the mediating effect of academic quality on the relationship between computer-based examinations and student satisfaction. Based on this objective few specific objectives were developed as follows.

1. To analyze the effect of the computer-based examinations on the student satisfaction of state universities in Sri Lanka.

2. To explore the effect of the computer-based examinations on the academic quality of state universities in Sri Lanka.

3. To explore the effect of the academic quality on the student satisfaction of state universities in Sri Lanka.

4. To examine the mediating effect of academic quality on the relationship between the computer-based examinations and the student satisfaction of state universities in Sri Lanka.

State universities in Sri Lanka are playing a central role in the country's higher education system, enrolling the vast majority of undergraduate students under the governance of the University Grants Commission. These institutions are publicly funded, making them key implementers of national education policies, including the recent push toward digital transformation and the adoption of computer-based examinations. Unlike private institutions, state universities operate within standardized academic and administrative frameworks, allowing for more consistent evaluation of academic quality and student satisfaction. Focusing exclusively on state universities ensures that the findings are both relevant to the broader public education sector and aligned with national priorities aimed at improving educational outcomes through technological integration. Therefore, this study is contextualized within the state universities in Sri Lanka, providing an in-depth exploration of this understudied area. This inquiry is particularly timely and relevant, given the evolving dynamics of higher education in the post-pandemic era. By investigating this relationship, universities can identify how assessment practices influence satisfaction and engagement, ensuring that they align with the needs and expectations of students. Moreover, the findings can provide actionable insights for policymakers to enhance teaching methods, assessment strategies, and quality assurance processes, fostering a more student-centred educational environment. This study is particularly relevant for Sri Lanka, where understanding the unique cultural and institutional context can drive reforms to improve academic standards and global competitiveness.

LITERATURE REVIEW

Higher Education

Higher education, as highlighted by UNESCO, serves as a critical cultural and scientific asset that fosters personal development and drives economic, technological, and social progress. It promotes knowledge exchange, research, and innovation while equipping students with skills to navigate ever-changing labour markets (UNESCO, 2024). Over recent decades, higher education has undergone significant transformation, marked by increasing enrollment, student mobility, diverse educational offerings, and technological integration. With 254 million students globally enrolled in universities, a figure that has more than doubled in 20 years, globalization has intensified competition among higher education institutions (UNHCR Education Report, 2021). In this competitive landscape, universities are compelled to adopt market-oriented strategies to attract students by meeting their needs and expectations (Weerasinghe & Fernando, 2017) while giving them the best academic services. Higher education’s purpose, as outlined by Chankseliani et al. (2021), extends beyond academic achievement to provide individuals with the opportunity to discover their interests and aspirations. Since students are the primary users of university services, understanding and prioritizing their satisfaction is essential for institutions aiming to manage growing enrollments and maintain their competitive edge. Regularly assessing institutional offerings and addressing gaps in service delivery enhances both student satisfaction and institutional performance (Cornillez, 2019). Universities are increasingly focused on satisfying student demands

and improving educational outcomes, recognizing that student satisfaction is integral to their success (Weerasinghe & Fernando, 2017). Traditionally reliant on face-to-face instruction, higher education institutions have adopted blended learning approaches in response to the COVID-19 pandemic, which necessitated a rapid shift to online education. In Sri Lanka, higher education providers are encouraged to integrate blended modes across teaching, learning, and assessment to improve educational delivery (Perera et al., 2023). However, alongside these innovations, maintaining a strong focus on student satisfaction remains paramount, as students are the primary stakeholders in higher education.

Student Satisfaction

Student satisfaction is a key indicator of success in universities, reflecting how well institutions meet students' academic and personal expectations. It aligns students' expectations with their educational experiences, influencing retention, academic outcomes, and institutional reputation. Student satisfaction is defined as a short-term attitude resulting from an evaluation of students' educational experience, services, and facilities (Weerasinghe & Fernando, 2017). Student satisfaction provides valuable insights into higher educational quality. Research reveals distinct trends in student satisfaction across contexts. In Sri Lanka, foundational needs such as infrastructure and faculty engagements are prioritized due to resource disparities. Additionally, advanced career services, flexible learning models, and personalized support systems dominate student expectations (Perera et al., 2023). According to the Organization for Economic Co-operation and Development (OECD) (2023), international students value inclusivity, cultural integration, and career readiness, with institutions offering robust cultural support and job placement services achieving higher satisfaction. Within Sri Lanka, state universities focus on teaching quality, infrastructure, and resources, with inadequate facilities and limited student support hindering satisfaction (Jayasuriya & Gunawardena, 2021). Private universities, leveraging greater autonomy, excel in faculty qualifications, administrative efficiency, and campus amenities, often achieving higher satisfaction rates (Wickramasinghe et al., 2022). In the Sri Lankan context, student satisfaction is commonly understood as the extent to which students' academic and institutional expectations are fulfilled within the university environment. It encompasses satisfaction with teaching quality, learning resources, assessment methods, including the fairness and efficiency of computer-based examinations, administrative services, university facilities, and overall academic support. Despite these differences, students universally seek institutions that prepare them to be successful graduates. In today's competitive academic landscape, universities face increasing pressure to produce high-quality graduates who meet both student and labor market expectations. As such, student satisfaction remains a critical metric for assessing higher education quality, influencing both student retention and institutional reputation.

Academic Quality

Academic quality in universities serves as the foundation for effective education, equipping students with the knowledge, skills, and competencies required to excel in an evolving global landscape. Chankseliani et al. (2021) highlight the need for high-quality education to align with labour market demands, ensuring graduates possess industry-relevant competencies. Despite frequent changes in the higher education system, maintaining rigorous academic standards remains critical for institutional competitiveness and effectiveness. Cornillez (2019) underscores the importance of teachers' subject matter expertise and their ability to build rapport with students in shaping perceptions of instructional quality. These insights emphasize the multifaceted dimensions of academic quality and the need for a holistic approach to enhance higher education. In Sri Lanka, the quality of higher education is pivotal due to the growing demand for skilled professionals to meet the needs of an evolving labour market (Perera et al., 2023). In the Sri Lankan context, academic quality is considered as the standard and effectiveness of teaching, learning, research, and assessment practices within higher education institutions. It involves the qualifications and competence of academic staff, the relevance and rigor of curricula, the availability of learning resources, the fairness and transparency of evaluation methods, and the alignment of educational programs with national and global academic standards. Academic quality also includes the extent to which institutions promote critical thinking, practical skills, and graduate employability. In Sri Lanka, bodies like the University Grants Commission (UGC) and the Quality Assurance Council (QAC) play a key role in defining and maintaining academic quality through accreditation, benchmarking, and continuous monitoring processes aimed at ensuring consistency and excellence in public university education. However, a disconnect between the

education system and industry expectations persists, with employers valuing graduates who exhibit enthusiasm, dedication, ambition, confidence, and curiosity (Dicker et al., 2019). These traits align with the broader goals of education, such as building confidence, overcoming challenges, and fostering professional and personal growth (Ochnio et al., 2022). Khan and Ali (2015) argue that learning outcomes are the most critical metric for assessing educational quality, reinforcing the need for academic excellence within universities. The University Grants Commission of Sri Lanka has outlined several paradigm shifts in higher education that underscore the significance of academic quality (Perera et al., 2023):

1. Outcome-Based Education (OBE) and Student-Centered Learning (SCL): Curricula are now designed to align with desired graduate outcomes, emphasizing teaching methods that foster active, student-centered learning.

2. Assessment and Evaluation: Graduates' learning outcomes are ensured through robust assessment practices.

3. Continuous Quality Improvement: Feedback from stakeholders, including employers, guides regular quality enhancements.

4. Impact of Science, Technology, and Innovation: Global advancements demand educational adaptation to prepare students for technological and scientific challenges.

5. University-Industry Collaboration: Partnerships with industry enable universities to generate and apply knowledge that addresses local and global needs effectively.

These trends show that Sri Lankan higher education sector is undergoing significant transformation to meet the demands of a rapidly changing global and local environment and emphasize the need of maintaining quality within the academic services.

Universities deliver a wide range of academic services that include entrepreneurial activities (e.g., patents, and industry collaborations) and traditional academic activities (e.g., research, teaching) (Kalar & Antoncic, 2015).In Sri Lankan universities engaging lectures, comprehensive assessments, impactful projects, rigorous research, and a variety of evaluations such as mid-term and final examinations, quizzes, mock exams, practical examinations, and internships can be seen in align with the definition of academic activities explained by Saleem et al., (2017). In the competitive academic environment, students often prioritize achieving higher grades as a benchmark for their qualifications. This focus has heightened students' attention on examinations, with diverse opinions emerging on how they should be conducted with the above-mentioned trends. This is especially relevant to examination modes, which gained further significance with the initiatives introduced during the COVID-19 pandemic. Consequently, the mode of examination has become a critical aspect of modern higher education.

Computer-Based Examination

Examination modes have emerged as a critical area of focus in the literature on higher education, particularly as institutions adapt to evolving pedagogical landscapes and technological advancements. The globalization of higher education has intensified competition among institutions, compelling them to adopt market-oriented strategies to attract and retain students by meeting their needs and expectations. Historically, universities relied on face-to-face teaching for degree programs. However, digitalization and the transition to virtual platforms have significantly reshaped the education system. The COVID-19 pandemic accelerated this transformation, with countries like including Egypt (Sobaih et al., 2020), European Union countries such as Bulgaria, Greece, Italy, Poland, and Sweden (Ochnio et al., 2022), Spain, Ecuador (Tejedor et al., 2022), and Sri Lanka. This shift not only ensured the continuity of education but also highlighted valuable lessons, encouraging institutions to adopt hybrid approaches that integrate online methods with traditional face-to-face instruction. Consequently, students who face paper-based examinations have to adapt to computer-based examinations. Computer-based examinations are usually termed Computer Assisted Testing, Computerized Assessment, Computer Based Testing (CBT), Computer Aided Assessment (CAA), Computer Based Assessment (CBA), Online Assessment,

E-Assessment and Web-Based Assessment (Jamil et al., 2012). Ochnio et al. (2022) note that the pandemic marked a turning point, transitioning online education from an emergency measure to a more permanent feature, particularly in regions where e-learning infrastructure was previously limited. Enhanced learning management systems (LMS) facilitated organized lecture delivery, virtual discussions, and self-directed learning through platforms such as Zoom, Microsoft Teams, and Google Classroom. Hybrid examination methods, combining traditional and online formats, became more prevalent. In Sri Lanka, state universities conducted computer-based final examinations through virtual platforms, maintaining continuity amidst disruptions. Even though grades for online courses were often lower than those for face-to-face courses (Ochnio et al., 2022), assessment processes adhered to robust frameworks. These included examination by-laws, University Grants Commission (UGC) guidelines, and codes of conduct for examiners, ensuring consistency and academic integrity. Additionally, institutions integrated assessment methods with teaching strategies to align with broader institutional objectives (Perera et al., 2023). This evolution underscores the growing importance of adapting computer-based examinations to meet contemporary educational challenges while upholding rigorous academic standards.

According to past literature, Student satisfaction, academic quality, and examination modes are interconnected, as they collectively shape the overall educational experience, with each influencing and reinforcing the others in various ways. Among them also, due to the present trend, this study focuses on computer-based examinations. Across various educational contexts, institutions that prioritize student feedback and adapt their practices to meet evolving needs consistently achieve higher levels of student satisfaction. Examination modes, as a fundamental element of academic practices, are central to this responsiveness, directly shaping perceptions of fairness, relevance, and accessibility in assessments. Binsaif et al. (2021) examined the impact of computerized exams, finding that their fairness, free from human bias, and stress-reducing nature significantly enhanced student satisfaction and performance. Additionally, Kharbat and Abu Daabes (2021) explored students' experiences with online examination modes during the COVID-19 pandemic, identifying key factors such as technical readiness, integrity concerns, and satisfaction with the overall experience. Many students perform well academically, but their dissatisfaction with the online format remains. Therefore, most are unwilling to continue with this mode if given an alternative. These findings suggest that students often adapt to the drawbacks of computer-based examinations because of the contextual benefits they provide, particularly during crises. At first, the changes made during the COVID-19 pandemic seemed temporary. Also, there are many challengers can be seen in the computer-based examinations. One of the most significant challenges is the lack of equal access to digital devices and stable internet connectivity, especially for students from rural or economically disadvantaged backgrounds. Many students rely on outdated computers, shared devices, or low-bandwidth connections, which can hinder their ability to perform well during computer-based examinations. However, in some cases, these changes have permanently altered the education system. In Sri Lanka, addressing foundational challenges while embracing innovative approaches, such as flexible and inclusive examination formats, is essential to advancing student satisfaction. By fostering a sense of belonging and fairness, well-designed examination practices contribute meaningfully to satisfaction levels. According to these, the first preposition is derived as follows.

H1: There is a positive relationship between computer-based examination and student satisfaction.

Innovative assessment practices, particularly in the context of computer-based examinations, also play a pivotal role in shaping academic quality by influencing both the learning process and the outcomes achieved by students. Ochnio et al. (2022) demonstrate that institutions with established traditions in online teaching and interactive platform usage tend to achieve higher student ratings for online courses, reflecting the positive impact of well-implemented examination modes on perceived academic quality. This finding underscores the significance of aligning examination practices with the broader technological framework of an institution to enhance the learning experience. Tejedor et al. (2022) further caution that digital tools and computer-based examination formats should complement, rather than compromise, the quality and rigor of educational curricula. This highlights the critical role of thoughtful integration of examination modes in maintaining and enhancing academic standards. Rustan (2021) expands on this by illustrating how social media and communication technologies can serve as powerful tools to enrich the quality of learning. These findings collectively suggest that computer-based examination, when carefully designed and aligned with institutional strengths and technological advancements, contributes significantly to academic quality. Therefore, the second preposition is

built as follows:

H2: There is a positive relationship between computer-based examination and academic quality.

Student satisfaction is a critical metric for assessing the effectiveness of higher education institutions, closely linked to various dimensions of academic quality. Almaiah and Alismaiel (2019) emphasize that student satisfaction is significantly influenced by quality dimensions such as system quality, information quality, and service quality. These elements collectively create an environment conducive to learning and engagement, forming a foundational basis for positive student experiences. Teaching quality, fairness in assessments, and the availability of learning resources also emerge as pivotal factors. Douglas et al. (2023) identify these aspects as primary drivers of satisfaction in European universities, highlighting the universality of these considerations across diverse educational contexts. Cornillez (2019) further underscores the role of instructional quality, showing that higher levels of teaching excellence directly correlate with increased student satisfaction. This evidence strongly advocates for prioritizing instructional quality as an integral component of academic services. Beyond instructional and system quality, students' expectations extend to more holistic academic offerings. UNESCO (2020) points out that students increasingly value campus training programs, job fairs, updated course structures, and opportunities to develop problem-solving skills and social responsibility. These expectations highlight the evolving nature of student needs and the necessity for universities to adopt a broader approach to academic quality. While addressing these needs, it is essential to tie higher education with measurable learning outcomes. Khan and Ali (2015) argue that learning outcomes are the most critical metric for assessing educational quality. This perspective suggests that institutions must balance efforts to enhance academic quality with strategies to meet student satisfaction, as the two are inherently interconnected. Previous studies have consistently shown that student satisfaction is not only an indicator of quality education but also a consequence of it. When universities deliver high-quality academic services, they can significantly enhance student satisfaction levels. These insights collectively support the proposition that academic quality and student satisfaction are interrelated with each other. Institutions that prioritize excellence in teaching, fairness, and resource availability, while addressing evolving student expectations, are better positioned to meet satisfaction benchmarks. Therefore, the third preposition is built as follows:

H3: There is a positive relationship between academic quality and student satisfaction.

Ultimately, computer-based examinations serve as a pivotal factor in shaping both academic quality and student satisfaction, establishing a dynamic and interdependent cycle where each element continually influences and reinforces the other. The mode of examination is central to how academic quality is perceived, as it is a key method of evaluating students' understanding and competencies. For example, traditional examination formats may not fully align with modern learning approaches, while innovative modes, such as computer-based or blended assessments, can enhance the perceived quality of education by offering more flexible, interactive, and accurate evaluations. This transformation directly influences student satisfaction, as students tend to feel more engaged and satisfied when they are assessed in ways that reflect their learning styles and abilities. Furthermore, academic quality acts as a mediating factor between examination modes and student satisfaction. When academic quality is high, characterized by relevant, rigorous curricula, knowledgeable faculty, and effective teaching methods, students are more likely to appreciate and be satisfied with the examination process, regardless of whether it is traditional or innovative. High academic quality ensures that the evaluation methods are seen as fair, valid, and reflective of their learning, thus fostering positive perceptions of the examination mode and overall satisfaction. In light of these relationships, it becomes evident that the connection between computer-based examination and student satisfaction is not direct; rather, it is mediated by the quality of education provided. Consequently, the following proposition is developed:

H4: Academic quality mediates the relationship between computer-based examination and student satisfaction.

METHODOLOGY

Conceptual framework

Upon reviewing the existing literature, the following conceptual framework has been developed to explore the

mediatory impact of academic quality on examination mode and student satisfaction in future studies.

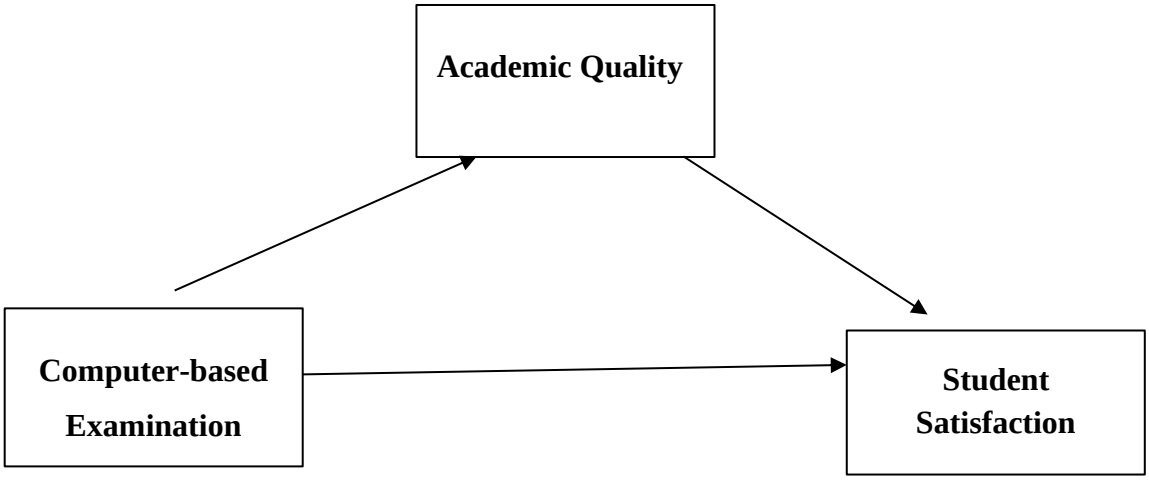

Figure 01 Conceptual framework of the study

This study adopts a systematic approach to investigate the moderating effect of computer-based examination on the relationship between academic quality and student satisfaction in higher education. This study follows a deductive approach, aligning with its objective to test an existing theoretical framework within a specific context. The research is exploratory, aiming to uncover novel insights into the moderating role of examination modes.

Population and sample

The population for the study comprises all undergraduates except first years enrolled at all state universities in Sri Lanka. First year students are excluded considering the lack of experience in the higher education system. As of 2023, Sri Lanka's state universities and higher education institutions (HEIs) approved by the University Grants Commission (UGC) had a combined enrollment of over 490,000 students. This figure encompasses both undergraduate and postgraduate students across various disciplines (CBSL,2024). As mentioned by the UGC of Sri Lanka the total undergraduate population exceeds 130,000 students (University Grants Commission, 2022). Considering this as the population size, taking a sample rather than including all undergraduates is justified due to several practical considerations such as making it logistically challenging, completing within the given constraints of time and resource-intensive to survey or study every individual. A representative sample enables researchers to draw accurate conclusions about a population while saving resources and minimizing errors (Cochran, 1977; Krejcie & Morgan, 1970). It ensures diverse characteristics such as gender, and geographical distribution are adequately represented, maintaining validity and reliability, and allows for statistically significant results without surveying the entire population (Taherdoost, 2016). Therefore, researchers can achieve statistically significant results by using a scientifically determined sample without the need to engage the entire population, making sampling a practical and efficient approach.

The sample size of the study was identified using the sample size estimation formula for finite population size introduced by Cochran (Israel, 1992).

$$n = \frac{N\ Z^2\ p\ q}{e^2\ (N-1) +\ Z^2\ p\ q}$$

Where:

- n - Required sample size for a finite population.
- N- Population size.
- Z- Z-value, corresponding to the desired confidence level.
- p- Estimated proportion of the population with the characteristic of interest (commonly set to 0.5 for maximum variability).

- q- Complement of p, calculated as 1−p.
- e- Desired margin of error (e.g., 0.05 for 5%).

Using Cochran's formula with a population size of 130,000, Z=1.96, p=0.5, q=0.5, and e=0.05, the required sample size is approximately 383. Quota sampling techniques will be employed to select the sample. It ensures that the sample is representative of the diverse characteristics within the undergraduate population of Sri Lanka's state universities. In quota sampling, the sample can be stratified into categories such as undergraduates from different state universities. Once the quotas are determined from each university, undergraduates are selected non-randomly until the quotas for each university are filled. This method ensures that each university is adequately represented, making the sample more reflective of the population. It allows for efficient data collection, ensuring diversity within the sample while still reducing costs and time compared to surveying the entire population. Therefore, this sampling approach ensures that the sample is representative of the broader undergraduate population, minimizing selection bias and enhancing the generalizability of findings.

Data collection

Primary data will be collected using a structured questionnaire, which will be distributed through online platforms to maximize accessibility and convenience for respondents. The questionnaire will consist of three sections mainly, such as demographic data of undergraduates, the undergraduate perceptions of academic quality provided by the university and mode of the university examinations both midterm and finals and the undergraduate perceptions of satisfaction. The structured nature of the questionnaire ensures consistency in responses, facilitating reliable analysis.

Data Analysis

The conceptual framework will be analyzed and tested using SmartPLS software, a widely recognized tool for statistical analysis. The data analysis will involve both descriptive and inferential statistics. Descriptive analysis, including charts, tables, and summary measures, will be utilized to provide a clear understanding of the sample characteristics. Under inferential statistics, structural equation modeling (SEM) will be employed to examine the relationships between variables and to test the hypothesized mediating effect of academic quality. This comprehensive analytical approach ensures that the findings are both rigorous and insightful, contributing to a deeper understanding of the research problem.

Implications

This study provides critical insights into student perspectives on computer-based examinations and academic quality and their impact on student satisfaction, offering valuable implications for various stakeholders in higher education. For university administrators, the findings can guide the development of more student-centered and resilient assessment strategies, ensuring alignment with institutional goals while addressing student satisfaction. Academic staff can benefit from a better understanding of how computer-based examinations influence learning, enabling them to design assessments that enhance both academic quality and student outcomes. Policymakers can use the findings to shape national guidelines that prioritize academic rigor and student satisfaction, positioning Sri Lanka’s higher education system competitively on the global stage. For students, research offers a platform for their concerns, promoting inclusivity and a more responsive educational environment. Educational technology providers can leverage these insights to improve the functionality, security, and user experience of computer-based examinations. Additionally, quality assurance bodies can refine their evaluation frameworks to balance academic quality and student satisfaction effectively in online and blended education contexts. Together, these implications highlight the study’s potential to inform decisions and practices that ensure a high-quality, student-focused, and adaptable higher education system.

CONCLUSION

This concept paper highlights the importance of understanding the mediating effect of academic quality on the relationship between computer-based examination and student satisfaction at state universities in Sri Lanka. The shift to online platforms for examinations, accelerated by the COVID-19 pandemic, has significantly reshaped

the educational landscape, yet its impact on the dynamics of academic quality and student satisfaction remains underexplored. By focusing on the state universities in Sri Lanka, this study aims to fill this research gap, offering valuable insights into the impact of computer-based examinations on academic quality and student satisfaction. While the study faces limitations such as a narrow focus on only state universities, time constraints, and reliance on self-reported data, it is expected to provide meaningful contributions to the understanding of how computer-based examinations affect higher education outcomes. The future study may consist of surprising outcomes which will assist university administrators, academic staff, and policymakers in making informed decisions regarding the adoption of computer-based examinations while maintaining both academic quality and student satisfaction will also inform future research in this area. Ultimately, this study underscores the need for ongoing adaptation and flexibility in higher education systems, particularly in light of evolving challenges and the continuing impact of the post-pandemic era.

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