

EskwelaOne: Educational Management Information System for Sindalan National High School

EskwelaOne: Localized EMIS for Public Schools

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The main findings (novelty) and why they are important and useful:

This study introduces EskwelaOne, a localized EMIS that uniquely integrates multi-departmental modules including student records, discipline tracking, and health profiling into a single digital platform. The primary contribution lies in operationalizing school-level automation to replace fragmented, manual workflows with a secure, centralized database. These findings are critical for educational administrators, demonstrating that customized digital infrastructures can effectively eliminate data redundancy, reduce administrative workload, and provide a scalable framework for data-driven management.

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Abstract

Many public schools continue to rely on manual, paper-based workflows to manage student records, leading to data redundancy, reporting delays, and human error. This study addresses these inefficiencies by developing EskwelaOne, a localized web-based Education Management Information System tailored for Sindalan National High School. Utilizing a descriptive developmental research design, the system was built using a React.js and TypeScript frontend with a Django and PostgreSQL backend to centralize student management, attendance tracking, behavioral records, and clinic logs. The system was evaluated by ten key school personnel using a quantitative survey aligned with the Technology Acceptance Model. Findings revealed very high ratings across all evaluation metrics, with users confirming that the platform significantly enhances administrative transparency and efficiency. The study concludes that transitioning to a secure, localized digital infrastructure effectively reduces administrative workload and provides a reliable framework for data-driven institutional management.

Keywords: Academic records, discipline tracking, health profiling, record digitizing, school operations automation

Introduction

In recent years, educational institutions have increasingly transitioned toward digital transformation to manage growing volumes of student data and administrative reports. Efficient school management requires the ability to collect, store, and analyze information such as student records and performance indicators in a secure and responsive manner. However, many local public high schools in the Philippines continue to rely on manual, paper-based processes or fragmented digital tools. This reliance often results in reporting delays, data inaccuracies, and significant challenges in consolidating information across departments. Sindalan National High School faces these exact issues, handling hundreds of student records through outdated methods that hinder timely decision-making. This study reports on the development and evaluation of EskwelaOne, a customized Education Management Information System (EMIS) designed to modernize these operations by automating core administrative functions and providing a centralized digital platform.

Materials and Methods

This study utilized a Descriptive Developmental Research Design to address the administrative challenges at Sindalan National High School. The descriptive component involved gathering baseline data on stakeholder perceptions and current system limitations, while the developmental component focused on the technical design and programming of the EskwelaOne platform. This dual approach ensured that the resulting system was both theoretically sound and practically responsive to the school's actual needs.

The study is based on the Technology Acceptance Model (TAM). It utilizes an Input-Process-Output (IPO) model where student data and performance metrics serve as inputs, modular data entry and centralized storage represent the process, and the EskwelaOne system is the output.

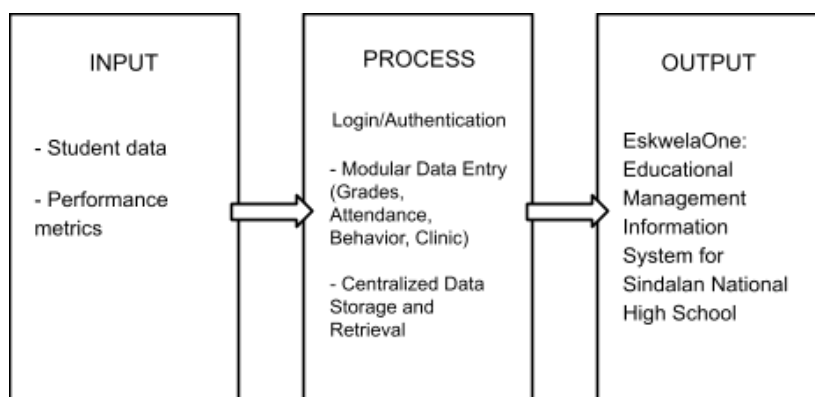


Figure 1. Conceptual Framework

Figure 1. illustrates the conceptual design of EskwelaOne, a localized and data driven EMIS developed specifically for Sindalan National High School. The system is focused on two core functions: (1) student records management and (2) performance indicator analysis. These components were selected based on common administrative challenges faced by public schools and supported by recent studies on educational information systems.

Research Design and Model Used

The study employed a Descriptive Developmental Research Design. The descriptive aspect examined the perceptions and expectations of SNHS personnel regarding the system's capability to resolve issues in student data management. Meanwhile, the developmental aspect concentrated on the creation and implementation of the system features based on the insights gathered from stakeholders. The study also used the Technology Acceptance Model (TAM) as its theoretical framework to assess user acceptance following the system overview and orientation.

System Development Methodology

The study employed a Descriptive Developmental Research Design to guide the design and implementation of EskwelaOne. This approach was selected due to its user centered design, which allowed for continuous alignment with the actual administrative workflows and identified needs of Sindalan National High School. The methodology was implemented through successive phases, beginning with a requirement analysis where researchers gathered information from school personnel including the registrar, guidance counselor, and clinic staff to identify the core challenges of manual record keeping

Participants and Setting

The study was conducted at Sindalan National High School, a public secondary school located in a suburban area of San Fernando. The participants involved in evaluating EskwelaOne were composed of ten key personnel directly responsible for student record management, performance monitoring, and administrative reporting. Respondents were chosen through purposive sampling, specifically selecting individuals who serve as the primary users and beneficiaries of the system to ensure that the feedback obtained was relevant and grounded in actual operational experience. The group of respondents included the School Registrar, Prefect of Discipline, Guidance Counselor, School Nurse, selected class advisers, department heads, and the School Principal. Participation in the study was voluntary, and all participants were given a system overview and orientation prior to the evaluation to ensure they had an adequate understanding of the platform's modules and intended functions.

Research Instrument

The researchers employed a structured survey questionnaire adapted from Ango, Maina, and Harbau (2024) to assess the acceptance of EskwelaOne using the Technology Acceptance Model (TAM). The instrument was designed to measure Perceived Usefulness (PU), Attitude Toward Use (ATU), and Behavioral Intention to Use (BIU) through twenty survey items divided into sections that focused on the system's impact on school planning and decision-making. A four-point Likert scale, with responses ranging from 1 (Strongly Disagree) to 4 (Strongly Agree), was used to remove neutral responses and encourage more decisive feedback from the school personnel

Data Collection Procedure and Analysis

The data collection process began with obtaining administrative approval from Sindalan National High School followed by a system orientation for ten purposely selected participants to familiarize them with

the functionalities of EskwelaOne . Respondents then completed a validated online questionnaire measuring Perceived Usefulness (PU), Attitude Toward Use (ATU), and Behavioral Intention to Use (BIU). This instrument utilized a 4-point Likert scale to eliminate neutral responses and encourage decisive feedback regarding system acceptance. The research instrument consisted of three key sections based on the Technology Acceptance Model (TAM) constructs

Result and Discussion

The objectives of this study served as the basis for the development and implementation of EskwelaOne: Electronic Management Information System for Sindalan National High School. These objectives were designed to address the existing challenges in handling student information and generating performance indicator reports within the school. Through the establishment of clear and focused goals, the study aims to ensure that the system effectively streamlines administrative processes, improves data accuracy, and supports informed decision-making among school administrators and personnel.

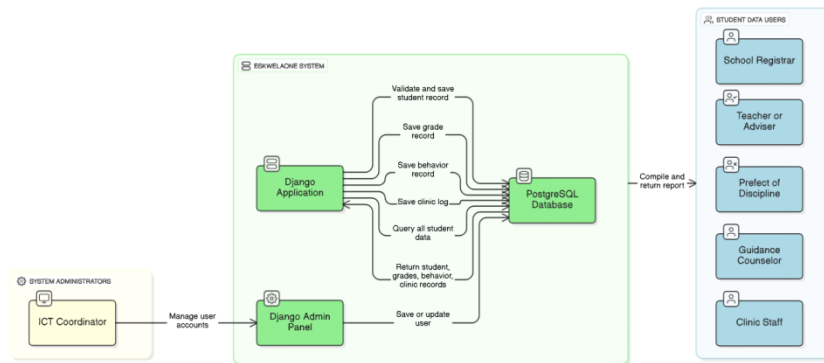


Figure II: System Architecture of EskwelaOne

The System Architecture of EskwelaOne illustrates the interaction between system users, the Django application, and the PostgreSQL database. The system is composed of two primary user groups: the Student Data Users and the System Administrator. The Student Data Users, which include the School Registrar, Teachers or Advisers, Prefect of Discipline, Guidance Counselor, and Clinic Staff, interact with the Django application to manage different types of student records. These records include student information, academic grades, behavioral logs, and clinic visit histories. All data operations, including saving, validating, and retrieving information, are handled through the Django backend and securely stored in the PostgreSQL database. Meanwhile, the ICT Coordinator, acting as the System Administrator, oversees user accounts and access permissions through the Django Admin Panel. This architecture promotes efficient data flow, centralized record management, and system scalability, enabling EskwelaOne to accommodate increasing numbers of users and data while maintaining system performance and reliability.

Evaluation of technical acceptability of the system using Technological Acceptance Model (TAM)

Perceived Usefulness (PU)

The Perceived Usefulness (PU) construct achieved a weighted mean of 3.99, making it the highest-rated variable among the three evaluated constructs. Respondents strongly agreed that EskwelaOne has the potential to enhance administrative efficiency by improving the accuracy of records and minimizing human errors during data entry. Notably, indicators concerning efficient resource allocation, forecasting school requirements, and serving as an effective tool for resolving management-related issues all received perfect mean scores of 4.00.

Table I *Summary of Perceived Usefulness*

Characteristics	Grand Mean	Interpretation
Information Relevance	3.95	High
Maintenance Support	4.00	Very High
Accuracy of Information	4.00	Very High
Data Reliability and Trust	4.00	Very High
Transparency and Accountability	4.00	Very High
Timeliness of Updates	4.00	Very High
Final Grand Mean	3.99	Very High

To provide real-time data access

The evaluation of Attitude Toward Use (ATU) resulted in a final grand mean of 3.93, indicating a very high level of acceptance among the personnel of Sindalan National High School. The perfect score of 4.00 in Transparency reflects the respondents’ positive perception of the system’s capability to provide authorized personnel with immediate access to important school data. This transparency, together with the high ratings in Decision-Making Accuracy, demonstrates that the staff considers EskwelaOne a dependable tool that reduces the risks associated with fragmented or manually managed records. Overall, the findings suggest that the stakeholders share a consistent and positive attitude toward integrating the platform into their daily administrative processes to enhance organizational effectiveness.

Table II *Summary of Attitude Toward Use*

Characteristics	Grand Mean	Interpretation
Transparency	4.00	Very High
Decision-Making Accuracy	3.90	Very High
Operational Problem Identification	4.00	Very High
Strategic Criterion Mapping	3.90	Very High
Resourceful Action Support	3.80	Very High

Data Gathering Efficiency	4.00	Very High
Final Grand Mean	3.95	Very High

Behavioral Intention to Use (BIU) Table III presents the respondents’ evaluation of their Behavioral Intention to Use (BIU) the EskwelaOne system. This variable measures the likelihood of users adopting the system as a primary tool for data-driven decision-making and improving administrative efficiency within the school environment. The findings revealed a strong consensus among the respondents, resulting in an Average Weighted Mean of 3.95, interpreted as Very High. This indicates that the respondents have a strong intention to incorporate EskwelaOne into their professional and administrative workflows.

Table III Summary of Behavioral Intention to Use

Characteristics	Grand Mean	Interpretation
Strategic Decision Support	4.00	Very High
Data Gathering Efficiency	4.00	Very High
Decision Effectiveness Assessment	3.90	Very High
Information and Relevance	3.90	Very High
Final Grand Mean	3.95	Very High

Conclusion

Based on the findings of the study, it can be concluded that school administrators and staff generally perceive EskwelaOne as a highly effective and essential system for institutional operations, supporting the key principles of the Technology Acceptance Model (TAM). Both Attitude Toward Use and Behavioral Intention to Use emerged as strong indicators of system acceptance, with Behavioral Intention to Use obtaining a slightly higher average weighted mean of 3.95. This suggests that stakeholders highly value the platform for its ability to enhance administrative performance through features such as strategic decision support, efficient data gathering, and the assessment of decision effectiveness. Furthermore, the respondents’ unanimous agreement regarding the system’s significance in decision-making processes indicates that the availability of relevant and timely information, combined with a user-friendly interface, plays a crucial role in encouraging continuous engagement and long-term adoption of the system within the school environment.

Acknowledgement

The authors would like to express their sincere gratitude to all individuals and institutions who contributed to the completion of this study. First and foremost, heartfelt appreciation is extended to the school administrators and personnel of Sindalan National High School—specifically the School Principal, Registrar, and ICT Coordinator—for their time, cooperation, and valuable insights during the system evaluation, which made this study possible. The authors also acknowledge the guidance and support of their research adviser and panel members for their constructive feedback, suggestions, and encouragement

throughout the development and manuscript revisions of the EskwelaOne system. Special thanks are given to the University of the Assumption for providing the necessary resources and academic environment that supported the completion of this research. Finally, the authors extend their deepest gratitude to their families and friends for their continuous moral support, patience, and encouragement throughout the research process.

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