Analysis of Internal Quality Assurance System to Improve the Graduates Quality of Universitas Negeri Medan (Study: Graduate Competency and Learning Content Standards)

Bornok Sinaga[1*], Darwin[2], Mangaratua M. Simanjorang[3], Juniastel Rajagukguk[4]

{ bornok@unimed.ac.id. of the first three authors}

[1,3]Department of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Negeri Medan,[2]Educational Administration Study Program, Universitas Negeri Medan, [4]Department of Physics, Faculty of Mathematics and Natural Sciences, Universitas Negeri Medan

Abstract. This study aims to explore how the implementation of the Internal Quality Assurance System can improve the quality of graduates at Medan State University, especially in terms of graduates' competence standards and learning content. Based on the analysis of two higher education standards, namely the competency standard of graduates and the standard of learning content applied at Medan state University, it can be identified that the effective implementation of SPMI has the potential to increase the relevance of the curriculum to market needs and increase the competitiveness of graduates at the national and international level. The audit of the achievements of the graduates of the State University of Medan (Unimed) shows an effective and efficient learning process. Despite the positive audit results, Unimed needs to improve its social support and academic guidance system, as well as improve study time efficiency in undergraduate programs through strengthening guidance, optimization of academic information, and reformulation of Outcome-Based Education (OBE) based curriculum. The internal quality audit of Medan Negeri Universitas (Unimed) showed that most of the achievement indicators of the Learning Content Standard (SI) have been met, with some aspects exceeding the targets set. In addition, 94% of the curriculum was assessed as relevant to the needs of the job market, stressing the importance of an Outcome-Based Education (OBE) approach to ensuring the relevance and effectiveness of learning. Overall, UNIMED managed to meet most of the standard indicators of learning content, although there is still room for improvement.

Keywords: Quality Assurance; higher education; Graduate Competency; Learning Content

1 Introduction

The internal quality assurance system (SPMI) has become an essential element in efforts to improve the quality of higher education in Indonesia [1-2]. As an institution with a vision of

becoming a superior university in education, research, and community service, Medan State University (UNIMED) continues to strive to improve the quality of its graduates to meet the needs of a dynamic job market. UNIMED currently has 7 faculties and dozens of study programs covering various disciplines. With more than 30,000 active students, the university is instrumental in scoring competent human resources. Although UNIMED has implemented various quality policies, the challenge of achieving alignment between the quality of graduates and the needs of users of educational services is still a major concern. Some indicators such as on-time graduation rate, accreditation of study programs, student participation rate in internship programs, achievement of student achievement at national and international level, and the level of absorption of graduates in the job market are important measures in assessing the success of quality assurance systems [3-4]. According to Dirjen Dikti (2022), these indicators represent the effectiveness of the management of educational institutions in scoring graduates who excel and are relevant to the needs of the times [5]. Therefore, it is important for UNIMED to continue to make continuous evaluations and improvements to SPMI implementation in order to ensure that the resulting graduates not only meet academic standards, but are also prepared to compete in an increasingly competitive world of work. By implementing a comprehensive SPMI model, UNIMED is committed to improving the quality of education and graduates in order to meet the expectations of stakeholders in the world of work [6]. Effective implementation of SPMI at UNIMED will contribute to improving the quality of graduates, so that they can meet the expectations and needs of stakeholders in the world of work [7]. On the other hand, there needs to be closer collaboration between UNIMED and various industries to ensure that the curriculum taught is in line with the development and needs of the market.

Previous studies have shown that the implementation of an effective quality assurance system can significantly improve the performance of higher education institutions. According to Tjiptono and Diana (2020), the success of quality assurance systems is influenced by the sustainability of management, the involvement of all stakeholders, and continuous evaluation [8]. Other research by Sallis (2014) underscores the importance of holistic approaches in quality policy development, where all elements within higher education institutions must support each other [9]. Some models of quality assurance systems that have been implemented in other universities can serve as reference and comparison material. For example, Universitas Gadjah Mada (UGM) has developed a system based on Continuous Quality Improvement (CQI), which emphasizes continuous evaluation cycles in the educational process [10]. The model is supported by periodic data reporting and curriculum review mechanisms involving external parties, including industry and alumni. Universitas Indonesia (UI), on the other hand, uses an Outcome-Based Education (OBE) based approach, which focuses on the achievement of graduates' learning outcomes as measured by international criteria [11]. In addition, Bandung Institute of Technology (ITB) has implemented a model that integrates internal quality auditing with benchmarking against the world's leading universities to ensure competitive educational quality standards [12]. UNIMED can also leverage practices from international universities such as the National University of Singapore (NUS) that use Learning Analytics to support quality policies [13]. The system allows early identification of students with potential academic difficulties so that timely intervention can be provided. Other practices of the University of Melbourne that use the Balanced Scorecard model to evaluate educational quality performance are also relevant to be used as a reference in the development of SPMI at UNIMED [14]. This research focuses on developing adaptive, data-driven, and integrated SPMI models. Through this approach, UNIMED is expected to be able to improve the quality of its graduates in a sustainable and relevant manner to the needs of the modern job market. Strengthening this model

is also in line with national policies that prioritize accountability and transparency in the management of higher education.

2 Method

Approaches used in this study include qualitative and quantitative analyses to evaluate the effectiveness of SPMI implementation at UNIMED. Data collection was conducted through in-depth interviews, surveys, and document analysis to obtain a comprehensive picture of the processes and results of SPMI implementation at UNIMED. The results of this study are expected to provide recommendations for further development of SPMI at UNIMED, as well as contribute to improving the quality of higher education in Indonesia. The stages carried out in this study follow a systematic research flow, from initial studies, model design, implementation and trials to the evaluation and refinement stage as shown in Figure 1.
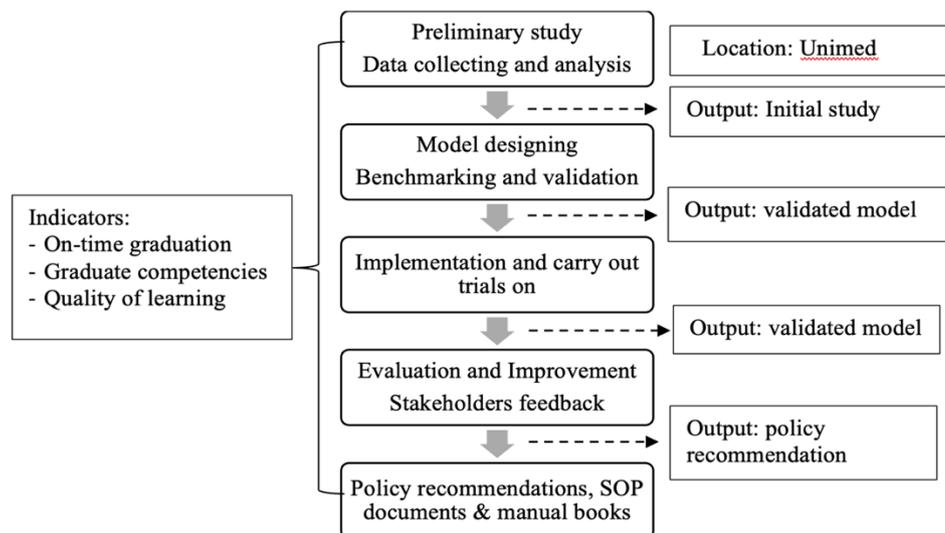
Figure 1. Flowchart of the internal quality assurance system of Universitas Negeri Medan

The elaboration of each stage is as follows:
1. Initial Study Phase:
   - Initial data collection through analysis of documents, surveys and interviews.
   - Review of the existing conditions of SPMI in UNIMED.
   - Identification of the main factors affecting the effectiveness of the quality assurance system.
2. Model Design Phase:
   - Benchmarking of SPMI models in other colleges.
   - Designing data-driven and adaptive quality assurance system models.
   - Theoretical model validation through consultation with experts.

3. Implementation and Trial Phase:
   - Application of the model to multiple faculties/programs at UNIMED.
   - Data collection through observation and interviews during implementation.
   - Analysis of trial results to identify the strengths and weaknesses of the model.
4. Evaluation and Improvement Phase:
   - Evaluation of the success of the model based on quality achievement indicators.
   - Model refinement based on evaluation results and stakeholder feedback.
   - Preparation of policy recommendations to support the implementation of the model.

In this paper it is limited to the analysis of two national standards of higher education, namely the standard of competence of graduates and standards of learning content. Both standards are key components in the quality assurance of higher education that must be observed in order to achieve the objectives of quality education.

3. Results and Discussion

The internal academic quality audit at UNIMED has shown positive results, with many faculties meeting or exceeding the standards set by SPMI. Some of the standards that are objects of observation (observation) in Unimed Colleges are Graduate Competency Standards (SKL), Learning Content Standards (SI), Learning Process Standards (SPr), Learning Assessment Standards (SPi), Lecturer Standards and Educational Energies (SDs).However on this article it is limited to the Graduate Competence Standards and the Learning Content Standards, which are important aspects of higher education quality assurance, still need to be improved to achieve alignment with industry needs.

1. Graduate Competency Standards

Table 1 shows data on the competencies of graduates expected by industry, covering technical and non-technical skills relevant to current job market developments. The internal academic quality audit of the achievement of Graduate Competence Standard (SKL) of Medan State University (Unimed) as shown in Table 1 shows that in general Unimed has successfully achieved, even exceeded most of the key performance indicators as formulated in the IKU-Matrix Renstra Unimed. The evaluation of the ten SKL indicators reflects the success of the institution in ensuring academic quality, the relevance of graduates, as well as the efficiency of higher education at various levels. However, there is still room for improvement, especially when it comes to meeting the skills needs expected by the industry.

Table 1. Observation results (findings) of the quality audits for graduate competence standards (SKL)

No	References	Audit Findings
1.	SKL 1- (IKU-Matrix - Unimed Strategic Plan) Do 65% of graduates find employment within 12 months?	69% of Unimed graduates find employment within 12 months
2.	SKL 4- (IKU-Matrix - Unimed Strategic Plan) Will 85% of Bachelor's degree graduates have a GPA > 3.00 for the class of 2023?	91% of Bachelor's degree graduates have a GPA > 3.00 for graduates in 2023

3.	SKL 5- (IKU-Matrix - Unimed Strategic Plan) Do 85% of Master's graduates have a GPA > 3.76 for graduates in 2023?	88% of Master's graduates have a GPA > 3.76 for 2023 graduates?
4.	SKL 6- (IKU-Matrix - Unimed Strategic Plan) Do 85% of doctoral graduates have a GPA > 3.76 for graduates in 2023?	94% of doctoral graduates have a GPA > 3.76 for 2023 graduates
5.	SKL 8- (IKU-Matrix - Unimed Strategic Plan) Is 60% of the study period for undergraduate program graduates less than 5 years for 2023 graduates?	61% of graduates from the undergraduate program completed their studies in less than 5 years for the class of 2023.
6.	SKL 9- (IKU-Matrix - Unimed Strategic Plan) Is 75% of the study period for Master's Program graduates ≤ 2 years for 2023 graduates?	80% of Master's Program graduates studied for ≤ 2 years for graduates in 2023
7.	SKL 12- (IKU-Matrix - Unimed Strategic Plan) Are 80% of 2023 graduates working in accordance with their graduate profile?	80% of 2023 graduates are employed in positions that match their graduate profiles.
8.	SKL 14- (IKU-Matrix - Unimed Strategic Plan) Are 40% of graduates on time according to the curriculum duration (4 years) for 2023 graduates?	49% of graduates completed their studies on time according to the curriculum duration (4 years) for the class of 2023.
9.	SKL-15 (IKU-Matrix - Unimed Strategic Plan) Will 70% of graduates complete the curriculum in exactly twice the time (8 years) for graduates in 2023?	99% of graduates completed the curriculum twice (8 years) for graduates in 2023.
10.	SKL 16- (IKU-Matrix - Unimed Strategic Plan) Is the dropout rate during the two curriculum periods (8 years) < 10% for 2023 graduates?	3% of students dropped out during the two-time curriculum period (8 years) for 2023 graduates.

Based on Table 1, four important achievements can be described. First, from the point of view of the competitiveness of graduates in the job market, the audit results showed that 69% of graduates obtained a job in less than 12 months. This achievement has exceeded the target of at least 65% and shows that Unimed graduates are relatively adaptive to the needs of the job market. In addition, as many as 80% of graduates have worked according to the graduate profile, showing a good correlation between learning achievement (CPL) and the needs of the working world. It is widely recognized and understood in academic and professional circles that the overall success and effectiveness of educational organizers and institutions can be evaluated and judged by the degree to which their graduates are able to meet, satisfy, and align with the various expectations, requirements, and standards set by industry and society at large [11]. Therefore, UNIMED needs to continue to strengthen relations with the business world to ensure the relevance of the curriculum and improve the job readiness of graduates [15].

Secondly, if we review from the perspective of the academic achievements of the graduates, the results obtained indicate very impressive achievements. 91% of undergraduate graduates achieved a Cumulative Achievement Index (GPA) above 3.00, reflecting their dedication and hard work throughout their education. At the graduate level, 88% of master's graduates also demonstrated outstanding achievement with a GPA above 3.76, signifying a deep understanding and mastery of the material that has been learned. In addition, higher achievement was reflected in graduates of doctoral programs, where 94% of them managed to achieve a GPA above 3.76. These achievements not only reflect an individual's academic ability, but also signify the institution's success in implementing an effective learning process, a credible assessment system, and adequate academic support [13, 16]. This contributes to the earnings of graduates who not only have high academic quality, but are also ready to compete and contribute significantly in the professional world [17]. Third, in the context of the efficiency of completion of studies, the results of the audit showed a significant variation in the completion time achievement of the graduates. Based on the data obtained, only 61% of graduates of undergraduate programs successfully complete their studies in less than 5 years, this figure only slightly exceeds the established minimum limit, which is 60%. This indicates that although most students can complete their studies relatively quickly, there are still a large number who do not manage to reach the expected time target. In addition, only 49% of undergraduate graduates were able to complete their studies on time according to the established curriculum travel period, which is for 4 years. This percentage indicates the existence of challenges that need to be overcome in order for more students to complete their studies in a predetermined time, thus improving the overall efficiency of the educational programs offered [18]. Thus, UNIMED needs to identify and address the factors that cause delayed completion of studies in order to improve students' on-time graduation rates [19]. Although it has exceeded the minimum target of 40%, this figure still indicates that there are obstacles in the acceleration of studies that need to be further evaluated, both in terms of curriculum load, student readiness, and the effectiveness of academic guidance [20]. In contrast, efficiency at the master's level shows excellent results, with 80% of graduates completing studies in ≤2 years. Fourth, in the dimensions of retention and study success, Unimed shows excellent results. A total of 99% of students complete their studies within twice the curriculum lifetime (8 years), which means that the success rate of studies is very high. In addition, only 3% of students experienced a Drop Out (DO) during the period, well below the maximum limit of 10%. This reflects the effectiveness of the mentoring system, psychosocial support, as well as the availability of academic services that help students complete their studies [21]. Although the audit results showed positive achievements, UNIMED still needs to improve social support and academic guidance system to overcome the challenges in completing studies on time [22]. Overall, this audit showed that Medan State University has met almost all the set indicators of graduates' competency standards. Nevertheless, some aspects still need improvement, in particular in encouraging the efficiency of study periods in undergraduate programs so that the proportion of graduates on time can be significantly increased. Recommended strategies include strengthening academic guidance systems, optimizing academic information systems, as well as reformulation of the Outcome-Based Education (OBE) approach-based curriculum burden [23].

2. *Learning Content Standards*

The internal quality audit of Medan Negeri Universitas (Unimed) of the Learning Content Standard (SI) as shown in Table 2 shows that most of the standard achievement indicators have been successfully met, even in some aspects have exceeded the targets set in the IKU-Renstra Unimed matrix. Table 2 presents comprehensively the achievement data of seven key indicators that serve as important benchmarks in ensuring the quality of the content and implementation of the curriculum in the Study Program. These indicators are designed to provide a clear and measurable picture of the effectiveness of the curriculum, as well as support the process of evaluation and continuous development in the delivery of education [24]. Through in-depth analysis of each indicator, we can identify the strengths and areas that need improvement, so as to improve the student learning experience and achieve the expected academic standards [25]. In terms of the relevance of the curriculum content to the needs of the job market, the audit results showed that 94% of the curriculum of the current study program was assessed as relevant to the needs of the job market. In this context, it is important to adapt the curriculum to the Outcome-Based Education (OBE) approach to ensure that the learning content is relevant and effective in achieving graduates' expected learning outcomes [26]. Overall, the audit results show that UNIMED has successfully met most of the indicators set out in the learning content standards, although there is still room for further improvement.

Table 2. The Internal quality audit findings achieved of the learning content standards

No	References	Audit Findings (PLOR)
1.	SI 1- (IKU-Matrix - Unimed Strategic Plan) Is >90% of the content of the current study program curriculum relevant to the needs of the job market?	94% of the current PS curriculum content is relevant to the needs of the job market
2.	SI 2- (IKU-Matrix - Unimed Strategic Plan) Is the curriculum document updated periodically every 4 years?	Curriculum documents are updated periodically every three years
3.	SI 3- (IKU-Matrix - Unimed Strategic Plan) Do 55% of courses apply the case method or team-based project learning methods in the 2023/2024 Even Semester and 2024/2025 Odd Semester as part of the evaluation weighting?	84% of courses apply the case method or team-based project learning methods in the 2023/2024 even semester and 2024/2025 odd semester as part of the evaluation weighting.
4.	SI 4- (IKU-Matrix - Unimed Strategic Plan) Do 50% of lecturers integrate research results into their teaching?	In 74% of courses, lecturers integrate research results into their teaching.
5.	SI 5- (IKU-Matrix - Unimed Strategic Plan) Do 15% of lecturers integrate the results of their community service into their teaching?	59% of courses taught by lecturers integrate the results of community service into their teaching.
6.	SI 6- (IKU-Matrix - Unimed Strategic Plan) Does the study program review and adjust the RPS periodically in line with developments in science and technology at least once a year?	The Study Program reviews and adjusts the Semester Study Plan (RPS) periodically in line with developments in science and technology once a year.
7.	SI 7- (IKU-Matrix - Unimed Strategic Plan) Is the RPS updated periodically every 4 years?	The RPS is updated periodically every two years.

This achievement has exceeded the minimum target of 90%, and indicates the existence of institutional sensitivity in responding to the dynamics of the world of work through the

adaptation of curriculum content. The audit also found that curriculum documents are updated periodically, i.e. every 3 years, faster compared to the minimum standard that requires updating once every 4 years. This demonstrates Unimed's commitment to maintaining the relevance of the curriculum to the development of science and the needs of society. In the application of active learning methods such as the case method and team-based project, the access indicates that 84% of the lecture points in the teaching years Even 2023/2024 and Odd 2024/2025 have applied this method as part of the evaluation weights. This exceeds the minimum target of 55% and reflects significant progress in the pedagogical transformation towards student-centered learning. As for the aspect of integration of research results in learning, the audit found that 74% of the lecture points had integrated the results of the lecturer's research. This achievement exceeds the minimum standard by 50%, and indicates that the research activities of the lecturers have contributed directly in the enrichment of lecture material as well as the improvement of academic quality. Further aspects of the integration of the results of community devotion into learning also show good results. A total of 59% of the faculty points have integrated the results of the lecturer's devotional activities, far exceeding the minimum target of 15%. It demonstrates the lecturer's success in linking empirical field experience with classroom learning, while reinforcing the spirit of civic engagement in higher education. In terms of the review and adaptation of the Semester Learning Plan (RPS), the audit confirmed that the process has been carried out regularly, at least once a year, in accordance with the development of science and technology. This conforms to the SI-6 standard and is a good practice in keeping RPS documents up to date and relevant at the program level of study [27]. The audit findings also note that RPS is terminated once every two years, meaning faster than the four-year minimum standard. The frequency of these updates indicates the existence of a reflective culture and continuous improvement in learning planning.

4. Conclusion

Based on the findings obtained, it can be concluded that Medan State University has shown significant progress in the implementation of the Internal Quality Assurance System. The audit of Medan State University (UNIMED) showed important achievements in several aspects. First, 69% of graduates get a job in less than 12 months, surpassing the 65% target, and 80% of graduates work according to the graduate profile. Secondly, in academic achievement, 91% of undergraduate graduates achieved a GPA above 3.00, while 88% of master's graduates and 94% of doctoral graduates achieved a GPA above 3.76, indicating good educational quality. Third, study completion efficiency shows 61% of undergraduate graduates complete studies in less than 5 years, but only 49% on time, indicating challenges that need to be overcome. However, there are still challenges that need to be overcome to improve the effectiveness and relevance of the curriculum to the needs of the industry. It is important for UNIMED to continue to innovate in curriculum development in order to meet the ever-changing needs of the industry and ensure its graduates are prepared for global challenges. Therefore, closer collaboration with industry and other stakeholders is indispensable to improve the alignment between the curriculum and the needs of the job market. Improving the quality of higher education in Indonesia requires more attention to developing curricula that are responsive to industry needs and job market dynamics.

References

[1]. M. S. Harahap, S. Gultom. D. R., and N. H. Fithriyah, "Kajian implementasi spmi (sistem penjaminan mutu internal) sekolah dan perguruan tinggi di indonesia," JURNAL EDUCATION AND DEVELOPMENT, Jan. 2023, doi: 10.37081/ed. v11i1.4616.

[2]. A. Idris, S. Trisnamansyah, and I. Wasliman, "Implementation of The Internal Quality Assurance System in Improving School Quality," Munaddhomah, Apr. 2022, doi: 10.31538/munaddhomah. V3i1.96.

[3]. D. Ivana, M. Drăgan, D. Pitic, and L. Ilieş, "Indicators System for Quality Assurance in Higher Education Within the Economic Field," 2018. doi: 10.1007/978-3-030-17215-2_3.

[4]. M. I. Aslam and R. A. Akbar, "Validation of the Higher Education Commission's Quality Assurance Indicators Used for Self-Assessment Mechanism at Universities in Punjab Province.," 2016.

[5]. H. Pujiati, I. Wasliman, A. Tutty, and M. A. Gaffar, "Management of The Internal Quality Assurance System (Iqas) In Improving the Quality Of Higher Graduates," International Journal of Science, Technology & Management, Nov. 2022, doi: 10.46729/ijstm. V3i6.691.

[6]. S. Syaefulloh, D. Himmawan, S. Sauri, and U. C. Barlian, "Peningkatan mutu perguruan tinggi melalui penjaminan mutu interal perguruan tinggi," May 2023, doi: 10.58355/manajia. V1i1.2.

[7]. M. Y. Pratama, "Penerapan sistem penjaminan mutu internal di akper kesdam i/bukit barisan medan", doi: 10.31227/osf.io/75f9z.

[8]. F. Tjiptono and A. Diana, Manajemen dan Strategi Kepuasan Pelanggan. Penerbit Andi, 2022.

[9]. E. Sallis, "Total quality management in education," 2014.

[10]. A. Sulaiman and U. B. Wibowo, "Implementasi sistem penjaminan mutu internal Sebagai upaya meningkatkan mutu pendidikan di Universitas Gadjah Mada," Jurnal Akuntabilitas Manajemen Pendidikan, vol. 4, no. 1, pp. 17–32, 2016.

[11]. R. Royani, R. Fahrudin, A. F. Syatifa, and E. D. Astuti, "Impact of Outcome-Based Education on Graduate Readiness in the Era of Globalization through International Benchmarking: Pengaruh Outcome-Based Education (OBE) terhadap Kesiapan Lulusan di Era Globalisasi Studi Benchmarking Internasional," ADI Pengabdian Kepada Masyarakat, vol. 5, no. 2, pp. 129–139, 2025.

[12]. W. Warta, S. Usanto, and A. Sopian, "Internal Quality Assurance System to Improve Lecturer Performance and Its Relevance to Education Quality at ITB Swadharma," Journal of Applied Science, Engineering, Technology, and Education, vol. 5, no. 2, pp. 219–231, 2023.

[13]. S. J. Lim et al., "The implementation of e-learning tools to enhance undergraduate bioinformatics teaching and learning: a case study in the National University of Singapore," BMC bioinformatics, vol. 10, no. Suppl 15, p. S12, 2009.

[14]. I. B. Soysa, N. P. Jayamaha, and N. P. Grigg, "Validating the balanced scorecard framework for nonprofit organisations: an empirical study involving Australasian healthcare.," vol. 30(9–10), pp.1005-1025., 2019.

[15]. I. W. Ratnata, "Konsep Pemikiran dalam Pengembangan Pendidikan Vokasi untuk Menghadapi Tuntutan Dunia Kerja," Apr. 2012.

[16]. P. A. Agrawal, "Assessment of Scholarly Attainment in Student Academic Performance," Indian Scientific Journal of Research in Engineering and Management, Mar. 2024, doi: 10.55041/ijsrem29525.

[17]. E. Foster and J. Rodgers, "Quality of education and student earnings," Higher Education, Jan. 1980, doi: 10.1007/BF00149133.

[18]. A. A. Zulfa, T. Ibrahim, and O. Arifudin, "Peran Sistem Informasi Akademik Berbasis Web Dalam Upaya Meningkatkan Efektivitas Dan Efisiensi Pengelolaan Akademik di Perguruan Tinggi.," vol. 6, no. 1, pp. 115–134, 2025.

[19]. D. Al-Fraihat, M. Joy, and J. Sinclair, "Identifying success factors for e-learning in higher education. In International conference on e-learning," vol. (pp. 247-255)., Jun. 2017.

[20]. A. Castro-Lopez, A. Cervero, C. Galve-González, J. Puente, and A. B. Bernardo, "Evaluating critical success factors in the permanence in Higher Education using multi-criteria decision-making.," Higher Education Research & Development, vol. 41, no. 3, pp. 628–646, 2022.

[21]. H. Kaur and G. S. Bhalla, "Determinants of effectiveness in public higher education-students' viewpoint.," International Journal of Educational Management, vol. 32, no. 6, pp. 1135–1155, 2018.

[22]. D. U. Alawiyah, C. A. Alwi, L. Lilis, and S. Selvi, "Pengaruh Dukungan Sosial Terhadap Kesejahteraan Psikologis Pada Mahasiswa Semester Akhir," Jurnal Mimbar: Media Intelektual Muslim dan Bimbingan Rohani, Sep. 2022, doi: 10.47435/mimbar. v8i2.1190.

[23]. F. Putra, M. Riski, Y. Febriani, and M. Mansyur, "Optimization of web based academic information system design to increase efficiency in junior high schools.," Jurnal Informasi Dan Teknologi, vol. 6, no. 2, pp. 150–158, 2024.

[24]. E. A. Tagulwa, P. Owino, F. Muwonge, and M. G. Kaahwa, "The effectiveness of curriculum review in improving quality, relevance, and students' employability in University Education in Uganda.," International Journal of Multidisciplinary: Applied Business and Education Research, vol. 4(6), pp.1932–1942, 2023.

[25]. J. C. G. Tolentino and C. D. Sinio, "Implementation of the Revitalized Tertiary Physical Education Program in A Higher Education Institution in Pampanga Grounded on the Statutory Policy of the Commission on Higher Education and UNESCO's Quality Physical Education Model. International journal of multidisciplinary:" Applied business and education research, vol. 5, no. 2, pp. 488–512, 2024.

[26]. M. Asbari and D. Novitasari, "Outcome-Based Education Model: Its Impact and Implications for Lecturer Creativity and Innovation in Higher Education.," International Journal of Social and Management Studies, vol. 5(5), pp.22-31., 2024.

[27]. E. N. M. Kizi, "Effective lesson planning," Eurasian Journal of Academic Research, vol. 4, no. 7 (Special Issue), pp. 75–79, 2024