Development of a Web-Based Student Portal System for Dasol Catholic School: Enhancing Accessibility and Academic Management

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ABSTRACT

The management of academic records at Dasol Catholic School (DCS) historically relied on manual, paper-based processes, leading to administrative inefficiencies, data transcription errors, and risks of physical record degradation. This study aimed to develop and implement a Web-Based Student Portal System to modernize the school's academic management by automating enrollment, grade management, and information dissemination. Guided by the Input-Process-Output (IPO) model, the researchers utilized the Agile methodology—specifically through planning, user design, development, testing, and deployment phases—to create a system featuring modules for online registration, teacher grading, and student profile management. The researchers chose the Laravel framework for its security features. It runs on a PHP and SQL stack, ensuring the portal is both fast and stable. The quantitative aspect of the research involved a systematic evaluation of the portal's quality based on the ISO 25010 software quality standards. A total of 50 stakeholders, including the principal, registrar, teachers, and parents/students, participated in the evaluation using a five-point Likert scale. Results demonstrated a high level of system acceptance, yielding an overall weighted mean of 4.38, interpreted as "Strongly Agree". Notably, Functional Suitability emerged as the highest-rated dimension at 4.49, suggesting that the tailored modules successfully addressed the specific administrative requirements of the institution. The study concluded that the web-based portal significantly improves data integrity and accessibility compared to traditional manual methods. By providing a centralized digital platform, the system minimizes human error in grade computation and streamlines the enrollment workflow, effectively bridging the gap between traditional school administration and modern technological standards for small-scale educational institutions.

Keywords: student portal system, academic records, enrollment process, data security, digital platform

INTRODUCTION

The development of a Web-Based Student Portal System for Dasol Catholic School is centered on enhancing accessibility and academic management through digital transformation. In schools today, the integration of Information and Communication Technology (ICT) has become essential for maintaining institutional efficiency. For Dasol Catholic School, transitioning from traditional methods to a web-based platform is critical to meeting the increasing demands for real-time information and streamlined operations, as school record management significantly impacts the quality of teaching and learning [3].

The reliance on physical logbooks at DCS has created a bottleneck, where retrieving a single student record requires navigating years of paper archives. Furthermore, research indicates that over 7.5% of all physical documents in manual systems are lost, with an additional 3% being misfield, which compromise the integrity of institutional data[10]. The purpose of digital record-keeping is to ensure that administrative information is available to support school activities at any time [9]. Previous studies, such as the implementation of QuickCampus++ in Pangasinan State University, demonstrate how localized platforms can successfully modernize academic workflows [7].

Despite the advancement of ICT in education, a significant disparity remains regarding the digital readiness of small-scale institutions. Many schools continue to face substantial hurdles in student record management due to a persistent lack of automated infrastructure [8]. While larger universities utilize robust systems, smaller entities

like Dasol Catholic School often find their data trapped in physical logbooks. This study addresses this localized gap by investigating how a web-based solution, like those designed for other Philippine secondary schools [6], can be specifically engineered to fit the resource constraints of a private Catholic institution.

The digital transformation at Dasol Catholic School aligns with local administrative trends in the region. For instance, the Alaminos City Government maintains a dedicated Management Information System (MIS) section to oversee its digital infrastructure and data handling [2]. By implementing a web-based portal, the school adopts a similar professional standard for record management, ensuring that academic data is handled with the same level of organizational structure seen in local government operations.

The study is guided by the Input-Process-Output (IPO) model and the ISO 25010 Software Quality Model.

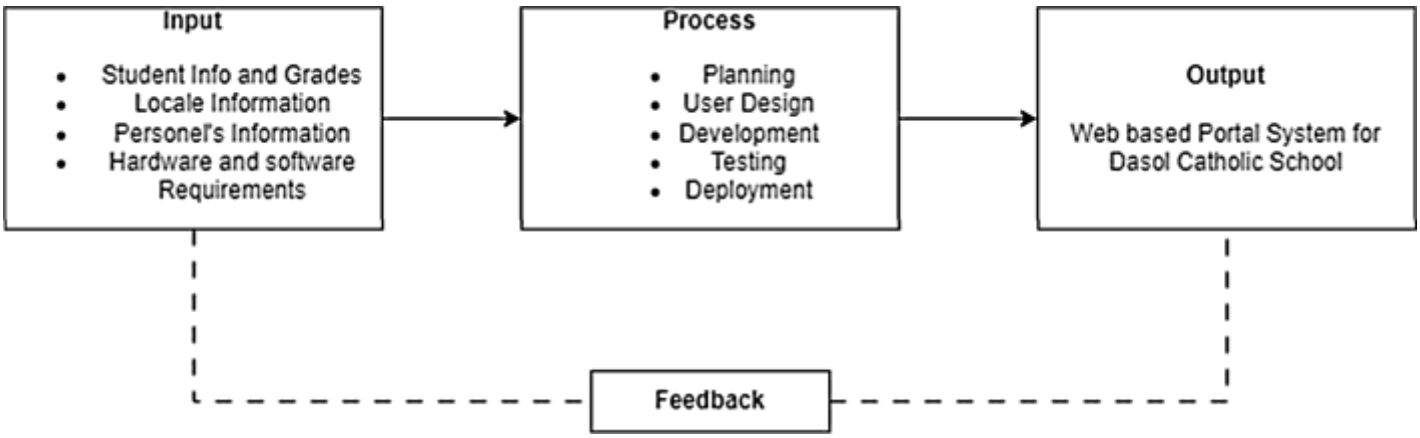


Figure 1: Input Process Output Framework Model

The conceptual paradigm focuses on transforming manual student data and administrative requirements (input) through the agile development lifecycle (process) to produce a functional, secure, and user-friendly Web- Based Student Portal (output). The integration of the ISO 25010 framework ensures that the study effectively evaluates the quality and usability of the portal, mirroring quantitative studies used to assess university portals [1].

The implementation of this portal offers several benefits. For administrators, the system provides a more organized, secure, and searchable database, consistent with the document management improvements seen in other Philippine state colleges [4]. Students and parents derive value through improved transparency, gaining access to academic progress, such as the digital services provided by major institutions like the University of the Philippines [9]. Overall, the computerized record management system is expected to have a profound positive impact on the university's administrative efficiency [5].

The main aim of this study is to develop and implement a Web-Based Student Portal for Dasol Catholic School to modernize its academic management systems. The specific objectives are to identify the existing process, problem encounters in the system, features to be develop and to test the usability of the system using ISO 25010.

METHODOLOGY

This research utilized a quantitative approach, specifically employing a System Development Life Cycle (SDLC) framework within an applied research design. By adopting an Agile framework, the development team remained responsive to the shifting administrative needs of the registrar's office throughout the project. The variables involved included the functional requirements of the school’s enrollment and grading processes, which were translated into system modules. To quantify the effectiveness of the platform, the researchers conducted a systematic evaluation using the ISO 25010 standard. This involved using specific metrics to assess software performance and user-perceived usability, a method that mirrors established quantitative frameworks used to evaluate university-level portals [1].

The target population for this study consisted of the academic community of Dasol Catholic School. This included school administrators, the registrar, teaching staff, students, and parents. Purposive sampling was

employed to select participants who directly interact with the manual enrollment and grading systems. The sample size was determined based on the primary users of the system: two (2) Registrar, twelve (12) Teachers, and thirty-six (36) Parents/Students, totaling fifty (50) respondents. Participants were recruited based on their willingness to participate and their direct involvement in the school's administrative processes

Table 1: Respondents of the Study

	Respondents	Number of Respondents
Registrar		2
Teachers		12
Students		36
	Total Respondents	50

Several instruments were used to ensure a comprehensive understanding of the requirements and final quality of the system. An interview guide was used during the initial phase to gather qualitative data from the school principal regarding the existing manual workflow. Observation checklists were used to document the steps taken during the traditional enrollment period. For the evaluation phase, a structured survey questionnaire was developed based on the ISO 25010 Quality Model. The tool was divided into eight key dimensions: Functional Suitability, Performance Efficiency, Usability, Compatibility, Maintainability, Portability, Reliability, and Security. Each item was rated using a five-point Likert scale to ensure the reliability of the quantitative data gathered during system testing.

The data gathering process began with a formal communication sent to the Principal of Dasol Catholic School to seek permission to conduct the study. Upon approval, interviews and observations were conducted over a period of two weeks to map the existing "as-is" process of record management. Following the development of the portal, a demonstration and testing session was conducted. The questionnaires were distributed to the participants after they had interacted with the various modules of the system. Participants were given sample time to navigate the student registration, grading, and announcement features before providing their feedback. The completed questionnaires were then retrieved, and the data were compiled for analysis.

The data gathered from the ISO 25010 evaluation were summarized using descriptive statistics. The weighted mean was computed for each quality characteristic to determine the general perception of the stakeholders. Responses were tabulated through weighted mean as illustrated in Table 2.

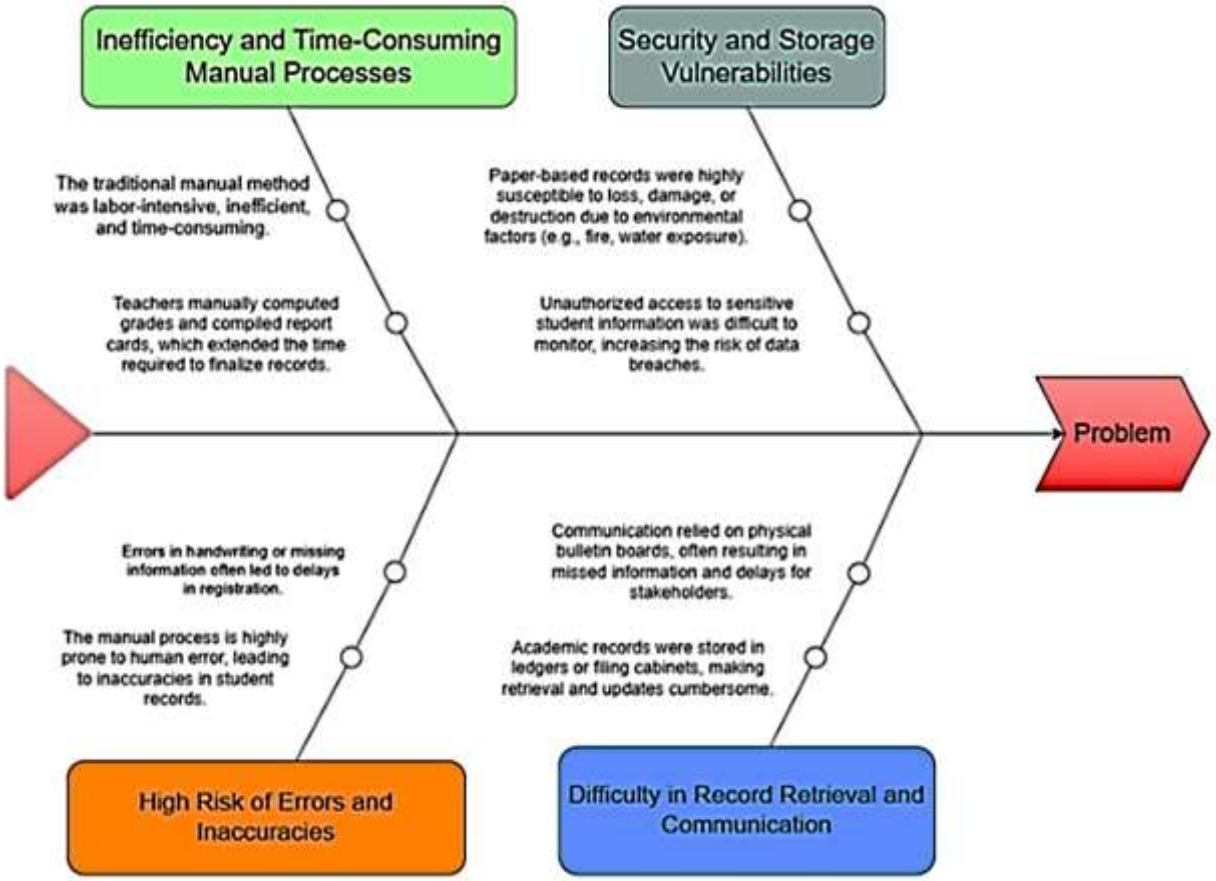
Table 2: Scale of Measurement for Usability Testing

Point Score	Statistical Range	Descriptive Equivalent
5	4.21 – 5.00	Strongly Agree
4	3.41 – 4.20	Agree
3	2.61 – 3.40	Neutral
2	1.81 – 2.60	Disagree
1	1.00 – 1.80	Strongly Disagree

RESULTS AND DISCUSSION

The investigation into the current operations of Dasol Catholic School revealed a heavily manual workflow. Enrollment requires parents to physically visit the campus to fill out paper forms, which are then manually transcribed by the registrar into logbooks and Excel spreadsheets. Academic records and grades are managed through physical class records and individual report cards

Figure 2: Problems Encountered



The primary problems identified include significant delays during the peak enrollment season, high risks of data transcription errors, and difficulty in retrieving historical student data. Specifically, studies show that manual data entry processes typically carry an error rate of approximately 1%, leading to significant cumulative inaccuracies in student reporting [11]. These challenges in handling student records are common in public and private secondary schools that lack automated systems [8]. Furthermore, the absence of a computerized system negatively impacts the overall efficiency of school record management [3].

To address the identified gaps, the Web-Based Student Portal was developed with specific features designed to automate the manual workflow. The system architecture utilizes a centralized database to ensure data consistency.

The system was evaluated by fifty (50) respondents to determine its quality and readiness for implementation. The evaluation used the ISO 25010 quality model.

Table 3: Summary of System Evaluation Results based on ISO 25010

No.	Criteria	Mean	Description
1	Functional Suitability	4.49	Strongly Agree
2	Performance Efficiency	4.33	Strongly Agree
3	Compatibility	4.31	Strongly Agree
4	Usability	4.42	Strongly Agree
5	Reliability	4.46	Strongly Agree
6	Security	4.38	Strongly Agree
7	Maintainability	4.35	Strongly Agree
8	Portability	4.33	Strongly Agree
	Overall Weighted Mean	**4.38**	**Strongly Agree**

As shown in Table 3, the system received an overall mean of 4.38, interpreted as "Strongly Agree." The high score in Functional Suitability (4.49) validates that the system's features were successfully customized to meet the school's specific needs. These results align with the successful implementation of similar document management systems in local colleges [4].

Reliability (4.46) and Usability (4.42) also received high ratings, suggesting that the system is stable and easy to navigate for non-technical users. It is worth noting that while Security (4.38) was the lowest-rated category, it remained within the 'Strongly Agree' range. This outcome likely reflects the stakeholders' cautious perception of data privacy when transitioning from physical ledgers to a web-based environment. Nevertheless, the overall shift toward a computerized record management system is anticipated to yield a substantial positive impact on the institution's long-term operational efficiency [5].

CONCLUSION

The development and evaluation of the Web-Based Student Portal for Dasol Catholic School provided a definitive answer to the research problem regarding the inefficiencies of manual academic management. Based on the findings of this study, the researchers concluded that the implementation of a centralized digital platform successfully mitigated the day-to-day problems of data redundancy, transcription errors, and administrative delays inherent in paper-based workflows. The transition from physical logbooks to a MySQL-driven database has proven to enhance data integrity and significantly reduce the time required for enrollment and grading.

Furthermore, the high ratings achieved during the ISO 25010 evaluation reinforce the premise that customized, localized web-based solutions are both viable and effective for small-scale institutions, consistent with successful implementations in other Philippine high school contexts [6]. In conclusion, the Web-Based Student Portal serves as a robust bridge between traditional school administration and modern technological standards.

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