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Implementation Of Web-Based Student Sim To Support Decision Making In Schools

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ABSTRACT:

The implementation of a web-based Management Information System (SIM) in student management in schools has a significant impact on the efficiency of student data management, information transparency, and data-based decision making. Web-based SIM allows better accessibility to student data, including administration, academic grades, attendance, schedules, and extracurricular activities. This research uses the literature study research method, a research method that focuses on collecting and analyzing information from various literature sources that are relevant to the topic or research problem being studied. The main purpose of this research is to understand and reorganize existing knowledge about a particular topic. The result of this research is that the web-based student SIM is not only an administrative tool, but also an important foundation in the transformation of data-based education. With proper management, this system can improve work efficiency, strengthen communication between parties, and support smarter and more measurable decision-making. This is a tangible manifestation of the modernization of education that is inclusive, adaptive, and future-oriented.

INTRODUCTION

Student management is one of the crucial aspects in effective and efficient school operations. Along with the development of information technology, the implementation of a Management Information System (MIS) is a necessity to manage increasingly complex student data, ranging from personal data, academics, attendance, to records of violations and achievements. An integrated and web-based student SIM offers easy access, data accuracy, and time efficiency in information management. However, more than just data storage, student SIM has great potential to become a strategic decision-making support tool for schools.

The decision-making process in schools, whether related to academic policies, student development, resource allocation, or performance evaluation, relies heavily on the availability of accurate, relevant, and timely information. Without adequate information systems, data is often scattered, difficult to access and takes a long time to analyze, hindering responsive and evidence-

based decision-making. This problem is often encountered in various educational institutions, including secondary schools, where the volume of student data is very large and dynamic.

This research focuses on the implementation of a web-based Student Management Information System that not only serves as a data repository, but is also specifically designed to support decision-making. By utilizing web technology, the system is expected to be accessed flexibly by various authorized parties, such as the principal, vice principal for student affairs, counseling teachers, and homeroom teachers. Integrated analytics and data visualization features will enable users to identify patterns, trends, and anomalies in student data, so as to formulate more targeted policies and actions. The main objective of this research is to demonstrate how a web-based student SIM can significantly improve the quality of decision-making in a school environment, contributing to the improvement of education quality and holistic student development.

The research method used in this article is a qualitative research method that has the characteristics of textual analysis or according to Creswell qualitative research is interpretive research, in which the researcher is involved in ongoing experiences with the participants.[1] The method in this research is descriptive analysis, where researchers will describe the topic of discussion, starting from the definition of management information systems to their role in increasing the effectiveness of Islamic education administration.

By using data collection techniques in the form of observation, interviews and documentation studies, the following are several stages carried out by researchers in collecting data based on what has been described by Dr. H. Zuchri Abdussamad, M.Si, namely Data Reduction or limiting research topics in this study focusing on Islamic education administration, then Data Display or data presentation in the form of a brief description of information about management information systems and Islamic education administration in Madrasahs where the research is, and finally Drawing Conclusions whose contents answer the formulation of the problem regarding the subject matter that researchers want to find, namely the role of management information systems in increasing the effectiveness of Islamic education administration.[2]

Management Information System is a combination of human resources and information technology applications to select, store, process, and retrieve data in order to support the educational decision-making process. As for student management, it is an effort to provide the best possible service to students from the process of admitting new students to leaving the school education institution.

[1]Arifudin, O. Management of Internal Quality Assurance System (SPMI) as an Effort to Improve the Quality of Higher Education. MEA (Management, Economics, & Accounting, 2019). p 161-169

[2]Abdussamad, Zuchri. Qualitative Research Methods. (Makassar: Syakir Media Press. 2021). pp 90-92.

So, a student management information system is a system designed to provide student information to support decision making in management activities (design, movement, organization, and control) in educational institutions.[3]

The purpose of Student Management is to organize all student activities so that these activities can support the learning process in educational institutions can run smoothly, orderly and orderly so that they can contribute to the achievement of school goals and educational goals in general.

With the education management information system, educational organizations will feel some of the following benefits, namely: First, the availability of data management systems and educational information. Second, the integration of educational data and information to support the decision-making process. Third, the availability of complete education data and information for all stakeholders who join the education sector. The education management information system is used by its users as a decision-making tool and by parties who are members of the interganizational information system so that educational organizations can interact with interested parties (stakeholders). The importance of education management information systems is:

1. Computer-based information systems allow delegation of routine activities.
2. Information technology enables more accurate and reliable data processing.
3. Decision-making will be supported by more objective alternative choices with complete supporting data.
4. Monitoring and evaluation require the absorption of information quickly and efficiently.[4]

Management information system is an information system that in addition to processing transactions that are very useful for the interests of the organization, also provides a lot of information and processing support for management functions in decision making.[5]

With the existence of a management information system, it will certainly facilitate schools in the decision-making process, especially in student management, considering all the data inputted in the SIM, including student data, student attendance and the assessment process.

RESEARCH METHODOLOGY

Researchers used a qualitative research method of literature study. According to Bogdan and Biklen (1982), stating that qualitative research is a research stage that will get data in descriptive form

[3]Rusdiana, *Sistem Informasi Manajemen Pendidikan Konsep, Prinsip dan Aplikasi* (Bandung: Pusat Penelitian dan Penerbitan Uin SGD, 2019), 136-137.

[4]Andi Musfirah, *Sistem Informasi Manajemen Pendidikan* (Makassar: Eksismedia Grafisindo, 2021), 38.

[5]Ibid., 39.

in the form of words or sentences conveyed in oral or written form from what is researched and observable behavior, with an approach directed at holistic settings and individuals.[6]

Library research, or often referred to as *literature* study or *literature review*, is a research method that focuses on collecting and analyzing information from various literature sources that are relevant to the topic or research problem being studied. The main purpose of this research is to understand and reorganize existing knowledge on a particular topic.[7]

In-depth analysis is a key characteristic of desk research that involves the critical examination and evaluation of existing literature to identify themes, patterns, and relationships relevant to the research topic. According to Hart (2018), in-depth analysis in desk research includes the process of interpreting and synthesizing information from multiple sources to develop a comprehensive understanding of the issue under study. This allows the researcher to discuss multiple perspectives and discover interconnections that may not be apparent in a more superficial analysis.[8]

RESULT AND DISCUSSIONS

The Technical Role of Web-based SIM Implementation in School-Operated Student Management

Web applications allow access to the student information system through a web browser. A student management information system with a web application platform is a system designed to manage and monitor various aspects related to students in an educational institution. The system is designed to improve the process of managing student data and grades, provide transparency for administrators and teachers, and facilitate data entry and storage.

The system utilizes web technology as the main platform to access and manage information related to student data, academic records, attendance, schedules, and various other activities. In this system, there are several important components that play key roles. First, there is a student data management module that stores students' personal information such as name, address, phone number, and family data. This module allows school administrators to manage student data easily and provides better accessibility in searching and changing student information. In addition, the system also includes an academic record management module. This module allows teachers to input student grades, generate report cards, and provide assessment of students' academic progress. The system can also provide the ability to track student achievements, such as awards and certificates earned. Furthermore, the attendance module allows school staff to record student attendance electronically.

[6]Sulistyawati, *Buku Ajar Metode Penelitian Kulalitatif,* (Yogyakarta: K-Media, 2023), 28-29.
[7]Kartini Harahap dkk., *Buku Ajar* Metode *Penelitian* (Medan: Media Penerbit Indonesia, 2024), 177.
[8]Ibid., 178.

Using the web application, teachers can update student attendance in real-time, so parents and school administrators can easily track student attendance and take appropriate action in case of unauthorized absences. In addition to the core modules, the system can also include a timetable management module. This module allows teachers and students to view the schedule of lessons, extracurricular activities, exams, and other school events. With this module in place, timetable information can be accessed easily by all relevant parties, avoiding confusion and loss of important information. The main advantages of a student management information system with a web application platform are improved efficiency and accessibility. With this system, the management of student information becomes more structured and easily accessible to related parties. In addition, communication between parents, students, teachers and school staff also becomes smoother through this web application.[9]

The management information system works to help improve student data processing, among others:

1. Efficient data collection and storage. SIM can be used to collect and store student data centrally. This eliminates the need to use various physical files and documents that are prone to loss or damage. With SIM, student data can be stored in a secure digital format and can be accessed easily.
2. Better data accessibility and availability. With SIM, student data can be accessed by authorized staff quickly and easily. Student information such as academic records, attendance, and contact information can be accessed with a few clicks, allowing staff to make better and faster decisions based on the available data. In the implementation of student administration, the management information system can assist in student attendance data, new student data collection, extracurricular activities data, and data from the counseling guidance.
3. Better analysis and reporting. SIM can provide powerful data analysis tools. Using SIM, student data can be analyzed to identify trends, measure student performance, and identify areas where improvement is needed. This allows education staff to make decisions that are supported by evidence and drives improvements in student data processing.
4. Integration with other systems. SIM can be integrated with other systems such as attendance systems, assessment systems, and announcement systems. This allows for a more seamless flow of data between these systems, reducing double work and ensuring the accuracy of student data. With the management information system, the process of

[9]Hamurdani & Abdul Kholik, SISTEM INFORMASI MANAJEMEN KESISWAAN: SYSTEMATIC LITERATURE REVIEW, *AL–KAFF: Jurnal Sosial Humaniora* Vol. 1 No. 4 Bulan Agustus Tahun 2023, 300-301.

processing student attendance can be more efficient and accurate, as well as facilitating communication between schools, parents/guardians, and students themselves. In the assessment system, the management information system can also help improve student data processing by facilitating data collection of student learning outcomes carried out by teachers on a regular basis, so that the data obtained can be conveyed quickly to parents as material for student evaluation of parents.

5. More effective communication. SIM can facilitate more effective communication between teachers, school staff and parents. Student-related information such as schedules, announcements, and exam results can be shared through the SIM, allowing all parties involved to stay well-informed.[10]

A web-based Academic Management Information System is the right solution to optimize academic management and support data-driven decision-making processes. With a well-directed strategy and technological support, this system has great potential to have a long-term positive impact on schools. However, its successful implementation requires careful planning related to training, maintenance and system security, so that it can run optimally and sustainably.[11]

Research conducted related to student management information systems in the application and development of SIM leads to several student data management which is also used as a sub topic / theme part of the research, namely student administration (student administration) 8%, student scores (student grades) 46%, student academic (student academics) 8%, student attendance (student attendance) 15%, student registration (student registration) 15%, and student cooperative (student cooperative) 8%. The highest percentage is student grades with a percentage of 46%. This shows that many studies focus on the assessment and management of student grades in the context of student management information systems. Because, managing student grades is an important aspect of the student management information system. The management information system can process grades in the knowledge and skills aspects, such as daily grades, mid-semester assessment grades (PTS), and end-of-semester assessment grades (PAS). This helps in monitoring students' academic development, assessing student performance, and providing accurate information to parents or guardians because management can be digital and fast-paced. With this system, teachers and school administrative staff can access student grade data easily and quickly.[12]

[10]Ibid., 297-298.
[11]Ahmad Zainuri & Khoirum Mustofa, SISTEM INFORMASI MANAJEMEN AKADEMIK BERBASIS WEB DISEKOLAH MTS MATHLAUL ANWAR, *JPGMI*, Vol. 10, No. 1, Mei 2024, 243-244.
[12]Hamurdani & Abdul Kholik, SISTEM INFORMASI MANAJEMEN KESISWAAN: SYSTEMATIC LITERATURE REVIEW, *AL–KAFF: Jurnal Sosial Humaniora* Vol. 1 No. 4 Bulan Agustus Tahun 2023, 299.

According to a journal written by Ahmad Zainuri and Khoirum Mustofa regarding the Development of a Web-based *Academic Management Information System* at MTs Mathla'ul Anwar, it is an important strategic step in improving the efficiency and effectiveness of academic management in schools. Based on the results of the SWOT analysis, several main points can be concluded:

1. Strengths The system provides significant improvements in terms of data access speed, accuracy of information management, and integration of various academic aspects such as grades, attendance, lesson schedules, and administration. The use of a web-based system also allows easier and faster data access for all parties involved, including students, teachers, and administrative staff.
2. Weaknesses One of the main weaknesses in implementing this system is the dependence on technological infrastructure, including a stable internet network and human resources capable of operating and maintaining the system. In addition, limitations in technical training to school staff can be an obstacle in optimizing the use of the system.
3. Opportunities The implementation of this system opens up great opportunities to improve the quality of education services, management transparency and accountability. The system can also be further developed to be adopted by other schools under Mathla'ul Anwar, thus creating uniformity and standardization in academic data management.
4. Threats Potential threats such as cyber attacks, data leaks, and the risk of technical errors that can disrupt system operations need to be considered. To deal with these threats, mitigation efforts are needed in the form of strengthening system security, routine data backup, and ongoing system maintenance.

Overall, the implementation of a web-based *Academic Management Information System* at MTs Mathla'ul Anwar has great potential in improving the efficiency of the academic management process and supporting more data-based decision making. By overcoming weaknesses and anticipating existing threats, this system can be an important foundation in modernizing education in the digital era.[13]

From the explanation above, it can be seen that the implementation of a web-based Management Information System in schools is the right solution to optimize academic management

[13]Ahmad Zainuri & Khoirum Mustofa, SISTEM INFORMASI MANAJEMEN AKADEMIK BERBASIS WEB DISEKOLAH MTS MATHLAUL ANWAR, *JPGMI*, Vol. 10, No. 1, Mei 2024, 243.

and support data-based decision-making processes, which include: collecting, storing and providing student data, analyzing reports, helping communication with fellow educators and education personnel and integrating with other systems, namely in the fields of student administration, student grades, student academics, student attendance, student registration and student cooperatives.

Implementation of Web-based SIM in Student Management in the School Decision-Making Process.

The decision-making stages related to SIM are as follows:

a. Understanding

The investigation process contains examination either in a predetermined way or in a special way. The information system should scrutinize all data and submit requests for testing regarding situations that clearly demand attention. Both the SIM and the organization should provide communication channels for clearly known problems to be conveyed to the upper level of the organization so that they can be addressed.

b. Design

The SIM should contain decision models to process data and initiate alternative solutions. The model should help analyze alternatives.

c. Selection

The SIM is most effective when the results of the design are presented in a form that encourages decision making. Once selection has been made, the role of the SIM changes to data collection for feedback and later assessment.

Based on research conducted by Rodiah Siregar in his thesis entitled Implementation of Management Information Systems in Decision Making for Leaders to Improve the Quality of Education at the Labuhanbatu University Foundation, the first step taken in making decisions is to build a Management Information System development team, this step identifies project managers, system analysts, and project managers. The next step is planning the Management Information System concept, namely each college principal and the development team planning what is intended by the development system, who is the user of the Management Information System and so on, then planning to provide infrastructure, both software *(sotf ware)* and hardware *(hard ware)*, when the next three steps have been completed and are running well. The next step is a meeting with stakeholders to receive *feedback (feed back)*. And the last step that determines the probability of the emergence of the Management Information System is a meeting of the heads of high schools to describe the importance of developing the Management Information System, and the more important thing

at this stage is the request for budget support for the development of the Management Information System.[14]

The next stage is the stage of processing data into information:

a. Reducing incoming data
b. Entering the data into the computer
c. Data validation, so that the data entered by the operator is in accordance with reality and not the result of engineering.
d. Data is presented in tabular form.
e. Translating Management Information System data into information needed by the institution.

The decision-making process is as follows:

a. There are two types of decision making carried out here, the first is through meeting results, and the second is a normative decision-making system, this normative system is usually carried out based on applicable rules and regulations.
b. There are two types of decisions, namely the democratic type, which always relies on mutual consensus. The second is that which has been regulated by regulations intended here that the leadership has prerogative in making decisions, usually this decision is widely used in relation to the employment system on lecturers which is indeed easily regulated by applicable regulations.
c. The steps in the decision-making process, of course, also look at what the topic to be decided is.
d. The authority to make decisions is absolutely the authority of a leader.
e. The frequency of decision making is also carried out because the Labuhanbatu University Foundation adheres to a teamwork system, so overall this decision making is seen and adjusted to certain points.
f. Regarding the decision-making control system at the Labuhanbatu University Foundation itself, if the level is managerial, a leadership meeting will usually be held at least once a week. The urgency of information in supporting decision making is very important, this is to avoid confusion of information or data.[15]

Research conducted by Rodiah Siregar at the Labuhanbatu University Foundation in the implementation of management information systems in decision making for leaders to

[14]Rodiah Siregar, TESIS (IMPLEMENTASI SISTEM INFORMASI MANAJEMEN DALAM PENGAMBILAN KEPUTUSAN BAGI PEMIMPIN UNTUK MENINGKATKAN MUTU PENDIDIKAN DI YAYASAN UNIVERSITAS LABUHANBATU), Universitas Muhammadiyah Sumatera Utara Medan Tahun 2019, 111

[15]Ibid., 112-114.

improve the quality of education, through three stages, namely the planning, control and implementation stages. SIM in the decision-making process occupies an important role. The process of management information systems in decision making can improve the quality of education, specifically, the development of management information systems can provide improved educational services, namely policy considerations for the customer satisfaction process in a determination of the fulfillment of educational quality standards.

Decision-making based on management information system (SIM) in SMK Entrepreneur Tahfidz Banyuwangi is a directed and efficient process. Based on data that has been collected and processed through SIM, decision makers, including teachers and principals, can access relevant information easily. Decisions are based on comprehensive data analysis, including student learning outcomes, educators' performance and other factors that affect the quality of education. SIM also facilitates monitoring the progress of the implementation of established education policies and strategies. Thus, SIM-based decision-making at SMK Entrepreneur Tahfidz not only becomes more accurate and effective but also provides a strong basis for continuous improvement in order to improve the quality of education in the school. [16]

After implementing the management information system in making decisions on the quality of education, the next crucial step is to evaluate. Evaluation is a critical process to measure success in achieving goals and understanding the impact generated by efforts to utilize management information systems in decision-making on the quality of education.[17]

From the two studies, both have the same flow in implementing SIM for decision-making, namely the planning stage which includes: forming a work team, planning goals and strategies, managing hardware and software then meeting educators and education personnel. The next stage is implementation: data input, data verification, data processing, data presentation and followed by the SIM-based decision-making stage.

CONCLUSION

Based on the results of observations made by researchers by paying attention to the implementation of management information systems (SIM) in Madrasahs, it shows significant

[16]Muhamagd Furqon, TESIS (IMPLEMENTASI SISTEM INFORMASI MANAJEMEN DALAM PENGAMBILAN KEPUTUSAN TERHADAP MUTU PENDIDIKAN DI SMK ENTERPRENEUR TAHFIDZ BANYUWANGI), Universitas Islam Negeri Maulana Malik Ibrahim Malang Tahun 2023. 129-130.
[17]Ibid., 131.

developments in efforts to integrate information technology into various aspects of management and educational services. The implementation of SIM in Madrasahs has shown a commitment to improve operational efficiency and quality of educational services as operator systems for various administrative areas. This means that the role of using SIM in managing and improving the administrative effectiveness of Madrasahs is very important.

Although there have been improvements in some areas, the researcher revealed challenges that still need to be addressed, including the gap between planning and implementation, the need for IT infrastructure development, and human resource capacity building. In the context of Islamic education, SIM implementation opens up opportunities to reinforce Islamic values and principles through technology. However, the success of SIM implementation in madrasahs will depend on the madrasahs' ability to overcome the challenges, maintain focus on the main educational objectives, and continue to adapt to technological developments and the dynamic needs of Islamic education to create an innovative and relevant learning environment in the digital era.

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