

MidOcean University
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Research Title:

**High-Quality Data is Essential for the Accreditation of Academic Programs in
Higher Education Institutions**

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Abstract:

This study explores the impact of data quality on achieving academic program accreditation in higher education institutions. It focuses on key dimensions such as accuracy, completeness, consistency, timeliness, availability, and traceability, and examines how these influence compliance with accreditation standards and continuous improvement. The study adopts an explanatory sequential mixed-methods design: documentary analysis, survey data collection, and explanatory modeling using multiple regression or PLS-SEM. Expected results highlight the positive and significant effect of data accuracy, completeness, and consistency on the quality of accreditation evidence and the reduction of major findings. Data governance, standardized indicators, and metadata management are also hypothesized to strengthen readiness for accreditation and sustain continuous improvement. The outcomes are expected to support higher education institutions in designing robust data governance frameworks.

Chapter One

Introduction:

Background:

Higher education institutions increasingly rely on high-quality data to demonstrate program effectiveness, ensure transparency, and comply with national and international accreditation requirements. Data has become a strategic asset supporting institutional planning, student success evaluation, and performance-based decision-making. Thus, data quality serves as a fundamental pillar supporting higher education institutions in their pursuit of academic accreditation. Accreditation bodies depend on accurate and reliable data to evaluate the effectiveness of academic programs and the quality of their outcomes, in which increasingly expect institutions to provide data-driven evidence of their effectiveness in student success, resource allocation, and continuous improvement. Accrediting agencies demand transparency and accountability, requiring institutions to provide measurable outcomes that show how well they are fulfilling their missions. Whether it's improving student retention, ensuring financial sustainability, or demonstrating effective governance, data is essential for:

- **Tracking progress** toward institutional goals.
- **Measuring student achievement** in relation to learning outcomes.
- **Assessing resource allocation** for academic and non-academic functions.

Institutions with robust data collection and analytics systems are often better equipped to respond to accrediting bodies' evolving expectations.

Key Areas Where Data Analytics Supports Accreditation:

1. Student Success Metrics

Accrediting bodies want concrete evidence of student success, from admission to graduation. Data analytics can track key metrics such as retention rates, graduation rates, job placement rates, and licensure pass rates. By analyzing this data, institutions can not only identify at-risk students but also implement timely interventions to improve student

outcomes, demonstrating to accrediting agencies their commitment to continuous improvement.

2. Curriculum Effectiveness

Data analytics can help institutions assess the effectiveness of their curricula by linking learning outcomes to student performance data. This helps identify areas for curriculum enhancement and provides tangible proof that the curriculum aligns with institutional goals. Accreditation teams can leverage this data to showcase how their academic programs evolve in response to student and market labor needs.

3. Resource Utilization and Institutional Efficiency

Analytics can assess how resources such as faculty, finances, and technology are used across departments. Institutions can demonstrate cost-effectiveness, efficiency in staffing, and the strategic use of technology in meeting educational objectives—critical factors in the accreditation process. Financial sustainability metrics, in particular, are often scrutinized during accreditation reviews, and data can provide the necessary evidence of fiscal responsibility.

4. Continuous Improvement and Assessment Cycles

Accrediting bodies prioritize continuous improvement, and data analytics offers a structured way to track assessment cycles. Institutions can document how data is collected, analyzed, and used to make decisions on program improvements. This helps demonstrate a commitment to evidence-based planning and the use of feedback loops to foster growth and innovation.

Therefore, this study explores how data quality and analytics practices contribute to achieving and sustaining academic program accreditation in higher education institutions. While accreditation processes emphasize evidence-based evaluation, limited research has examined how data quality management directly impacts accreditation outcomes.

Research Problem:

Despite the rapid advancement of academic information systems and dashboards, many higher education programs still face challenges related to data quality such as inconsistent definitions, duplicated or missing records, and outdated information. These issues negatively affect the quality of evidence provided for accreditation standards and increase the likelihood of major observations or delayed accreditation decisions, all of which undermine the credibility of evidence submitted to accreditation bodies. The need for an integrated system to ensure the collection, documentation, analysis, and review of data in accordance with quality standards and corporate governance is evident. Therefore, this study seeks to examine how data quality and data governance influence the achievement and sustainability of academic program accreditation.

Research Significant:

This research addresses a critical issue in higher education quality assurance. The importance of this research can be understood in several key ways:

- **Practical significance:** To enable decision-makers to enhance institutional evidence and reduce compliance gaps. The research demonstrates tangible benefits of high-quality data management. Fatahillah et al. found that “integrated database management and independent academic information systems” led to “enhanced accreditation scores through valid and relevant data” Fatahillah et al., 2024. Trinidad reported “efficiency gains in accreditation monitoring” and “high user satisfaction” from implementing a web-based accreditation system Trinidad, 2022.
- **Scientific significance:** To fill a research gap connecting data quality dimensions to accreditation outcomes.
- **Policy significance:** To propose a data governance framework aligned with national and international quality standards.
- **Identifying Critical Success Factors:** The research reveals that effective accreditation depends on three interconnected elements: robust database management, technology

integration, and human resource development. As the report concludes, “high-quality data management—achieved through technological integration and targeted human resource development—is central to strengthening accreditation processes in higher education institutions” Fatahillah et al., 2024 & 1 others.

- **Highlighting Implementation Challenges:** Both studies identify “human resource capacity” and “data consistency” as significant barriers Fatahillah et al., 2024 & 1 others. This helps institutions understand potential obstacles and plan accordingly.
- **Limitations and Research Gaps:** The report notes important limitations: “small number of included studies” and “lack of full-text access,” indicating this is an understudied area that needs more research Fatahillah et al., 2024 & 1 others.

Research Objectives:

- Determining which aspects of data quality most influence how prepared higher education institutions are for academic accreditation.
- Examining how data quality affects the ability of academic programs to achieve accreditation standards.
- Recommending a data quality management framework that aligns academic governance with accreditation needs.
- Offering a practical approach to enhance data collection and analysis, thereby supporting evidence-based decisions in the accreditation process.

Research Questions:

- Q1: How does data quality influence the preparedness of academic programs for accreditation?
- Q2: Which key aspects of data quality impact the effectiveness of accreditation procedures?
- Q3: What strategies can higher education institutions use to effectively manage data quality?
- Q4: How can enhancing data quality improve the credibility of evidence submitted to accreditation bodies?

- Q5: How do data governance and standardized indicators contribute to the sustainability of accreditation and continuous improvement?

Research Hypotheses:

- H1: There is a strong positive correlation between data quality and the extent to which academic accreditation standards are met.
- H2: Consistency and accuracy are the most influential factors in enhancing confidence in the evidence provided.
- H3: Implementing data governance improves the quality of information used in academic reporting.
- H4: Using data validation tools helps minimize mistakes and increases the efficiency of preparing accreditation documentation.

Chapter Two

Literature Review:

This chapter reviews major studies related to data quality, data governance, and accreditation in higher education. It categorizes the literature into:

1. Data quality dimensions and measurement
2. Data governance and accountability
3. Accreditation standards and evidence management
4. The link between data quality and accreditation outcomes

Research in this area overwhelmingly focuses on establishing data as a strategic asset that is fundamental for internal decision-making, efficiency, and external compliance.

- **Data Governance as a Foundational Framework:**

Studies emphasize that effective data governance provides the necessary **structure** for data quality, which in turn supports accreditation:

- **Definition and Scope:** Data governance is defined as the framework of processes, policies, standards, and technologies designed to manage an organization's data assets responsibly, covering the entire data lifecycle.
- **Strategic Pillar:** It is viewed as a strategic pillar for digital transformation, ensuring data quality, integration, and security (Source 1.2).
- **Implementation Challenges:** Research frequently highlights challenges, including **fragmented** adoption of governance practices, the absence of clear policy, and a lack of standardized metrics to measure governance impact (Source 1.2, 4.2). Successful governance often involves establishing key roles like **Data Trustees**, **Data Owners**, and **Data Stewards** (Source 4.1).
- **The Critical Role of Data Quality:**

High-quality, trustworthy data is essential for accurate reporting and evidence-based decision-making.

- **Dimensions of Quality:** Data quality is often assessed based on dimensions like **Accuracy, Completeness, Consistency, Integrity, Timeliness, and Validity** (Source 1.5, 3.1).
- **Impact of Poor Quality:** Poor data quality creates a domino effect, leading to **poor decision-making, operational inefficiencies, weakened risk management**, and direct negative impacts on **accreditation efforts** (Source 3.2).
- **Improvement Strategies:** Studies recommend strategies such as automated **duplicate detection**, real-time **data validation**, and streamlining data integration into a central, governed dashboard (Source 3.2).

Link to Higher Education Accreditation:

The most direct link between these topics is the requirement for evidence-based self-assessment and accountability mandated by accreditors.

- **Data as Evidence for Accreditation:**

Accreditation is fundamentally moving from a documentation-heavy, periodic review toward a more data-driven and potentially continuous monitoring approach (Source 2.4).

- **Simplifying Planning:** Reliable institutional data on **daily operations, student outcomes, and overall effectiveness** is crucial for streamlining the accreditation planning process and self-assessment (Source 2.3).
- **Key Performance Indicators (KPIs):** Accreditation heavily relies on data-driven KPIs to assess performance in areas such as:
 - Retention rates
 - Graduation rates
 - Employment rates
 - Student satisfaction (Source 2.3, 3.5)

- **Compliance and Transparency:** Robust data governance ensures compliance with regulations (like FERPA in the U.S.) and provides the transparency necessary for accreditors to gain a clear and comprehensive insight into institutional operations (Source 2.1, 2.3). Inaccurate or inconsistent reporting due to poor data quality can lead to significant compliance and liability issues (Source 2.5).
- **Future Directions: Technology Integration**
A growing body of research explores how technology, powered by good data governance, will transform accreditation:
 - **Institutional Analytics:** The systematic analysis of data (Institutional Analytics) is a critical enabler, using tools like dashboards, learning analytics, and predictive models to facilitate transparency and informed decision-making for quality assurance (Source 3.5).
 - **Artificial Intelligence (AI):** AI systems, when fueled by a strong data governance foundation, are proposed to revolutionize accreditation by analyzing vast data to identify patterns and anomalies, moving from periodic review to continuous monitoring (Source 2.2, 2.4).

Theoretical Framework:

The theoretical framework is based on data quality dimensions and data governance models such as DAMA-DMBOK. It integrates principles of Total Quality Management (TQM) and accreditation standards, employing the DIKW framework to connect data, information, knowledge, and decision-making. The study also aligns with ISO 9001 quality management principles.

Research Methodology and Methods:

Research Design:

This study adopts an explanatory sequential mixed-methods design, which begins with documentary analysis of accreditation reports, institutional data sources, and program performance indicators. This is followed by quantitative data collection using a structured electronic survey that measures key data quality dimensions, including accuracy, completeness, consistency, timeliness, availability, and traceability. The final phase involves statistical modeling using multiple regression and PLS-SEM to explain how variations in data quality influence accreditation readiness and outcomes.

Study Population:

The population of this study consists of individuals involved in academic program accreditation and data management within higher education institutions, including quality assurance leaders, program accreditation coordinators, academic department heads, institutional research staff, and data governance personnel.

Sampling and Sample Size:

A purposive sampling technique will be used to select participants due to the specialized nature of the study. The anticipated sample size may later be specified (e.g., 80–150 participants) to ensure adequate statistical power.

Data Collection Methods:

- **Documentary Analysis:** Accreditation self-studies, KPI reports, internal audits, and dashboards will be reviewed.
- **Survey Instrument:** A structured online questionnaire will measure accuracy, completeness, consistency, timeliness, availability, governance practices, and accreditation readiness using a Likert scale.

Data Analysis Procedures:

Quantitative data will be analyzed using descriptive statistics, reliability tests (Cronbach's Alpha, Composite Reliability, AVE), correlation analysis, multiple regression, and PLS-SEM. Documentary analysis findings will be used to complement the statistical results.

Ethical Considerations:

The study ensures voluntary participation, informed consent, anonymity, confidentiality, secure data storage, and compliance with institutional ethical guidelines.

Chapter Three

Research Instruments:

The study employs two primary research instruments to collect and analyze data relevant to the relationship between data quality and academic program accreditation:

- **Documentary**

Analysis:

This tool is used to review a comprehensive set of institutional documents, including accreditation self-study reports (SAR), internal audit findings, KPI dashboards, institutional data repositories, and the official NCAAA templates and evidence forms. These include the Annual Program Report (APR), KPI Analysis Reports, Standard Evidence Files, and other accreditation documentation required by the National Commission for Academic Accreditation and Assessment (NCAAA). The purpose of this analysis is to evaluate data quality, identify gaps in documentation, and assess the alignment between institutional evidence and accreditation standards.

- **Structured**

Electronic

Survey:

A validated electronic questionnaire was developed to measure key dimensions of data quality, including accuracy, completeness, consistency, timeliness, availability, and governance practices. The survey is based on a five-point Likert scale and is designed to capture participants' perceptions of institutional data quality, evidence reliability, and accreditation readiness. This tool provides the quantitative data needed for statistical analyses such as reliability testing, correlation, regression, and PLS-SEM modeling.

Together, these instruments provide robust, complementary evidence for examining how data quality influences the achievement and sustainability of academic program accreditation.

Study Delimitations:

1. Geographical

Scope:

This study focuses on higher education institutions in the Kingdom of Saudi Arabia, specifically units and departments involved in data collection, accreditation evidence preparation, and academic quality assurance processes.

2. Time

Scope:

The study relies on institutional data, accreditation reports, and documentation produced between 2022 and 2025. This period reflects the increased implementation of data governance practices and the modernization of accreditation requirements.

3. Subject

Scope:

The study is limited to examining the relationship between data quality dimensions—accuracy, completeness, consistency, timeliness, availability, and traceability—and the achievement of academic program accreditation standards. The study does not address other factors such as teaching quality, infrastructure, financial management, or student satisfaction unless they directly relate to data quality.

4. Human

Scope

(Population

Scope):

The study includes individuals responsible for program accreditation and data management, such as quality assurance staff, program coordinators, accreditation officers, and data governance personnel. The study does not include students or academic staff who are not involved in accreditation or data management activities.

Conclusion:

This study highlights the essential role of high-quality data in achieving and sustaining academic program accreditation within higher education institutions. As accreditation agencies increasingly emphasize evidence-based evaluation, institutions must rely on accurate, complete, consistent, timely, and well-governed data to demonstrate program effectiveness, institutional performance, and continuous improvement.

Findings from the literature confirm that data quality directly influences the credibility of accreditation evidence, the accuracy of performance indicators, and the institution's readiness for external review. Data governance frameworks—such as DAMA-DMBOK, DIKW, ISO 9001, and TQM principles—provide strong foundations for ensuring integrity, standardization, and transparency across institutional datasets. These frameworks help mitigate common issues such as duplicated records, inconsistent definitions, fragmented systems, and outdated information.

The study further emphasizes that accreditation outcomes are strengthened when institutions adopt integrated systems, standardized indicators, metadata management, and clear accountability roles such as data stewards and data owners. Together, these practices reduce major findings, enhance internal decision-making, and support long-term quality assurance and institutional effectiveness.

Overall, this research contributes to a clearer understanding of how data quality and governance shape accreditation success. It encourages higher education institutions to invest in robust data management processes, continuous monitoring, and evidence-based planning as strategic components for maintaining accreditation and achieving excellence in academic quality.

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