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#### **REVIEWER'S REPORT**

Manuscript No.: IJAR-52135

Date: 07.06.2025

Title: EDMLENS DATAFLOW: AN ANALYTICAL ARCHITECTURE FOR EXTRACTION, TRANSFORMATION, LOADING, ANALYSIS AND VISUALIZATION OF EDUCATIONAL DATA

Recommendation:	Rating	Excel.	Good	Fair	Poor
Accept as it is	Originality		✓		
✓ Accept after minor revision	Techn. Quality		~		
Do not accept (Reasons helow)	Clarity		✓		
	Significance	$\checkmark$			

Reviewer Name: Ms. S. Lavanya, AP/IT

Date: 07.06.2025

#### **Reviewer's Comment for Publication.**

(To be published with the manuscript in the journal)

The reviewer is requested to provide a brief comment (3-4 lines) highlighting the significance, strengths, or key insights of the manuscript. This comment will be Displayed in the journal publication alongside with the reviewers name.

This manuscript introduces the EdmLens DataFlow architecture as a comprehensive framework for educational data analysis, covering the entire ETL and KDD process. It is well-grounded in literature and emphasizes accessibility for non-technical users, making it highly relevant for academic institutions seeking data-driven decision-making. The integration of data governance and visualization enhances its practical value.

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# **Detailed Reviewer's Report**

# "EdmLens DataFlow: An Analytical Architecture for Extraction, Transformation, Loading, Analysis and Visualization of Educational Data"

### 1. General Overview

This manuscript proposes the "EdmLens DataFlow"—a conceptual analytical architecture aimed at facilitating the end-to-end processing of educational data. The paper integrates principles from Data Science, Knowledge Discovery in Databases (KDD), and Educational Data Mining (EDM) to support informed decision-making in academic institutions through a well-structured ETL pipeline and interactive visualization tools.

The proposed architecture is intended to assist educators, administrators, and institutional managers in efficiently extracting insights from large and heterogeneous datasets without requiring deep technical expertise.

#### 2. Key Strengths

- **Comprehensive Conceptual Framework** The architecture presented is thoughtfully designed to cover the entire KDD lifecycle—from data extraction through analysis to visualization. It emphasizes integration, scalability, and usability, which are critical for educational settings.
- Grounded in Literature

The manuscript includes an extensive and well-cited literature review, drawing from sources across educational analytics, data science, and data governance. This provides a strong theoretical foundation for the proposed model.

- **Real-World Relevance** By focusing on practical challenges in higher education—like dropout prediction, grade analysis, and performance monitoring—the paper targets real needs. The emphasis on accessibility for non-technical users increases its applicability.
- Incorporation of Data Governance Including governance aspects such as role definitions, privacy policies, and compliance (e.g., with LGPD) shows a mature and responsible approach to educational data analytics.

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## 3. Areas for Improvement (Minor Revision Suggested)

- Implementation and Validation Missing Currently, the paper remains at the conceptual level. The absence of a prototype or case study limits its validation. Future work should include practical implementation and institutional deployment to assess effectiveness.
- Overly Lengthy and Repetitive in Parts Some sections, particularly the theoretical background and definitions, could be more concise. Redundancies in discussing ETL and data types could be tightened to improve readability.
- Figures and Diagrams Needed The architecture would benefit greatly from one or more diagrams illustrating the "EdmLens DataFlow" pipeline, roles, and flow of data. Visuals would help readers, especially non-technical ones, grasp the architecture more intuitively.
- **More Practical Examples** The inclusion of real or simulated data use-cases (e.g., dashboards, sample reports, risk alerts) would help demonstrate how the system might operate in practice and support institutional goals.

#### 4. Recommendation

#### **Recommendation: Accept after minor revision**

This is a solid and well-researched paper that fills a practical gap in academic analytics. With a few refinements—especially around structure and illustration—it would make a strong contribution to the literature on educational data systems.

# 5. Evaluation Summary

Criteria	Rating	Comments
Originality	Good	Practical conceptual framework for education.
<b>Technical Quality</b>	Good	Well-structured, but lacks empirical validation.
Clarity	Good	Slightly verbose; needs visual aids.
Significance	Excellent	High practical value in the context of academia.