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School Records and Forms of Selected Public School: Headway and Analysis of Online Management System

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Abstract: Technology has been very much used in academic instruction, especially during the pandemic. Over and above the delivery of teaching and learning, the integration of technology has a potential long-term impact on keeping students' data necessary in preparing various standard school forms and student records. The goal of this study was to develop a school record and forms-online management system (SRF-OMaS) to assist in improving enrollment and data management procedures, particularly the generation of school forms on student registration, promotion, health profile, learners' progress, permanent academic record, and other pertinent school reports. The iterative developmental approach, the ADDIE model, and descriptive-evaluative methods were employed. A total population sampling of fifty-six faculty members, three of whom were ICT teachers and IT practitioners, and four school administrators tested the software application. Data were gathered through an online evaluation survey instrument using Google Forms, utilizing the adapted Likert scale software evaluation instrument based on ISO/IEC 25010. With a mean score of 4.71 and a standard deviation of 0.50, the acceptability of SRF-OMaS has been rated in terms of its usefulness, dependability, ease of maintenance, and portability. This means that it is very acceptable. The product fully met and far exceeded the expectations of the selected participants. This illustrates that the application has been deemed to have improved the efficiency and effectiveness of the online record management system. School forms and reports were generated with ease and promptness through ICT-facilitated procedures.

***Keywords*:** student records, school forms, online management, ICT-enabled, ICT-facilitated

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INTRODUCTION

In education, the term technology has been one of the most significant issues of the 21st-century approach (Ghavifekr, Wan, & Wan, 2015). It assumes an essential factor in delivering not just quality instruction but also, in assuring that certain school processes are delivered with coherence and efficacy.

Integration of technology may have a long-term effect on the retention of student data required for the preparation of numerous standard school forms and student records. The Philippine Department of Education (DepEd) requires schools to adhere to set quality. A standardized record management system will assist in maintaining compliance (Llego, 2016). DepEd set level school forms through its record-keeping tool called Learner Information System (LIS) however, the files are not automated and are not linked to a centralized source making it difficult to accomplish and in turn may become prone to errors nor give all the necessary information to create student academic records for learner progress, permanent academic record, and other related forms. DepEd also provided a free template called Electronic Class Record (ECR) in accordance with the Policy Guidelines on Classroom Assessment for Basic Education Programs (GOVPH, 2017), a simplified three process with the basic features used in a spreadsheet file. Yet, these templates do not translate into a more significant document to report students' performances like report cards and student permanent records. These two documents primarily give teachers a hard time carrying out because of the complex data needed and the rigid approach to doing them. Although some schools have alternatively laid some automated solutions, the process is disintegrated hence, data are repeatedly brought about to produce other pertinent reports and updates cannot be done instantaneously from one report to another whenever there are modifications needed due to discrepancies. This instance can be associated with the volume of data kept by the school but which is not stored in a centralized database.

Public Senior High School currently has no electronic record management system. The procedure of student information gathering, recording of grades, and generation of pertinent data are performed by most of the teachers using paper and pen. Aside from time-consuming, the forms and other reports might be prone to inaccuracy and inconsistencies since there is no single database management to hold the data. Furthermore, the turnover of student records from one adviser to another becomes more complex due to the variability in student records, such as irregular and transferee students.

The study is directed to a centralized and cost-effective record and forms management that will minimize the conflicts in school data through the computerization of student documents and school report management. In effect, there will be a shorter turn-around time in processing document requests and better monitoring of student academic status. This research is geared towards designing, creating, and evaluating the acceptability of online record and forms management systems based on the software's functional suitability, usability, reliability, and security.

School Records

Data include: 1. student registration (demographic information, educational background, subjects taken); 2. encoding and/or uploading of records (subject grades, attendance, observed values); 3. school reports (enrollment, student distribution, student status); 4. standard forms data (student information, enrollment information, subject grades, attendance, observed values); 5. school forms with MS Excel template (Senior HS School Student Register, Report on Promotion, Learner Basic Health Profile, Learner Progress Report Card, Learner's Permanent Academic Record).

Fundamentally, school reports are based on the aggregation of data from all instructor records. These include, but are not limited to, student failure reports, pass rates, drop-out rates, and other essential data on learners.

Several studies were conducted to manage grades (Larida & Taguilig [2013], Fernando [2015], Virtudazo [2019], Pereyra [2016]), student registration (Fernando [2015], Pereyra [2016], Virtudazo [2019), and assess student learning (Pereyra [2016], Virtudazo [2019]). However, aide of technology to generate assessments of students by subjects, comprehensive school forms for teacher-advisers and school reports turned out wanting.

Electronic Records Management

A school's lifeblood is not limited to teachers, students, and other stakeholders. The educational institution's ability to provide a high-quality service is partly contingent upon how it keeps its records (Broflowski, 2020). Each student who enrolls in a school, public or private, college or university creates documentation. Students, faculty, and school administrators all generate enormous amounts of files, data, and documents that must be safely maintained and

made accessible to appropriate employees after request. In view of student data coming in and going out of school systems, it is critical to maintain a capable and useful information management system. In the case of senior high school, there are more crucial challenges in the management of records since the curricular structure is almost the same as the college level. Learners are classified into various tracks and strands where each strand has a specific set of subjects to be offered by semester. Moreover, the subjects offered in the same strand may vary depending on the availability of the teachers who can teach. Another issue is the academic period in one school year. Senior high school program is divided into two semesters; hence the records will possibly have to be administered by more than one adviser. The problem arises on how records are effectively transferred especially if the classes are re-sectioned. Another issue is the eligibility of learners to take a particular set of 16 subjects per semester. There are subjects with pre-requisites which means they cannot be taken unless a learner already passed the pre-required subject/s. This affects the monitoring of learners' academic status since there might be several learners taking a different set of subjects to different teachers. Failure to monitor these situations may cause lapses in providing learners with academic deficiencies and giving proper guidance on how they can complete the senior high school as programmed. These mitigating issues justify the need to develop online record management.

Automation of handling processes via the use of an information management application guards the files from the difficulties associated with hard copies of documents and provides a slew of additional benefits. Physical archives need fewer people to regulate and inspect, room space may be freed up for additional classrooms, and electronic papers can easily be backed up to ensure they are not destroyed in the event of an unforeseen occurrence.

In the current scenario of public schools in the Philippines, automation is imperative to ensure quality services to its stakeholders, particularly in terms of records. Moreover, an effective implementation will relatively streamline the responsibility of the teachers to share work with the school administrators. A study paved the way for Electronic Class records (ECR) and enabled the calculation of grades in accordance with the DepEd guidelines (E-Class Record Templates, 2015). Nonetheless, this template is restricted in its ability to capture the learners' written and performance activities. It lacks centralized record management, a necessary component for extracting meaningful reports from combined data. In this perspective, data centralization is a necessary component of managing school records and reporting successfully.

While various schools have developed computer-assisted approaches to address the rigid and repetitive information acquisition required during enrollment, these approaches do not address centralized record management to assist in the storage of comprehensive data in a single location, and extraction of details required for forms and other pertinent reports. This concept distinguishes computerized record management from automated centralized record management. While simple computerization may speed up data collecting, it will not improve the administration of information in a single place, like the processing of identical documents by various staff within the institution, consequently, more chances of error and waste of time in processing.

A database is a structured collection of connected inputs. A *database management system (DBMS*) acts as a bridge between application programs and physical data. When an application software pools or accesses a data file, such as student information, the DBMS searches the database for these entities and returns them to the application program (Susanto, 2019). In the case of conventional files, the developer must first identify the size and format of each specific object utilized in the application and then inform the computer of its location. By defining the separation of logical and physical data, DBMS relieves the programmer or end user of the burden of understanding where and how data are stored.

In coming up with an application software it is imperative to examine online application systems, system models, software and hardware requirements, and related materials.

Online Application Systems

With the exponential development in internet use, many institutions are building their internal apps that can be accessed remotely by members. These programs, whether window-based or web-based, are regarded as intranets since they use the internet to restrict access to just internal users. Constant engagement and input from stakeholders about their wants, needs, and expectations for the intranet's design will also be prioritized. Intranets may play a significant role in knowledge management and information exchange, which can result in cooperation and teamwork across departments.

One area where considerable attention is predicted is the cost-effectiveness of intranet-based applications. These apps provide all the advantages of the paper and pen technique but are safer and more economical owing to decreased travel time critical during the pandemic. It reduces expenditures on paper and other printing-related supplies.

On the other hand, bandwidth constraints may play a vital role in determining the quality of access. Because the data is controlled over the internet, the application's reaction time is greatly dependent on the available internet transmission capacity. Electronic or printed documents are crucial components of practically every organization. Managing an organization's data, which may originate from a variety of sources, maybe a challenging task. A document management system (DMS) may be established, depending on the nature of the institution, to capture, store, and retrieve data and information essential for analysis and decision-making.

Several advantages can be gained by using an online record management system (Poursaba, 2015). They are storage space reduction, increased security, enhancement of regulatory compliance, streamlined retrieval, increased collaboration, and improved disaster recovery and backup.

System Models

System models are often used to describe systems throughout the planning, analysis, and design phases of software development. These are abstractions used to convey and express what is important without going into unneeded detail, and to aid developers in coping with the complexity of the issue under investigation or solution under development (Box, 2017).

Architects create a variety of building models, with some focusing on structures, materials, ergonomics, and so on. The same is true for software modeling. Several models are used to capture properties of the problem domain, such as critical business elements or how its procedures work, while others are used to study various aspects of the software, such as how the code is divided and organized, or how various software components communicate and work together. Each model is an abstract representation of a particular vision of the system, which may evolve throughout the development process.

A *use case* demonstrates the behavior or capabilities of a system. It is a collection of possible interactions between a system and a user in a certain environment that are related to a particular objective (Hoffer & George, 2018). Fundamentally, the use case is a strategy for modeling software that enables architects and analysts to see the features to execute and how to fix problems. Due to its ease of communicating with clients, developers, and executives frequently regarded it as strong in terms of comprehending the system's principles. A use case may quickly discover, explain, and organize system restrictions, therefore preventing scope creep. The purpose of a systems analyst is to compile a list of all potential sequences of interactions between systems and actors in a given environment that are relevant to a certain goal. It is composed of a collection of things that when combined produce a greater impact than the total of the individual pieces. A use case may be thought of as a collection of all conceivable circumstances associated with a certain objective. While use cases are popular, when utilized inappropriately or in isolation, they might result in certain sorts of difficulties (Armour & Miller, 2016).

A *data flow diagram* (DFD) may be used to construct a model throughout the system development life cycle (SDLC). A DFD is a process model in graphical diagrams that is used to describe, create, and visualize a system's model. DFD is used to visually define requirements. (Ibrahim & Yen Yen, 2018). DFD's objective is to depict the "flow" and transformation of data inside the system. These diagrams are used as a visual aid to assist the audience in comprehending what is happening in the system. DFDs collaborate with the user to provide a diagrammatic representation of the system's processes and to explain what is presently being accomplished.

An *entity relationship diagram (ERD*), also known as an entity-relationship model, is a graphical representation of the relationships between persons, objects, places, concepts, ideas, and events in an information technology (IT) system. An ERD is accountable for data modeling techniques that help in the explanation of business processes and serve as the basis for a relational database (Biscobing, 2018). Entity connection diagrams provide a visual representation of database design and may also be used to examine an organization's information system requirements. After implementing a relational database, an ERD may still be utilized as a reference point for troubleshooting or reengineering business processes. While ERD is advantageous for organizing data that can be represented by a relational structure, it cannot adequately represent semi-structured or unstructured data. While entity-relationship (ER) diagrams are most often used in relational database construction, they may be advantageous in other scenarios as well. When databases are created, ER models are used. Modifications must be prepared meticulously to prevent causing damage to data in a production database, it becomes simpler to spot errors and design problems before modifying the database. Debugging database problems may be difficult, made considerably more difficult when the database has several tables and data retrieval needs complicated SQL. An ERD encompasses the whole of a database's structure.

Software Requirements

On April 02, 2019, Microsoft introduced *Visual Studio 2019* and Visual Studio 2019 for Mac. The update addresses the broad availability of the collaborative Live Share capability and other enhancements to the application's efficiency. It increases user productivity by allowing for one-click code cleaning, debug window search, and integrated pull requests. The application's contemporary interface and capabilities have been enhanced by the addition of .NET Core 3 preview support, cross-platform C++, and Docker and Kubernetes compatibility. Finally, the program has evolved in terms of innovation, thanks to its AI-powered code completion, real-time collaboration, and production debugging (Ramel, 2019).

Microsoft Visual Basic (VB) has established itself as a popular programming language, particularly in the corporate world (Harkness, 2014). One of the several benefits of the language is its structure. It was meant to be intuitive for both rookie and expert coders. Applications created in the language have a reasonable level of dependability and scalability. VB.NET allows developers to design completely object-oriented programs. It can also communicate with programs written in Visual C++, Visual C#, and Visual J# (What is VB.Net? Introduction, History, Features, Advantages, Disadvantages, 2014). It enables programmers to construct graphical user interfaces (GUIs) for applications in an intuitive graphical environment. VB is a collection of many components that are used to create forms with a specified set of properties and behaviors (Siddiqui, 2015).

MySQL is a free and open-source relational database management system (RDBMS) built on top of the Structured Query Language (SQL). It is compatible with almost all operating systems, including but not limited to Linux, UNIX, and Windows, and applicable to a broad variety of applications. MySQL is a critical component of the LAMP open-source corporate stack. LAMP stands for Linux as an operating system, Apache as a web server, MySQL as a relational database management system, and PHP as an object-oriented programming language (Moore, 2015). MySQL is available under the GNU General Public License (GPL) for developers, but businesses and other for-profit companies must purchase a commercial license from Oracle. MySQL is now the RDBMS powering a large number of the world's most popular websites and innumerable business and consumer-facing web-based apps, including Facebook, Twitter, and YouTube.

Adobe Photoshop is one of the most popular and usable software for designers and editors, including computer applications (Karjee, 2010). It is a user-friendly software and features several unique tools that can assist better in practicing creativity. In running business applications, there are several attributes of the user interface that can be enhanced by Adobe Photoshop. It is the norm of virtual competition to have a powerful and eye-catching appearance to the end-users. Hence, to enhance the organization’s application interface, there shall be a high consideration on making the appearance relatively and strategically convenient not just in terms of aesthetics but more importantly, of its user-friendliness. Adobe Photoshop may help in designing buttons, logos, icons, and other application identities that are visible to the end-users. Additionally, some websites provide royalty-free photos for public use. One such website is *freeimages.com*, which exhaustively details the terms and limitations for utilizing their material (License: Freeimage). This is a licensing agreement between media consumers and FreeImages.com outlining their rights to use pictures, illustrations, and vectors licensed from FreeImages.com.

RESEARCH DESIGN AND METHODS

The study employed the iterative development approach (Fig. 1) for the software, the ADDIE model (Fig. 2) to ensure participation in the development and testing process of the system, and the descriptive-evaluative design for the analysis of the outcome.

The iterative Development Model is one of the software development approaches under the group of Rapid Application Development. It breaks the overall project into a series of versions that are developed sequentially (Iterative Model: Educba, 2020). The analysis part laid out the software and hardware requirements (Table 1) alongside the needs of the stakeholders to be addressed. The most fundamental features are bundled in the first version done in a mini-waterfall approach that provides a preliminary version of the system, so the expected value is provided quickly. After the evaluation from the client, additional requirements can be quickly added to the next version.

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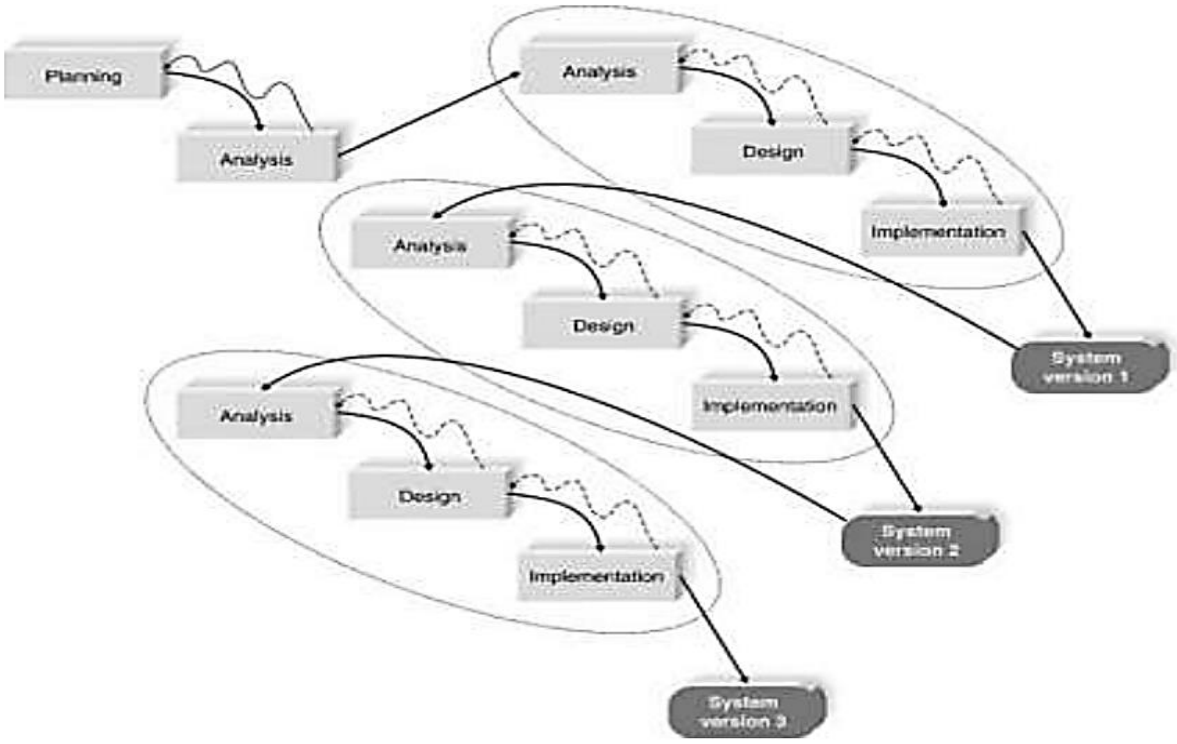

Figure 1. Iterative Development Model

Table 1.

Software and Hardware Requirements

Software Requirements	Hardware Requirements
Microsoft Visual Studio 2019 MySQL/MySQL Server Adobe Photoshop CS6	Intel 1.8 GHz Quad Core 2GB RAM 20-50 GB hard disk storage Video Card that supports at least 720p display

ADDIE model is comprised of five (5) phases including analysis, design, development, implementation, and evaluation. In the analysis stage, requirements were established to address the needs of the registrar, teachers, and teacher-advisers. It was also the phase where different models were created to facilitate a better understanding of concepts of the system. During the design phase, system interfaces and their interdependencies were created and unified to perform a specific set of tasks. The development stage is where the actual system construction occurs. A series of units and component testing were conducted after every developed feature to ensure that their behavior and outcomes were acceptable based on the requirements.

Participants included fifty-six (twenty-five male, thirty-one female) faculty members, three were ICT teachers who were also IT practitioners, and four school administrators (two male, two female). The survey was conducted with the permission of the agency head and was kept confidential.

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A Likert scale software instrument based on the ISO/IEC 25010 was utilized to evaluate the acceptability of the application. ISO/IEC 25010, often known as the Systems and Software Quality Requirements and Evaluation (SQuaRE) standard, is a widely accepted worldwide standard for assessing the quality of software products. It is of conceptual validity by emphasizing its broad coverage of quality attributes such as functionality, dependability, usability, efficiency, maintainability, and portability (Haoues, 2016).

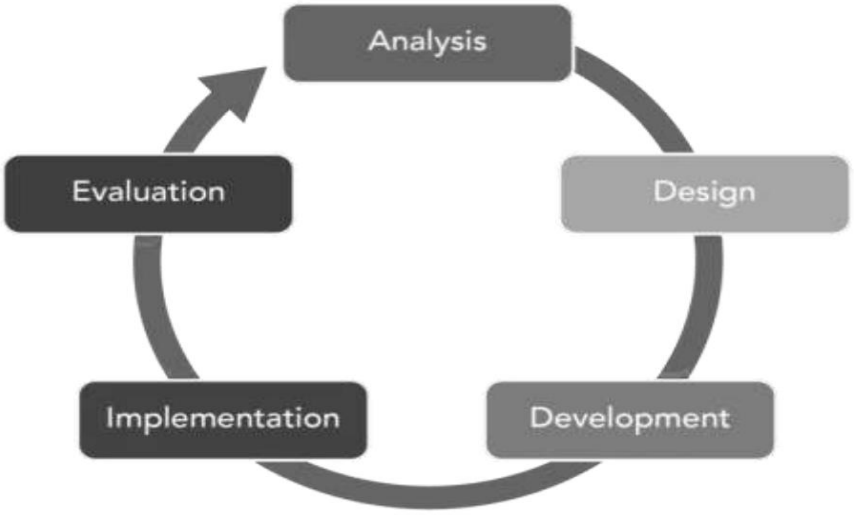

Figure 2. *The ADDIE Model*

Furthermore, the extent to which ISO/IEC 25010 properly depicts the specified quality traits and sub-characteristics is referred to as construct validity. It encompasses the main elements of software quality and offers an appropriate framework for evaluation (Estdale, 2018). In a reliability analysis of ISO/IEC 25010, it was determined that it has strong internal consistency and stability across several assessments (Handayani & Mustikasari, 2021). The generalizability and applicability of ISO/IEC 25010 pertains to the concept that the tool is adaptable to a wide range of software systems and situations. Its generalizability indicates that it may be used across multiple areas and sectors (Debnath, 2021).

To elicit essential information from respondents, a *descriptive* design was applied. It entails the collecting of data from survey responses that narrate occurrences and then organizing, tabulating, depicting, and describing the data collected through mean and standard deviation (Hubbard, 2016). It makes use of visual aids such as graphs and charts to help the reader comprehend how the data is distributed. The descriptive–evaluative design was worked on to assess the produced system's adaptability.

The *planning* stage of the software development underwent a literature review and interview and came up with a concept formulation based on the prevailing needs. Approval for the proposal was sought and a timeline was initiated.

At the *analysis* stage requirements were identified and system features were defined to address the clients' needs. Data Flow Diagram (DFD) was in work to depict process structure (Fig. 3).

Design Stage. Software acquisition decisions were made. The architecture design and database design for the system were chosen and the user interface design was carefully structured.

Implementation and Evaluation. Actual system construction and coding were conducted. As per methodology, functionalities were made by pieces and sent out to the client for evaluation. Gradual refinements were applied until the requirements were satisfied. The system's acceptability was appraised. Testing was done in the respective computer units of the participants with installed systems and internet connections. The devices were running on a Windows operating system with Microsoft .Net Framework 4, Access Database Engine, and an internet

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connection. Operation Procedure Setup Application included: Install the Microsoft.Net Framework, Install the Access Database Engine, and Install the system.

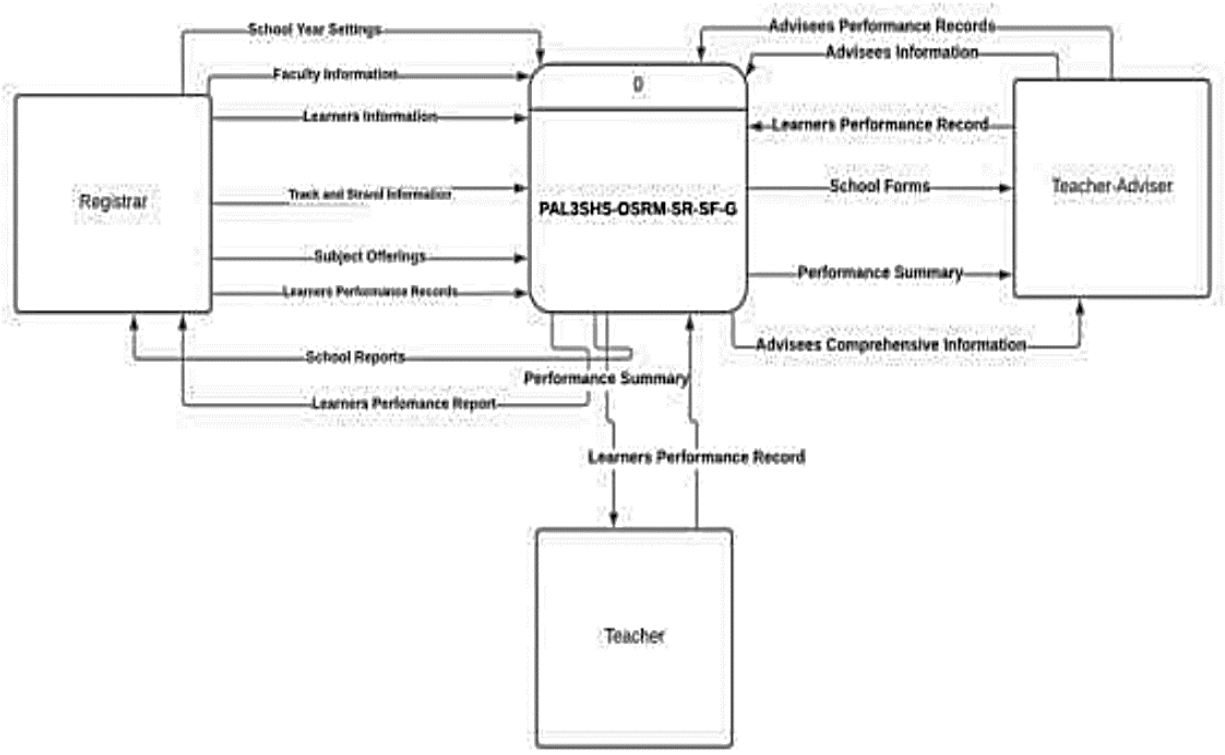

Figure 3. Context Flow Diagram

In the Administrator Account: Login the default account credentials, Update account credentials, Add teacher accounts, Setup curricular information (Set courses, subjects, subject pre-requisites, schools), Setup academic period (Setup academic year, semester, course offerings, sections per course, subject offering per course, subject teachers, class advisers), Enroll learners (Enter learner's information, learner, View and download registration form), Manage student information (View and update student information), and Manage Reports (View and download enrollment comprehensive report, Enrollment report, School forms, Student deficiencies report, Comprehensive grades report, Encoding/uploading status).

The Teacher-Adviser Account consisted: Login the default account credentials, Update account credentials, View advisee information (View and download Master list, Update student information, View school form on school register, Encode/upload grades, attendance and observed values, View encode/upload status, Generate and export school forms data), Import school forms data to MS Excel Template (Copy exported data files to folder, Import data to MS Excel Template), and View subjects handled (Encode/upload grades, View and download encoded/uploaded grades).

Teacher Account comprised: Login the default account credentials, Update account credentials, View subjects handled (Encode/upload grades, View and download encoded/uploaded grades).

The initial component testing has determined the *functionality* where fixing bugs and errors were made during development. The initial trial was significant to assess its compliance with the specified requirements and functionalities. Piloting was not limited to evaluating the user interface design, but also the expected behavior of the system and also to assess whether the module interdependencies (from one module to another) are working and free from bugs and errors.

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RESULTS

Project Description and Structure

The school records and forms online management system (SRF-OMaS) is a computer application that can manage student's records and produce school reports and forms needed by specific school personnel and faculty members. The general purpose of the application is to provide the school with a centralized and cost-effective records and forms management that will minimize the inconsistencies in the institution's data through computerization of student document management and school report management. In effect, there will be a shorter turn-around time in processing document requests and better monitoring of student academic status. The application processes the data from an online database server hence, the application can be accessed anywhere provided that the Windows operated computer is connected to the internet. The application has three levels of access: the Administrator, Teacher-Adviser, and Teacher account. The Administrator can manage teachers' accounts, and student information and records. Moreover, the account can setup the academic information, process student registration or enrolment, and generate and download school forms and school reports. On the other hand, a Teacher-Adviser account can manage his/her personal and account information, advisee's demographic, and scholastic information. In addition, the account can encode/upload the student data needed for the generation of school forms including the attendance and observed values. Also, s/he can encode/upload the grades of the subjects s/he is currently handling. Moreover, the account can also generate and download data needed in accomplishing school forms in the Macro-Enabled MS Excel template which generates the standard school forms about the school register, report on promotion, learner basic health profile, progress report, and academic permanent record. The Teacher account is only limited to managing the teacher's personal and account information and encode/upload and download the grades in the subjects s/he is currently handling.

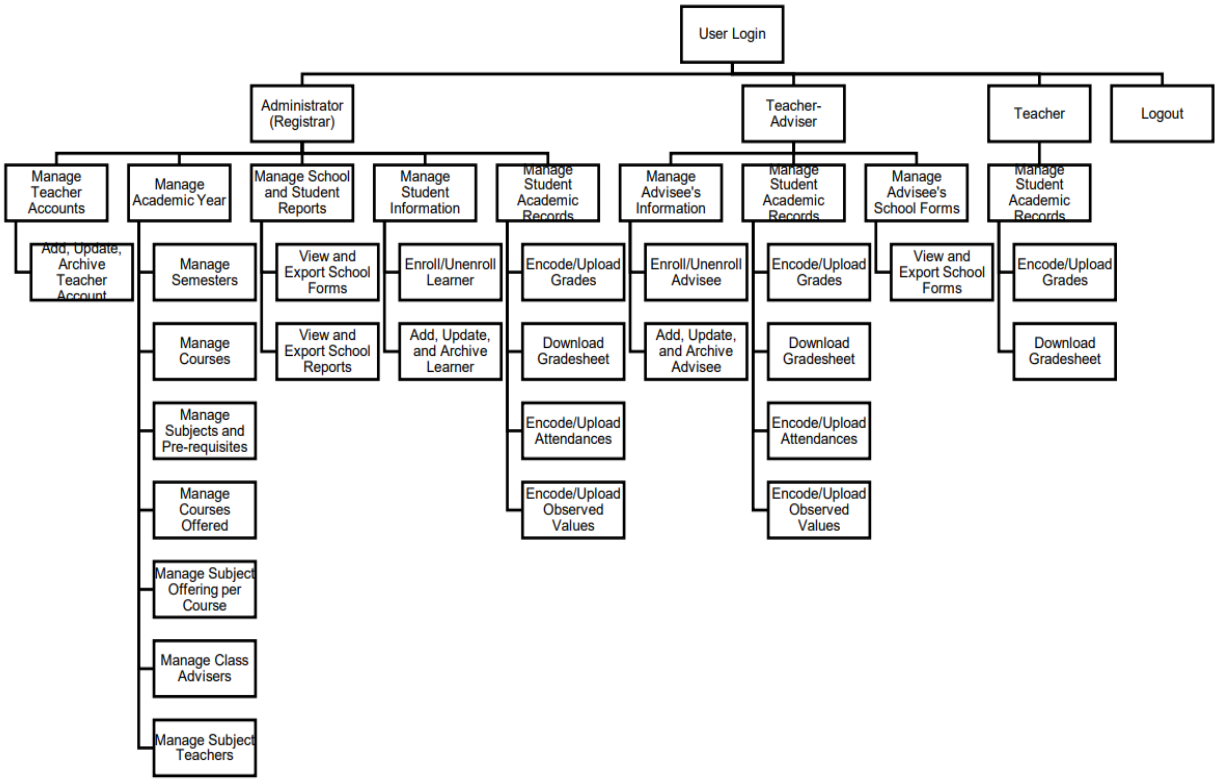

Figure 4. Hierarchical Input, Process, and Output of the System

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Figure 4 shows the level of access in the system by the users: the Administrator, Teacher-Advisers, and Teachers. The Administrator account, assumed by the Registrar, has access to managing teacher accounts, school year setup, school and student reports, student information, and student performance records. These modules enable the Administrator to add, update, delete, and archive information and reports. Moreover, reports are exportable from the system.

Table 2.

Component Test

Component/Module	Test	Result
User Authentication	Test the validation. Only registered accounts shall be able to login.	Successful
Curricular Information Setup	Test the validations for Courses, Subjects, Prerequisites, and Schools. Validation includes appropriateness of data on fields and checking of data redundancy.	Successful
Academic Period Setup	Test the validations for Course Offering, Subject Offerings, Sections, Class Advisers, and subject Teachers. Validation includes appropriateness of data on fields and checking of data redundancy.	Successful
Account Registration	Test the validations for account information. No two usernames shall be the same and the passwords shall be at least eight (8) characters in length. Validation shall also include the appropriateness of data on fields and checking of data redundancy.	Successful
Student Registration	Test the validations for student information. No two LRNs shall be the same and a student cannot register twice in the same semester. A subject cannot be enrolled if the learner has not taken the prerequisite yet. Validation shall also include the appropriateness of data on fields, checking for data redundancy, and completeness of data before saving.	Successful
Encoding/Uploading of Records	For encoding, the Registrar and Subject Teacher have access to the subject they handle. Grades shall only accept valid entries. For Subject Teachers, once the grade is encoded and saved, modification shall no longer be permitted and prompt to contact the Administrator. For uploading, only a standard template shall be accepted by the system. After uploading, the system shall display the uploaded and not uploaded data from the template to inform the user.	Successful
Viewing and Exporting Reports	Reports displayed shall be based on the search filters set by the user. All reports shall be exportable in PDF, Excel, and Word format.	Successful
Viewing and Exporting School Forms Data	Forms displayed shall be based on the search filters set by the user. All reports shall be exportable in PDF, Excel, and Word format.	Successful
Importing of Data to MS Excel School Forms Template	The exported data from the system shall be readable and importable to the template. The forms generated shall be complete with all the information needed.	Successful

Legend: LRN – Learner Reference Number

On the other hand, the Teacher-Adviser account can manage the information and academic records of his/her advisees. The information can be exported from the system. It can also manage the grades in the subjects currently handled by the teacher-adviser. The Teacher account is only limited to managing the grades in the subjects currently handled by the teacher.

Data in the following tables (3,4,5,6,7) reveal the acceptability level of the application software.

Table 3

Functional Suitability

Criteria	General Users		ICT Practitioners		Interpretation
	Mean	SD	Mean	SD	
1. The software has all the available functions required for its execution (Adequacy)	4.77	0.37	4.75	0.60	Very Much Acceptable
2. The software is precise in its results (Accuracy)	4.71	0.41	4.77	0.51	Very Much Acceptable
3. The software has a multi-user processing (Interoperability)	4.73	0.57	4.76	0.57	Very Much Acceptable
4. The software can operate with networks (Interoperability)	4.88	0.32	4.80	0.40	Very Much Acceptable
5. The software has secure access through passwords (Secure access)	4.67	0.54	4.43	0.78	Very Much Acceptable
Area Mean	4.75	0.44	4.70	0.57	Very Much Acceptable

It is evident that the functional suitability (Table 3) of the system has met and exceeded several expectations from respondents. They have very much accepted the functionality of the application since the introduced procedure is far different from the existing process of enrolment and record management, especially in public schools. It could also be associated with the relatively shorter time needed to accomplish the task. It shows that the new process has been deemed to have improved the performance of target users (Osakwe, 2011). Moreover, the record system is counted to be comprehensive and has fixity in terms of its procedures (Records Systems: Characteristics and Functions, 2018). In terms of software used to develop the program, it is also evident that vb.net as the programming language is capable of developing an application that fits the nature of school record management with consideration on interoperability and security.

Table 4

Usability

Criteria	General Users		ICT Practitioners		Interpretation
	Mean	SD	Mean	SD	
1. The software does not experience frequent failures (Maturity)	4.89	0.32	4.75	0.50	Very Much Acceptable
2. The software reacts appropriately when failures occur (Tolerance to failures)	4.39	0.87	4.71	0.31	Very Much Acceptable
3. The software informs users concerning invalid data entry (Tolerance to failures)	4.91	0.30	4.76	0.77	Very Much Acceptable
4. The software can recover data in the event of failure (Recoverability)	4.79	0.44	4.77	0.50	Very Much Acceptable
Area Mean	4.75	0.48	4.75	0.52	Very Much Acceptable

Table 4 signifies that all respondents have very much accepted the usability of the application. It can be inferred that the new ICT-facilitated procedure provides a straightforward approach, especially for teachers who highly interact with the system for student record management. This highlights quality as an attribute of the software. It also

shows that the programming language used proved to have made a more stable application since it can tolerate failures and in case of failures, it can recover without causing issues with the data. The database's tolerance to errors and failures works accordingly to ensure data integrity. MySQL being the most popular open-source database system available today and is currently installed on over two million servers worldwide (Bazghandi, 2016), has been a big support.

Table 5

Reliability

Criteria	General Users		ICT Practitioner		Interpretation
	Mean	SD	Mean	SD	
1. It is easy to understand the concept and application (Intelligibility)	4.88	0.25	4.65	0.50	Very Much Acceptable
2. It is easy to learn how to use (Learnability)	4.51	0.80	4.70	0.67	Very Much Acceptable
3. The software facilitates the users' data entry (Learnability)	4.85	0.40	4.56	0.52	Very Much Acceptable
4. The software facilitates the users' retrieval of data (Learnability)	4.89	0.37	4.69	0.45	Very Much Acceptable
5. It is easy to operate and control (Operability)	4.88	0.49	4.35	0.60	Very Much Acceptable
Area Mean	4.80	0.46	4.59	0.55	Very Much Acceptable

Regarding the reliability of the system, it has fully met and far exceeded expectations from the respondents. It might be due to the accuracy of the information fetched from the system as observed by the school administrators who generated most of the reports. The better the accuracy and dependability, the higher the quality of data, and the more likely the information system will function well.

Table 6

Maintainability

Criteria	General Users		ICT Practitioners		Interpretation
	Mean	SD	Mean	SD	
1. It is easy to modify and adapt (Modifiability)	4.40	0.81	4.70	0.40	Very Much Acceptable
2. There is no great risk when changes are made (Stability)	4.78	0.51	4.60	0.77	Very Much Acceptable
3. Changes are easy to test (Testability)	4.79	0.43	4.49	0.72	Very Much Acceptable
Area Mean	4.66	0.58	4.60	0.63	Very Much Acceptable

Table 6 shows that the system can function accurately even after a set of versions are done. This implies that the system will still be modifiable in situations where new functionalities may be required or requested by the users. This highlights the flexibility as an attribute and that it can make data stored accessible by more than one user at different times for different purposes.

The application was noted to facilitate the modification of a component for usage in applications or situations different from those for which it was originally built (Subramaniam & Zulzalil, 2015). The SRF-OMaS can still be modified even after deployment made possible with the aid of visual basic tools, that make the whole software work accordingly while it is allowing updates and modifications (Hollis, 2015).

Lastly, table 7 conveys that the system has been easy to install. It can be inferred that the system is developed in a platform that is more familiar and common to the users. Moreover, it manifested that a network-based application is relatively easier to manage and will provide optimal security to the database (Susanto, 2019).

Table 7

Portability

Criteria	General Users		ICT Practitioners		Interpretation
	Mean	SD	Mean	SD	
1. It is easy to install in the various versions of the platform where it is running (Capacity to be installed)	4.83	0.31	4.73	0.50	Very Much Acceptable
2. It is easy to adapt to the various versions of the platform where it is running (Adaptability)	4.48	0.70	4.65	0.67	Very Much Acceptable
Area Mean	4.66	0.51	4.69	0.59	Very Much Acceptable

Overall evaluation of mean=4.71, SD=0.50 of the SRF-OMaS exhibits a very acceptable product to the respondents. It reflected that their needs were satisfactorily met in terms of functions, usage, reliability, maintainability, and portability. Moreover, the results justify that the preferences were addressed, in terms of system utilization of a diverse range of end-users. Aside from performance issues, the system also can provide more record management features that will cater to the school-level management and monitoring of comprehensive student forms. It can be drawn that the application software provided effective management of school records and forms since it catered to all the needed functionalities of the target users from an ICT-facilitated process (Osakwe, 2011). It coordinated and secured the school's records, heightened the effectiveness of records as a management archive, and helped to simplify intra- and inter-organizational communication gaps in terms of reports (Ololube, 2015).

CONCLUSION

The SRF-OMaS was designed, developed, tested, and successfully improved the school's record and forms management through a centralized database, online access, and appropriate features based on the existing needs of the stakeholders. The system was evaluated using an ISO/IEC 25010-based tool and was found to be very much acceptable. The following have ensued enjoinders: the institutionalization of the system, adding a feature that will automatically e-mail documents allowed to be disseminated to the students, enabling setting up of the application to fit in the curricular structure of junior high school program, and providing an e-mail or an SMS (short message service) notification for updates in the records of teacher-advisers and teachers.

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