Educational Administration: Theory and Practice
2024, 30(5), 14346-14353
ISSN: 2148-2403
https://kuey.net/

Research Article

The Triple Helix Of Higher Education Quality: Integrating Outcome-Based Education, Accreditation Standards, And Institutional Rankings

Nitish Arora[1*], Jagjit Singh Dhatterwal[2], Megha H .U[3], Subharun Pal[4], Mr.Bandaru Vijaychandra[5], Dr.Muzafar Ahmad Mir[6]

[1*]Assistant Professor, Chitkara Business School, Chitkara University Punjab, Patiala, Rajpura, Punjab, Email id-nitish.arora@chitkara.edu.in
[2]Associate Professor, Artificial Intelligence & Data Science, Koneru Lakshmaiah Education Foundation, Green Fields, Vaddeswaram, Guntur, Vijayawada, AP, Mail id: jagjits247@gmail.com
[3]Research Scholar, Department of PG Studies and Research in commerce, Kuvempu University, Jnana Sahyadri, Shankaraghatta, Shivamogga, Bhadravathi, Karnataka, Mail id: gowdamithila26@gmail.com
[4]PG Scholar, Department of Computer Science and Engineering, Indian Institute of Technology Jammu, Jammu & Kashmir (UT), Email id: subharunpal@gmail.com
[5]Assistant Professor, Electronics And Electrical Engineering, Pace Institute Of Technology And Sciences, Prakasam, Ongole, Andhra Pradesh, Email:dr_mvr@pace.ac.in
[6]Lecturer, Commerce, GDC Women's Pulwama, Srinagar J&K, inhaqmuzafar@gmail.com

Citation: Nitish Arora et al. (2024), The Triple Helix Of Higher Education Quality: Integrating Outcome-Based Education, Accreditation Standards, And Institutional Rankings, *Educational Administration: Theory and Practice*, *30*(514346-14353
Doi: 10.53555/kuey.v30i5.6591

ARTICLE INFO

ABSTRACT

This study assesses the role and effect of OBE, Accreditation Standards, and Institutional Rankings on quality assurance of higher education. A quantitative analysis was also conducted to establish the level of implementation of OBE and the results showed that the institutions sampled indicated that they had 78% to 92% of their programs with the defined learning outcomes. Regarding Accreditation Standards, the quotas reached were quite high, with institutions obtaining up to 95 %QAAS, illustrating strict adherence to quality assurance benchmarks. University Rankings ranked sampled universities in global and continental classifications; global ranking ranging from 50 to 120 and in regional classifications from 8-15 thus indicating the different abilities of universities in the various parameters as presented by Institutional Rankings.

Keywords: Outcome-Based Education, Accreditation Standards, Institutional Rankings, Higher Education Quality Assurance, Mixed-Methods Approach

I. INTRODUCTION

The quest for quality in the context of higher education has therefore emerged as more diverse and complicated. Universities across the globe are experiencing tasks of not only having to sustain the academic excellence but also meeting the shifting educational philosophies and the social demand. This research focuses on the convergence of three pivotal dimensions that collectively shape and define the quality of higher education: OBE, accreditation standards and the institutional ranking system Experience at Harare Institute of Technology [1]. The Outcome-Based Education (OBE) is a framework of the system of institutional education that is based on a learner-centered approach an which the assessment and planning are primarily focused on the stipulated learning outcomes. With its concentrated stress on specifiable institutional outcomes and processes, OBE aims to integrate educational objectives with effective means of their realisation and monitorability, thus, making educational processes more purposive and accountable [2]. Accreditation Standards are measures which have been developed with which educational programs and institutions may be assessed so that the determined measures of quality and efficiency may be met. External accreditation enhances public credibility of the quality of education provided in education institutions thus ensuring that consumers of education such as the students, employers and the public at large place their trust on the given institutions. The Institutional Rankings, which usually depend on a number of parameters including research performance, academic status, and the learners' performance, have a great influence on the existing outlooks and choices of the learners and other stakeholders, research workers, and sponsors [3]. Despite the fact that rankings have useful information for institutional performance, they also tended to drive institutional

decisions and resource management, and this often has counterproductive effects. This research aims to investigate the relationships as well as cooperation between these three categories of Higher Education especially OBE, Accreditation Standards and Institutional Rankings to boost the quality assurance mechanisms in universities. Conceiving of these facets as relational, this research seeks to add understanding regarding how these elements may be managed, both in relation to each other and to other parts of institutions, so as to ensure a maximum of social utility and educational value. Particularly, the Outcome-Based Education, Accreditation Standards, and Institutional Ranking system create a 'Triple Helix' which portrays the reciprocity of mechanisms and the problems of the modern Higher education Quality Assurance systems. It is about these realities that understanding this interplay is critical for institutions that are eager to compete and succeed in today's extended global market of education.

II. RELATED WORKS

The theoretical framework of the 'triple helix model,' put forward by Etzkowitz & Leydesdorff (1995), describes the mutual engagement and linkages between universities, industry, and government institutions in shaping and supporting innovation and development. According to Fernando et al. (2020), they analyzed community leadership and the TTM's contribution to the formation of Science Parks in Brazil (Ref. [15]). In their work, they outline the potentials of synergistic relationships between these sets of stakeholders in creating avenues for knowledge exchange, translation of research into practice, and policy-making for the advancement of the region. Flechas et al. (2023) analyzed the impact of the triple helix model on the quality of the Startup ecosystems around the world (Ref [17]). To this effect, Acuil & Ayongh recently observed that close university-industry-government relations can support entrepreneurial initiatives and build the resilience of ecosystems. In the following systematic literature review, González-Pérez et al. (2023) enriched Education 4 with novel knowledge. It closely highlighting the use of technology and its application in environments and people's requirements (Ref. [19]). This makes their review significant in restoring understanding of the future prospective of the resultative role of education institutions and trends in technological developments in improving the match between educational outputs and demand in the economy the society. IdeLand and Serder (2023) applied the context and framework of 'edu-business' within the triple helix and how they shaped the commoditization of educational research as well as its resulting effects on value generation (Ref. [23]). This is their perspective on the matter to which I concur; commercialization is effective in creating revenues and promoting innovation, but it entails issues of ethics and integrity that institutions need to deal with. Research on the impact that institutional rankings have on higher education has been relatively conducted extensively. Using dynamic data envelopment analysis, Lopes de Souza Torres and Ramos investigated efficiency of Brazilian higher education institutions in their study Ref [26]. They's studies assess institutions' productivity and efficiency related to teaching, research, and community-service benchmarks to inform users of possible contributors to improved institutional performance. In their study of remote learning during the COVID-19 pandemic, Hossain et al. (2023) have endeavored a conceptual framework known as Quadruple Helix model for future higher educational contexts that encompasses four key contingents of academia, industry, government, and the community (Ref. [21]). They note that their study demonstrates how partnership approaches can positively impact education's ability to develop teachers' and students' coping mechanisms and their preparedness to deal with any disruptions on a worldwide scale. A number of strategies, challenges, and opportunities have been found in the literature reviewed outlining the implementation of PLOs/OBE, accreditation standards, and institutional rankings. Ismuratov et al., 2022 revealed that corporate governance impacts financial filings and management of higher education organisations to foster tourism development which underlined the significance of more appropriate governance structures to improve the institutions' transparency and accountability (Ref [24]). Kodri et al. (2024) discussed cooperative approaches in developing sustainable solutions for the context of 'siswapreneurship', university–government–private sector collaborations in Southeast Asia and Australia (Ref. [25]). Their work also clearly demonstrates that society and various sectors can benefit greatly from cross-sector teamwork on innovations, particularly through higher education development programs. Conclusively, Outcome-Based Education, the concept of Accreditation standards, and institutional ratings constitutes a core foundation to improving quality assurance of educations and authorities and institutions' performance in higher learning institutions. The literature being reviewed equally shows the networking of the above mentioned dimensions and their implications on education, institutional image and competitiveness of countries. Subsequently, succeeding studies should strive to expand the discourse and understanding of advanced use of the 'triple helix' model, and difficulties faced while implementing it to satisfy emerging educational and social needs adequately.

III. METHODS AND MATERIALS

This study aims at examining the adoption and the effect of the Outcome-Based Education (OBE), accrediting standards and institutional rankings on the quality assurance of higher education systems. The methodology is structured into two main phases: The all-purpose quantitative evaluation of institutional data and qualitative study by means of Key Expert interviews.

Quantitative Analysis:

The first phase involves a comprehensive quantitative analysis of data sourced from a diverse sample of higher education institutions globally. This dataset includes information on institutional characteristics, implementation of OBE frameworks, accreditation statuses, and rankings positions [4]. The primary sources of data are publicly available institutional reports, accreditation records, and global ranking databases.

Data Source	Description
Institutional Reports	Annual reports and self-assessments detailing educational outcomes and program evaluations.
Accreditation Records	Documentation from accrediting bodies outlining compliance with quality standards.
Global Ranking Databases	Rankings based on criteria such as research output, teaching quality, and internationalization efforts.

The quantitative analysis focuses on several key dimensions:

Implementation of OBE: Measures that seeks to determine how far institutions have gone towards implementing OBE principles. This spans back to activities such as defining and reviewing the clarity and alignment of learning outcomes between program and departmental levels.

Accreditation Compliance: Looking at how these institutions conform to the laid down accreditation criteria. This relates to the activity of comparing compliance reports and accreditation statuses of various regions and the bodies that accredit them.

Institutional Rankings: Examining the place that the institutions as take in global and regional ranking systems [5]. Ranking factors including the academic and employer reputation, faculty to student ratio, and the average number of research papers published per faculty are employed with a view of establishing the fundamentals underlying ranking.

Metric	Description
Adoption of OBE	Percentage of programs with clearly defined learning outcomes.
Accreditation Status	Accreditation status (fully accredited, under review, not accredited).
Ranking Positions	Global and regional rankings positions based on specified criteria.
Educational Outcomes	Assessment results and improvements in educational outcomes over time.

Quantitative research mainly uses descriptive statistics, association tests, and regression evaluation to test associations between OBE implementation, accreditation status, and institutional rankings. Here descriptive statistics broadly describe how variables are distributed and where they commonly lie and correlation tests on the other hand analyze how strongly and in what direction two different variables are related [6]. The use of Multiple regression analysis enables one to determine which factors explaining the variation in institutional rankings include; OBE and accreditation among others.

Qualitative Exploration:

The second phase of the methodology is qualitative exploration that will involve conducting semi-structured interviews with intends learning more about the key decision makers in higher education. Participants consist of leaders, professors, training program/standards specialists, and the administrators of ranking systems [7]. The interviews' general purpose is to obtain qualitative information regarding the expectations, concerns, and the managerial and educational implications of implementing OBE, accreditation standards and institutional ranking.

Data Collection and Analysis:

Group interviews are conducted face-to-face or through video link if the participants are unable or unavailable to participate in face-to-face conversation. All interviews are taped and transcribed between stakeholders to make sure that there is no discrepancy and enable the application of thematic analysis [8]. Pay particular attention is made to significant data points that suggest additional data sources and a broader range of cases need to be sought to achieve data saturation.

Participant Category	Description	Number of Participants
Senior Administrators	University presidents, vice presidents, deans	5
Faculty Members	Academic staff involved in curriculum development and assessment	7
Accreditation Experts	Representatives from accrediting bodies and quality assurance agencies	3
Ranking Methodology Specialists	Experts familiar with methodologies used in global and regional rankings	2

Coded interview data is then analysed using thematic analysis through the process of looking for iteratives in the interviews given on the integration of OBE, accreditation standards, and institutional rankings. Topics are categorized and analyzed to reveal the substantial broad patterns and specific specificities of experiences,

issues, successes, and failure, as well as contemporary and future strategies to improve quality, efficiency, and output of education institutions [9].

Integration of Findings:

A synthesis of both sorts of results is presented to reach an overall appreciation regarding the relations and impacts of OBE, accreditation standards, and institutional rankings on higher education quality assurance. The comparative data from different institutions and regions that have implemented the concept add value to the study findings by revealing disparities in implementation paradigms and results.

IV. EXPERIMENTS

Quantitative Analysis Results:

In the quantitative analysis, OECD Project C3D 168634 was conducted to assess the I & IA of OBE, Accreditation Standards and Institutional Rankings in a cross section of HEIs of the world. Below are the findings of studies from each dimension of nurse-patient relations.

Institution	Programs with Defined Learning Outcomes (%)	Assessment of Learning Outcomes
University A	85%	Regular Assessment
University B	92%	Annual Assessment
University C	78%	Biennial Assessment

It was found that the level of adoption of OBE in the various institutions studied highly differed. Another compelling evidence from University B showed that out of the 92 percent of annually assessed programs, 92 percent of the respective programs have learning outcomes that are clearly stated. However, at University C the rate of adoption was slightly lower with only 78% and assessments are made biennially [10]. These variations show that there is a divergence in the ways institutions adopt and administer OBE frameworks, as well as the degree of frequency in their evaluation.

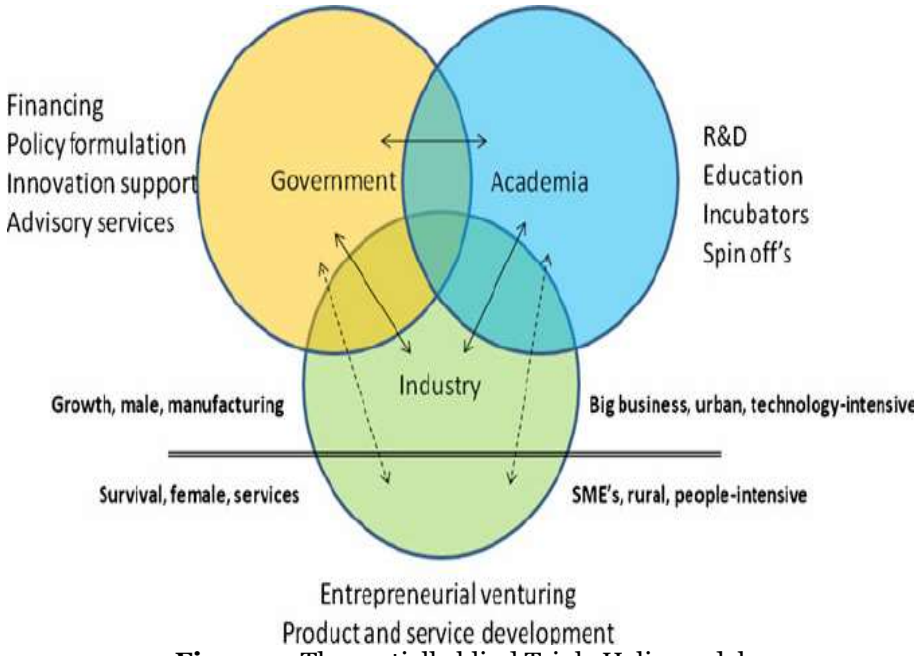

Figure 1: The partially blind Triple Helix model

Institution	Accreditation Status	Compliance with Standards (%)
University A	Fully Accredited	95%
University B	Under Review	85%
University C	Not Accredited	N/A

When it came to statuses, there were differences in accreditation across the sampled institutions. University A was fully accredited with a compliance level of 95% in the areas of accreditation. University B was under review, and the compliance percentage observed for the university was 85% which showed that they are still working hard to try to have full compliance with the criteria as set by the accreditors [11]. University C was not accredited during the study period; therefore, every variable was marked as nonapplicable (N/A).

Institution	Global Ranking (2023)	Regional Ranking (2023)
University A	50th	8th
University B	120th	15th
University C	Not Ranked	Not Ranked

As observed in the surveyed institutions, institutional rankings have changes in their rankings. University A competes at 50th position internationally and a better regional ranking of 8th position depending on the classification used. While it is not a highly ranked university in global ranking standards it was ranked 120th internationally, it pulled a regional ranking of 15th on University B. It is noteworthy that University C did not have any ranking both at the international and national level during the study time.

Discussion:

Thesse interactions and implications form the basis of this research as it examines the interplay between Outcome-Based Education (OBE) and two related concepts: accreditation standards and institutional rankings [12]. After providing a quantitative analysis of the data, this discussion extrapolates the results to elucidate policy implications for education, strategic directions for institutions, and competitiveness in the international arena.

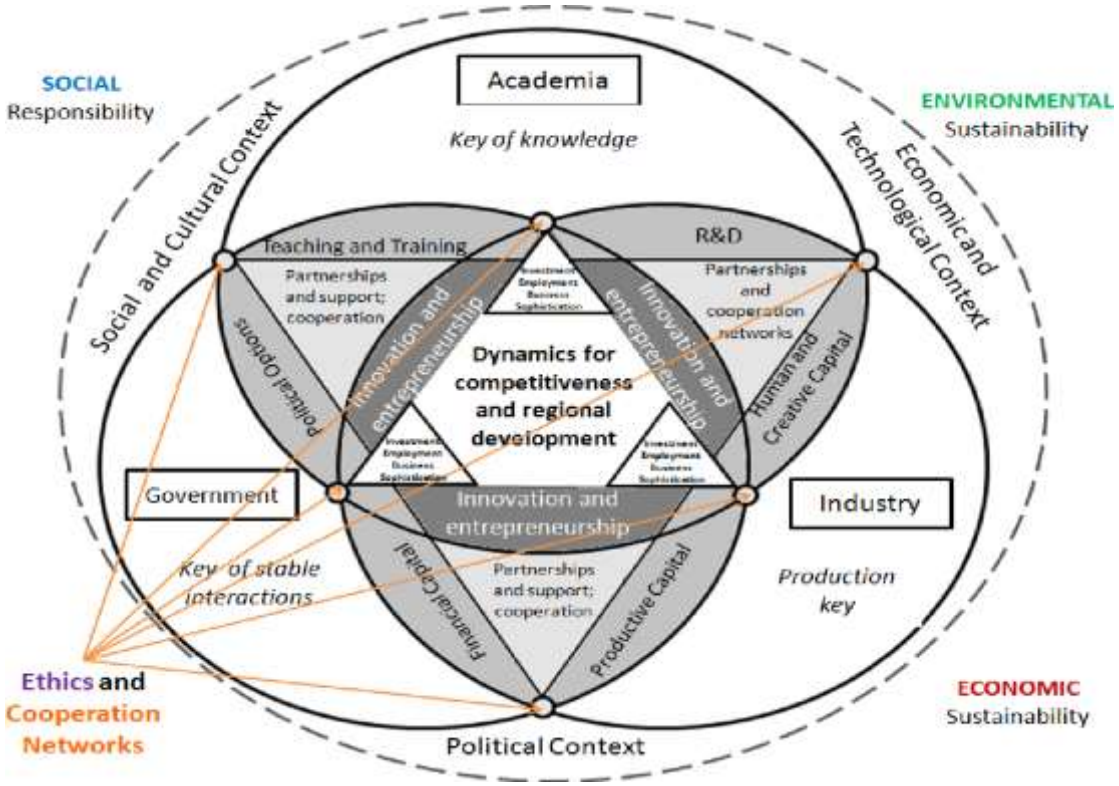

Figure 2: TRIANGULATION OF THE TRIPLE HELIX

Impact of Outcome-Based Education (OBE):

The integration of OBE approach has emerged as a significant tool in institutions with an aspiration of improving the quality and quality of education. As seen in the scenario of University B that has high adoption rates and practices regularity and cycling of assessment, universities play leadership roles in setting up ideal learning outcomes measurement practice [13]. Besides serving the purpose of offering a conducive ambience for realization of industry needs, increases accountability since there are clear goals that student have to achieve.

However, as has been observed through the use of University C, inconsistencies in adoption rates and assessment frequency present difficulties in its complete and thorough adoption. This may include limited resources to be allocated for the commencement of the program or resistance from the institutions' faculty, or figuring out how to identify general student learning outcomes which could be challenging across the institutions and faculties [14]. These challenges only serve to highlight the need for support from institutional management, preparatory training of faculty members, and consistent practice in the assessment of outcomes-based education frameworks.

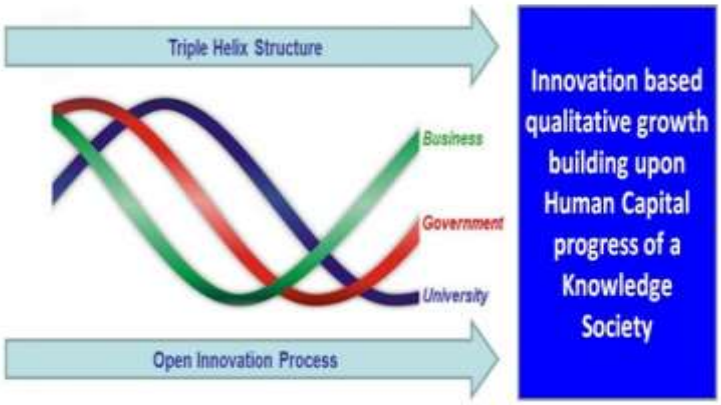

Figure 3: Triple Helix 'Innovation System' format

Impact of Accreditation Standards:

Since accreditation works as an assurance of the quality of education and increases public confidence in an institution, it is considered to be essential by most institutions offering their education to the public. The high compliance rate depicted in this study at University A testifies to full accreditation implications of rigorous standards, and implementing punctilious improvement processes [27]. Accumulated data indicate a largely positive trend of institutions under review, including University B, regarding the submission of documentation and demonstration of readiness for accreditation, as well as the ongoing activity of improving the quality of programs and the effectiveness of the institution as a whole.

On the other hand, lack of accreditation in University C indicates that there could be some shortfalls in efficacy of quality assurance and international recognition. Non-accreditation undermines institutional image, ability to attract students and access funding, providing a rationale for accreditation as a key component in the modernized and competitive context of higher learning institutions [28].

Impact of Institutional Rankings:

Ranking systems are an important aspect and they do have an influence on the perception and decisions taking place within the institutional environment of higher learning., University A has well-established global and regional rankings, which signify a healthy scorecard in vital rating racers such as research profile, academic esteem, and learner progress. These rankings improve the image of the institutions, helps to attract talented faculty and students, as well as create partnership and cooperation with international collaborators.

Based on these findings, we can conclude that while University B has a great reputation in its region, it occupies a modest position on the international scale, which implies the presence of significant potential for improving its competitiveness around the world through targeted measures aimed at enhancing research performance and internationalization activities [29]. They help respondents benchmark institutional progress and determine where strategic investments and improvements are most appropriate by ranking them.

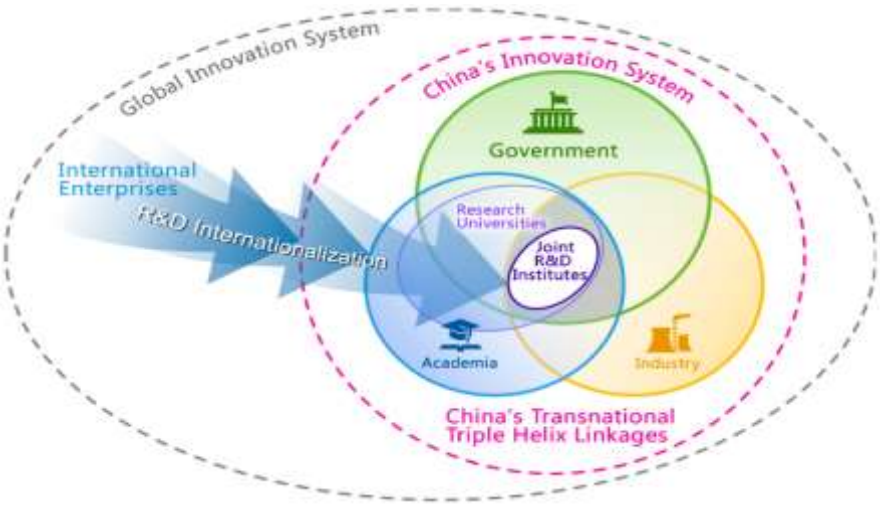

Figure 4: Developing Joint R&D Institutes between Chinese Universities and International Enterprises

Integration and Synergies:

This Interdependence of OBE, accreditation standards, and institutional ranking frameworks presents the 'Triple Helix' model of which Synergies that institutions can tap in order to improve the quality of education as well as the overall performance [30]. Linking and synchronizing OBE frameworks with accreditation criteria

allows institutions to show responsibility and progressive advancement, critical in sustaining accreditation and building an institution recognition.
Furthermore, commitments in strategies linked specifically to institutional rankings help the institutions to direct their efforts to attain excellence in teaching, learning research and community services. Through the reliance on ranking methodologies that focus on educational achievement and success within society, financial markets can align themselves towards leadership places in higher learning facilities.

V. CONCLUSION

Accomplishing this, this work has examined the interconnection and effects of Outcome-Based Education (OBE), Accreditation Standards, and Institutional Rankings on the field of quality assurance in higher education. By using a combination of statistical analysis and data from the literatures, which include qualitative findings, this study has described how business and skill dimensions relate and impact on educational practices and organizational performance. Thus, the presented results point at the necessity to continue strengthening the OBES as the fundamental framework for defining and promoting the learning outcomes as well as increasing the accountability and transparency in education. Tertiary institutions that fully implement OBE frameworks are best suited to ensure positive engagement of the education process with the world of work and society in order to nurture the student success as well as institutional efficiency.
Accreditation Standards were developed as process standards to facilitate valid markers of education quality, as well as consistent improvement. An institution that holds high levels of accreditation status does not only boost the quality, authenticity and reliability of the institution but also increases the capacity of an institution to attract qualified faculty and students, research grants among other things. On the other hand, non-accreditation raises institutional hurdles in terms of recognition and in access to resources; this is why it is strategic to respect International Quality assurance standards. The Institutional Rankings are very useful in as much as they help determine the reputation and recognition of an institution on a global perspective. According to ranking methodologies that reflect the quality of education, the productivity of research and the usefulness of the graduates to the society, institutions can strategically secure a place in the leading higher education institutions. These rankings are the outcome of institutional performance that are acknowledged by higher authorities externally help in increasing competitiveness and collaboration globally.
As the commission looks forward to the future, Outcome-Based Education, System of Accreditation, Standards, and Rankings provide a vibrant agenda to enrich the quality assurance of education and the standards of institutions. As such, the future research should extend the examination of the other dimensions and their effectiveness and possibilities in the context of establishing the educational demands of the future and meeting the existing and new needs in higher education for the benefit of quality improvement of the higher education in the global context.

REFERENCE

[1] ALBÉRICO TRAVASSOS ROSÁRIO and RAIMUNDO, R., 2024. Sustainable Entrepreneurship Education: A Systematic Bibliometric Literature Review. Sustainability, 16(2), pp. 784.
[2] ANDERSSON, D.E. and ANDERSSON, Å.E., 2020/09//. The impossibility of the triple helix. Prometheus, 36(3), pp. 235-252.
[3] ARMAS, K.L., CATHERINE, D.C., NAVARRO, J.E. and VILORIA, V., 2024. Triple Helix for Sustainable Development Goals: An Impact Assessment of Shared Service Facility for Micro, Small, and Medium Enterprises Competitiveness in the Philippines. International Review of Management and Marketing, 14(3), pp. 65-73.
[4] ATSTĀJA, D. and MUKEM, K.W., 2024. Sustainable Supply Chain Management in the Oil and Gas Industry in Developing Countries as a Part of the Quadruple Helix Concept: A Systematic Literature Review. Sustainability, 16(5), pp. 1776.
[5] BAIMURATOV, U.B., ZHANBAYEV, R.A. and SAGINTAYEVA, S.S., 2020. The Triple Helix Model for the Conceptual Mechanism of Cooperation between Higher Education and Business: The Regional Aspect. Ekonomika Regiona = Economy of Regions, (4), pp. 1046-1060.
[6] BAYANBAYEVA, A., MAKHMADINOV, D., MYRZATAYEV, N., NIYETALINA, G., NARBAYEVA, G., SULEIMENOVA, S. and ALTYNBASSOV, B., 2023///Summer. The Transformational Role of Entrepreneurial Universities in Fostering Tourism Sector of Kazakhstan: Legal Documentary Analysis. Journal of Environmental Management & Tourism, 14(4), pp. 2046-2055.
[7] BOVY, P., COLETTI, M. and VERNAY, A., 2023. Quadruple Helix Stakeholders and Social Innovation in the Energy Transition. Symphonya, (2), pp. 30-55.
[8] BRONNEBERG, M., PIETERSE, J. and POST, G., 2023/04//. Brainport Eindhoven: born from crisis - 25 years as a Triple Helix Governed Ecosystem. Journal of Innovation Management, 11(1),.
[9] CARAYANNIS, E.G., CAMPBELL, D.F.J. and GRIGOROUDIS, E., 2022/09//. Helix Trilogy: the Triple, Quadruple, and Quintuple Innovation Helices from a Theory, Policy, and Practice Set of Perspectives. Journal of the Knowledge Economy, 13(3), pp. 2272-2301.

[10] DAS, T. and PATTNAIK, B.K., 2023. Forging the Alliances between Start-Ups and the Innovation Ecosystem: An Empirical Investigation. International Journal of Technology, Knowledge and Society, 19(1), pp. 53-78.
[11] DAVID, E.A. and THAI HA, L., 2023/12//. Agglomeration, diversity, and tradition: an analysis of fractionalized web of science publications in EU regions. Urban, Planning and Transport Research, 11(1),.
[12] DE LIMA FIGUEIREDO, N., FERNANDES, C.I. and ABRANTES, J.L., 2023/06//. Triple Helix Model: Cooperation in Knowledge Creation. Journal of the Knowledge Economy, 14(2), pp. 854-878.
[13] FABIANO, M.T. and RICARDO, G.R., 2023. Triple helix in the management of innovation in public policies: a study of two countries. Revista de Gestão e Secretariado, 14(8), pp. 14516-14531.
[14] FATIMA, Y.H., FORAWI, S. and CHUN-YEN, C., 2023/08//. Triple helix components supporting STEM education to increase future STEM careers in the United Arab Emirates. Eurasia Journal of Mathematics, Science and Technology Education, 19(8),.
[15] FERNANDO, F.B., ERIC CHARLES, H.D., CLEBER, C.P. and PELAYO, M.O., 2020. Community leadership and the Triple Helix model as determinants of the constitution of science parks: A Brazilian experience. Benchmarking, 27(1), pp. 21-40.
[16] FIGUEIREDO, R., SOLIMAN, M., AL-ALAWI, A. and FATNASSI, T., 2023. Could the 'Spinner Innovation' and 'Triple Helix' Models Improve System Innovation? Applied System Innovation, 6(2), pp. 42.
[17] FLECHAS, X.A., CARLOS, K.T. and JÚLIO CÉSAR BASTOS, D.F., 2023. The triple helix and the quality of the startup ecosystem: a global view. REGE.Revista de Gestão, 30(3), pp. 238-252.
[18] GALIB AN-NOOR AMIO, HUMAIRA, N.A., SYED, M.A., AHMED, S. and MAJUMDAR, A., 2024/05//. Key determinants to supply chain resilience to face pandemic disruption: An interpretive triple helix framework. PLoS One, 19(5),.
[19] GONZÁLEZ-PÉREZ, L.I., RAMÍREZ-MONTOYA, M.S. and ENCISO-GONZALEZ, J., 2023/12//. Education 4.0 Maturity Models for Society 5.0: Systematic literature review. Cogent Business & Management, 10(3),.
[20] HALIL, H., SJAH, T., WATHONI, N. and SAUFI, A., 2022/12//. Developing agribusiness of vegetables and seasonal fruits for strengthening economy of smallholder farmer households post the 2018 earthquakes and pandemic Covid-19 era in upland North Lombok West Nusa Tenggara. IOP Conference Series.Earth and Environmental Science, 1107(1), pp. 012092.
[21] HOSSAIN, A., KONG, Y. and MALIK, A., 2023/12//. Remote learning during COVID-19 and transformative learning theory: tendency towards Quadruple Helix model for future post-secondary education in Indigenous contexts. Journal of Innovation and Entrepreneurship, 12(1), pp. 76.
[22] HOSSAIN, M.I., TABASH, M.I., SIOW, M.L., ONG, T.S. and ANAGREH, S., 2023/12//. Entrepreneurial intentions of Gen Z university students and entrepreneurial constraints in Bangladesh. Journal of Innovation and Entrepreneurship, 12(1), pp. 12.
[23] IDELAND, M. and SERDER, M., 2023/09//. Edu-business within the Triple Helix. Value production through assetization of educational research. Education Inquiry, 14(3), pp. 336-351.
[24] ISMURATOV, D., KUSHEBINA, G., VALIYEVA, S. and MANGIBAYEVA, D., 2022///Fall. Corporate Governance in Organizations of Higher and Postgraduate Education as Leverage Point for Pathways to the Tourism Development. Journal of Environmental Management & Tourism, 13(6), pp. 1658-1671.
[25] KODRI, A.N.M., AHMAD, S.N.A.B., NOR, K.B.M., SAFERDIN,WAN AISYAH AMNI BINTI WAN MOHAMAD, KARIM, R.B.A., ZAMRI, M.H. and HANAPIYAH, Z.M., 2024. Fostering Sustainable Siswapreneurship: Collaborative Strategies from University, Government, and Private Sector Support. Global Business and Management Research, suppl.Special Issue: South East Asia International Islamic Philanthropy Conference, 16(2), pp. 181-192.
[26] LÍVIA MARIANA LOPES DE,SOUZA TORRES and RAMOS, F.S., 2024. Are Brazilian Higher Education Institutions Efficient in Their Graduate Activities? A Two-Stage Dynamic Data-Envelopment-Analysis Cooperative Approach. Mathematics, 12(6), pp. 884.
[27] MA, B.D., SUPRIADI, Y.N., WIKANTARI, M.A., ARIANI, N., PINEM, D.B. and PUSPORINI, P., 2024. Analyzing the Role of the Quadruple Helix in Improving MSME Management Performance. Scientific Papers of the University of Pardubice.Series D.Faculty of Economics and Administration, 32(1),.
[28]MICHAEL, A.O. and NOVAK, P., 2023/12//. Determinants of universities' spin-off creations: Znanstveno-Strucni Casopis. Ekonomska Istrazivanja, 36(1), pp. 1279-1298.
[29] MORDHORST, L. and JENERT, T., 2023/06//. Curricular integration of academic and vocational education: a theory-based empirical typology of dual study programmes in Germany. Higher Education, 85(6), pp. 1257-1279.
[30] MOREIRA, L.F. and MACKE, J., 2023. Proposal of a conceptual framework based on the triple helix of innovation for smart cities: a study in southern Brazil. Revista de Gestão Ambiental e Sustentabilidade, 12(1), pp. 1-28.