

Analytic Study of Information Functions: Management Information System Transformation at MAN 2 Yogyakarta

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Abstract: The development of information technology has an impact on educational institutions. Effective and modern management information systems are the main academic domain so that learning objectives are achieved. One of them is updating digital applications as a form of excellent madrasah service in maximizing learning. In improving the efficiency of school management services, MAN 2 Yogyakarta utilizes the information function through the use of an effective and modern management information system. The purpose of this study was to determine the effect of management information systems on learning effectiveness by identifying specific variables at MAN 2 Yogyakarta in the form of information systems that have been continuously developing for more or less the last 10 years. The results show that these variables are elevators of the overall information. The purposive sampling method was used in selecting respondents who were the research sample. The results show that this sample of participants contributes to the total of all information. Data collection used standard audio recordings to record interviews and all interviews were fully verbally transcribed by several respondents. Data were collected using in-depth observation, in-depth interviews, and documentation. The first method collects demographic information about respondents by interviewing. Data were analyzed using data reduction, data display, and conclusion drawing or verification. The data is then analyzed, categorized, and interpreted into themes and sub-themes that emerge through coding. The results show excellent service through management information systems and efficient implementation of service technical tasks, as well as very effective technology and information in student learning.

Keywords: Transformation, Management Information, Information System.

Introduction

The application of an IT-based management information system is expected to help improve the quality of educational services. Institutional initiatives to improve human resources include curriculum development, curriculum information, information methods, development and procurement of teaching materials, improvement of educational infrastructure, and training of teachers and other education personnel. However, to improve the quality of education services these initiatives are not enough. According to Giatman (et al; 2020), one of the most significant obstacles to improving the quality of education in Indonesia is the low quality of education services at all levels of formal and non-formal education. The low quality

of human resources with the knowledge and skills needed to contribute to the development of the nation in various fields is one of the causes. One solution that can be applied is to use a management information system to improve the quality of education services. Management information systems are systematic methods for managing electronic data. Management information systems are an important component of all educational, teaching, and research programs in all educational institutions.

The main function of a management information system is to convey data and information quickly, on time, on targets, comprehensively, flexibly, reliably, and clearly; to its users without allowing multiple interpretations of information (Farazmand, 2018). Information is

used to streamline decision-making processes, establish policies, prepare strategies, and perform routine tasks, among other applications. The development function requires efforts to build a management information system so that future service functions can be maintained and improved.

In another sense, the features of a system must of course be well coordinated with each other to achieve the results used. This system involves receiving data as input, processing data by performing computations, integrating pieces, updating accounts, and receiving information as output. To build a management information system in MAN 2 Yogyakarta, a basic conceptual framework plan consisting of objectives, inputs, procedures, and outputs must be followed (Fajar, 2022). The topic in this article is how the use of education management information systems in the MAN 2 Yogyakarta madrasa environment is predicted to bring the benefits of learning theory that can make learning activities more effective and conducive to learning.

The purpose of this research is to be able to implement the MAN 2 Yogyakarta management information system in eliminating the obstacles encountered so that the process of implementing the Yogyakarta MAN 2 management information system to improve the quality of educational services can be carried out effectively.

Materials and Methods

Study area

This research is expected to be able to identify specific variables in MAN 2 Yogyakarta in the form of an information system that has been continuously developing for more or less the last 10 years. Variables studied include the madrasa website, digital library system, technical acceptance of new students, presence system, student attendance system. The results show that, in fact, these variables are relevant and contribute to the total of all information. Researchers speculate that modern and effective madrasah information systems influence student learning through variables such as patterns of educational leadership or teaching quality. In-depth interviews were

selected to conduct this field study. Interviewees allow researchers to elaborate and obtain a great deal of information and allow scope for interviewees to answer more questions than a standard interview. Moleong cites Lofland's opinion which states that the main data sources in qualitative research are words or actions, the rest is additional data such as documents and others (5). The quality of the data produced is influenced by the experience, skills and commitment of the interviewer.

Procedures

Sub-procedures-1

In selecting the sample, the researcher chose a sample of participants using a purposive sampling method. This method is strategic by nature and requires effort to establish a correspondence between the researcher's questions and the sample of participants. The researcher chose to interview Mr. Afwan Suhaimi Dwi Rohadi, S. Pd, the deputy head of the Madrasah for Infrastructure, Mr. Fajar R, S.Pd. Si, M. Sc in the field of IT, and Mrs. Gayatri N. A. Md in the Division of Library Technical Services..

Sub-procedures-2

Data collection took place from the submission of incoming mail on Tuesday, 22 November 2022 to Wednesday, 30 November 2022. A standard audio recording was used to record the interviews and all interviews were fully verbally transcribed from all three sources. The interviewees chose to conduct the interviews in their offices, where they felt more free and open to the research topic. According to Sutrisno Hadi, the interview method is a method of collecting data by way of a one-sided answer question which is carried out systematically and based on the research objectives of the researcher (6). In-depth interviews are usually conducted with a series of questions in the form of an interview, but the order of the questions can vary. The interviewer also has the freedom to investigate and explore additions in response to what is seen as a significant answer.

Data analysis

In this study, the analyzes used were Miles and Huberman's interactive model and analysis.

Activities in data analysis include data collection, data reduction, data presentation, and data verification (7). Starting from the data that was transcribed, then coded, analyzed, interpreted, and verified. The process of interview transcripts can help researchers to understand more than repeatedly listening to and reading the transcripts completely. The data is then analyzed, categorized, and interpreted into themes and sub-themes that emerge through coding. The themes that appear are coded accordingly. The next stage involves interpreting the data by identifying recurring themes from highlighting the similarities and differences in the data. The final stage involves verification, in which there is a process of checking the validity of understanding by looking back at transactions and codes, thus enabling researchers to verify and modify pre-existing systems.

Results and Discussion

One of the madrasas that have progressed both in terms of quality and quantity is MAN 2 Yogyakarta. Based on the results of the pre-survey on November 22, 2022, researchers found that MAN 2 Yogyakarta was experiencing developments in information and technology starting in 2007. This can be seen from the procurement of information systems carried out at MAN 2 Yogyakarta.

Mr. Fajar R, S.Pd. Si, M.Sc as the main operator of the MAN 2 Yogyakarta management information system gave a statement that strengthens the researchers' findings, as follows "In 2007, Internet technology was utilized by MAN 2 Yogyakarta to manage information systems in the field of administration or housekeeping. At that time the internet connection in the administration area was copper with a connection of 1 Mbps. Then in 2008, a server was made to function as an internet gateway to share internet connections to all rooms in MAN 2 Yogyakarta, making it easier for students, teachers, and all those who are part of MAN 2 Yogyakarta to access the network. Along with the times, an academic information system was created in 2010. In the following years, systems, websites, and other applications were

developed that were able to support the management of information management and also learning in MAN 2 Yogyakarta (Fajar: 2022).

This statement shows that the Education management information system at MAN 2 Yogyakarta has been compiled and designed in such a way as to be a medium for presenting information about various matters at MAN 2 Yogyakarta which can be accessed by everyone who needs this information. The journey of information and technology at MAN 2 Yogyakarta began in 2008, which then 2010 introduced an academic information system. Introducing an academic information system is not easy and is not directly accepted by teachers and students as users. At that time, we had been using SMS Gateway until now. Then in its management in 2014, MAN 2 Yogyakarta used the Androprint application which was accepted and used officially in 2018. This application, which is available free of charge on the Play store, is designed to be user-friendly to make it easy for users. Teachers, students, curriculum, and parents are users who are very interested in the data collected through this application. Some of Androprint's service menus include Digital Presence, Biometric Presence Support, and Multi-Input which makes it easy to input data when students permit, and Monitored by teachers, madrasah stakeholders, and parents directly. As well as the CBT application for managing student exams. Before 2018, the existence of information and technology fluctuated, from the beginning in the form of an Excel Report Card to the Digital Madrasah Report Card (RDM) application. Unlike other madrasas, MAN 2 Yogyakarta is resilient during pandemic times. The policies in it are very visionary so that they are not disoriented when several problems are forged in the education system, one of which is Yaumiyah. This application was created before the pandemic in 2019, which is a platform for assessing students' affective attitudes when they are not in the scope of the madrasa. It contains several menus of students' daily worship records such as sunnah prayers and helping parents. Not only that, MAN 2 Yogyakarta implements online-based exams using Google forms so that during a pandemic, madrasas are

very ready to implement various information system policy initiatives.

Starting from the results of the interview above, the education management information system at MAN 2 Yogyakarta is not only focused on one system. In addition to a website in the form of a WordPress, MAN 2 Yogyakarta also uses some education management information systems at MAN 2 Yogyakarta as well as an Academic information system, Digital Madrasah Report Card Application, Library System (LibSys), Pemilos, IKM (Community Satisfaction Index), and payment with BRI Virtual Accounts. Researchers conducted follow-up interviews related to education management information systems including the process of data collection, data processing, and data input with Mr. Afwan Suhaimi Dwi Rohadi, S.Pd, and Mr. Fajar R, S.Pd. Si, M.Sc, who work in their respective fields.

1. Website and Academic Information System (SIKAD)

a. Data Collection

The MAN 2 Yogyakarta website is an information system for site visitors and acts as an intermediary between many stakeholders in the educational process through man2yogyakarta.sch.id. Some specific objectives are very important for madrasahs. This includes introducing education stakeholders to madrasahs, providing opportunities for local and global publication of student work, acting as a go-between in the larger information pool, and providing a rich source of locally relevant related data for sharing topics. (McKenzie, 1997). These features have relevance in evaluating the web presence of madrasahs and provide a basis for the development of tools to study aspects of technology-based resources.

Apart from providing information to various stakeholders in the educational process, the MAN 2 Yogyakarta website can also serve as an additional resource for teachers. For example, teachers can post important course information such as syllabus, course content, and assignments

to audiences through the school's website. It acts as a communication between teachers, parents, and students and keeps teachers involved in the process of developing and maintaining the madrasah website. Consequently, not only will the needs of stakeholders be better met, but also, they may be more likely to use the community website, potentially resulting in greater participation from both parents and students.

The data collection process for the website is guided by the Head of IT MAN 2 Yogyakarta, Mr. Fajar R, S.Pd. Si, M.Sc. Providing an effective and thorough introduction to madrasahs is one of the main goals of the madrasah Website (Fajar, 2022). An effective and comprehensive introduction can convey various information about the madrasah, such as the overall appearance, vision and mission, facilities, and other madrasah offerings such as (Figure 1).

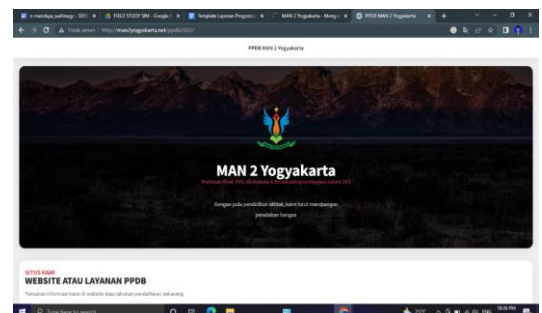


Figure 1 MAN 2 Yogyakarta Website Display
Sumber: <http://man2yogyakarta.net>

Additional information must be extensive and may include information such as pictures of madrasahs, information on madrasah services, and information on student achievement and work such as (Figure 2). Information is most useful when it is presented so that parents, current and prospective students, and other stakeholders in the teaching and learning process can find it easily.



Figure 2 Features on the MAN 2 Yogyakarta Website
Sumber: <https://man2yogyakarta.sch.id>

b. Data Results

In this study, the MAN 2 Yogyakarta website was sampled and interpreted. Although each website ranks based on quantitative criteria, certain specific areas are more subjective than others, such as access time and ease of navigation. Therefore, it is possible researchers may interpret the features of the website.

Overall, our research provides some encouraging evidence of technical areas concerning extant madrasah websites, several aspects requiring attention. First, it is heartening that most of the properly examined madrasah websites cover the basic principles of web design. The MAN 2 Yogyakarta website is one of many madrasah websites that use their web presence to illustrate student work. One of the reasons for this concern is that research has supported a variety of student work as a motivational tool for student learning and as a factor in enhancing student achievement. In addition, the researcher gives high praise to students' use of web publications in class because they provide a forum to allow students to illustrate their knowledge on a particular topic. As the research shows, only a minority of madrasahs take advantage of the potential benefits of students posting their work online. Additional issues require consideration. For example, if the madrasah website does not have this capacity, students cannot do without access to their servers.

While most of the madrasah websites examined followed basic web design

principles, it was evident that good design does not necessarily result in a high overall score. The main reason for this is the fact that scores on the content and general site characteristics parts of the madrasah website are low, resulting in a reduced overall score. As opposed to creating websites that promote engaging stakeholder interactions, most madrasahs use their websites as a vehicle for posting general information about the madrasahs.

From the emerging results of this study, the researcher emphasizes the importance of being aware of the benefits of madrasah websites and handling them appropriately. The benefits of a madrasah website include communication to a wide audience, expanded and self-paced learning resources for students, flexible evaluation tools for teachers, encouraging increased parental involvement, supporting student learning, and showcasing student work, and the madrasah environment. The results of such studies will provide useful information for educators and developers who work with them to create and maintain resources that function as information systems and act as intermediaries between stakeholders in the education process.

2. Digital Madrasah Report Card Application (ARD Madrasah)

a. Data Collection

The assessment relates to every part of the educational process, not only learning success but covering the entire teaching and learning process. According to (Anugraheni, 2017) assessment activities are not only limited to characteristics. The assessment carried out by the teacher, will provide an overview of the extent to which the delivery of learning or educational goals can be achieved following the desired goals. Assessment becomes a teacher's instrument in measuring the achievement of planned learning process

competencies and the achievement of specific learning objectives. Through assessment, the teacher will know the development of learning outcomes, intelligence, special talents, interests, social relations, attitudes, and personalities of students or students and the success of a learning program.

To make it easier for teachers to assess students, it is necessary to use information technology. With the development of information technology at this time, MAN 2 Yogyakarta competes in the use of computer technology in its management aspects. This is because computerization has been included in the education curriculum in Indonesia.

The MAN 2 Yogyakarta Digital Report Card application is part of the utilization of information technology used by madrasahs to manage student assessment systems. This application is made on a website basis, meaning that users can use this application by opening a special web address that has been provided by the madrasa (Figure 3).

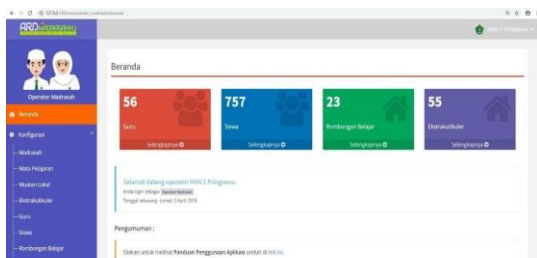


Figure 3 Display of Madrasah Digital Report Card Features
Sumber: <https://rdm.kemenag.go.id>

Previously, student assessment using a manual system turned out to be a waste of time and money, where teachers had to spend a lot of time scoring scores, compiling files, and presenting student grade information, and sometimes errors occurred in the process. Along with the development of technology and information, the assessment system is no longer done manually but is digitally based.

Utilization of media technology by utilizing the internet (Afwan, 2022).

Utilization of technology and information devices is expected to improve the quality of education and increase the efficiency of time and madrasah resources, both in teaching and learning activities and madrasa administration, such as in making digital report cards. Therefore, the MAN 2 Yogyakarta Digital Report Card Application provides a solution to overcome these problems through a web-based online report card application, so that difficulties for teachers can be overcome.

b. Data Result

In this study, the Madrasah Digital Report Card Application makes it easier for teachers to collect, calculate, and process student scores, even to print student report cards. With the help of this device, calculations will be faster, data processing is also faster, and control can be done automatically. Given the importance of the digital report card application system for processing student grades, MAN 2 Yogyakarta seeks to provide optimal service to teachers in managing student grades. However, in practice in the field, there are many obstacles faced by teachers in using this digital report card application system, so it needs serious attention from madrasah leaders.

Based on the results of the research above, it can be concluded that the use of digital report cards in learning assessment activities at MAN 2 Yogyakarta is technically following the guidelines for using digital report card applications, but there are obstacles in its implementation, so policymakers need to immediately follow up, so that the purpose of implementing the report card application Digital Madrasahs in managing the assessment of student learning outcomes can be carried out quickly, precisely, accurately, effectively and efficiently.

3. Library Management System (LibSys)

a. Data Collection

The library management system must be able to handle some library management information such as inter-library loan acquisition, cataloging, circulation, series management, statistical reports, and references. In this case, the library requires software as a library system specifically designed to handle such information management. Along with the rapid development of technology, the library management system has developed with several features, such as features for handling digital media, e-books, e-journal Online Public Access Catalog (OPAC), and so on.

The library information management system at the Yogyakarta MAN 2 Library has been continuously developing. From initially using CIPRUS (Library Information System) to switching to using LibSys (Library System). The library information management system can revive after damage or loss of the database in the use of CIPRUS. The use of CIPRUS is expected to be able to present library data to users in a fast, accurate, and precise manner. By looking at the performance of CIPRUS which is still not perfect and over time, the Yogyakarta MAN 2 Library migrates data to LibSys as shown (Figure 4).

LibSys as an information system in the Yogyakarta MAN 2 Library is used as the main system for managing and operating. The Yogyakarta MAN 2 Library uses Libsys because the server on Libsys is directly from the developer so when there is damage to the system or data loss, the data has been backed up by the developer. Thus, data loss and damage can be minimized (Gayatri, 2022).

LibSys is a multi-user library management software with an integrated modular design that caters to the needs of information professionals in the library field. A tree structure system is a software

design that provides user-friendly views and menus. Each module system consists of several subsystems that have an unparalleled depth of operation and functionality. The development of the Library System (LibSys) is expected to be able to provide a solution to the problems that exist in CIPRUS. So that the hopes of the Yogyakarta MAN 2 Library manager as the initiator of this integrated information system will be answered and can improve the optimization of the functions of each module in CIPRUS.

b. Data Result

In this study, it can be seen that Libsys has access to the system for librarians by operating 4 function modules consisting of 1). Acquisition Module, 2). Cataloging Module, 3). Circulation Module, 4). Serial Control Module. The various modules are discussed in detail as follows:

1) Acquisition module

Provides facilities to add data related to purchases, gifts, and the exchange of goods. This module facilitates the acquisition process with functions for ordering library materials, automatic receipt of documents, managing book exchanges, managing invoices for payment of books purchased, etc. According to (Harinarayana, 1997) with this acquisition function, you can check titles for duplication, order placement, payment requests as well as billing and accession.

Each module also has an online search and acquisition that facilitates searching through various indexes for author, title, classification, catalog, subject, place, and publisher. The Libsys used in the MAN 2 Yogyakarta library has also been integrated into the portal with other madrasas that also use the Libsys application, making it easier for librarians to manage. In managing the library information system through the Libsys application related to acquisition activities in

classifying books, librarians choose to use the DDC (Dewey Decimal) system. The DDC system is used because librarians consider this system easier to use and as a form of library consistency in carrying out such management (Figure 5). According to Gayatri (2022), "The name is consistent in the library, it is absolute".

2) Cataloging Module

The Libsys Cataloging System provides an automatic cataloging process that is similar to the traditional cataloging done at the Yogyakarta MAN 2 Library. The cataloging process in the software makes lists immediately available under various searchable fields to meet the current reference service requirements required by users. Import and export of bibliographic data are also possible in the cataloging module through standard interchange formats to meet the exact requirements of a particular library. This module also provides facilities for generating bibliographies, up-to-date awareness services, and Selective Information Dissemination for users.

The Cataloging process begins either with selecting titles in progress that have already gone through the acquisition process or with new entries. In general, the function of this module is maintenance. The maintenance function makes it possible to preserve titles such as deleting them, changing accession numbers, merging titles if there are multiple copies, attaching multimedia files, etc.

3) Circulation Module

Provides a membership function with statistics relating to updated membership records, either students or teachers of MAN 2 Yogyakarta. It also provides library collections available for circulation. This module

includes and functions features related to madrasa librarian member records, collection updates, reservations, inter-library loans, binding management, book display lists, etc.

The Circulation System provides all of the library's front desk operations and provides access to cataloged and indexed titles. These titles are ready to be circulated among members of the madrasa library. The Circulation System facilitates member registration, maintenance of member status, knowing the status of titles in the library, database maintenance, interlibrary borrowing, collection of fines from members, and online searches.

4) The Serial System Control Module

Provides serial/periodical subscription control and consequent monitoring of the scheduled receipt of individual issues in the library. The Serial Control Module also maintains approved budgets for periodical/serial issues in various categories, calculating and updating expensed and issued amounts to provide complete budget control. It maintains records of serial titles, vendors/publishers, budget heads, currencies, exchange rates, etc. as shown (Figure 6). Which is important for serial database maintenance. It also keeps track of serials received as free or in exchange.

The use of the Libsys information system not only makes it easier for librarians to manage and process the library but also makes it easier for users. In the Libsys application there is also an OPAC (Online Public Access Catalog) which makes it easier for users to search for books in the MAN 2 Yogyakarta library. The OPAC system is known as the Online Public Access Catalog. OPAC provides facilities for accessing bibliographic databases in a style similar to a print index. OPAC facilitates search facilities based on words, subjects or terms using Boolean operators which can further narrow the search

to meet the specific needs of madrasah users. This OPAC can be accessed via computers, laptops, and cell phones.

The MAN 2 Yogyakarta Library's Web OPAC provides a sophisticated graphical user interface to enable library database searches. It uses a standard Web browser available online and makes patrons search for catalogs from anywhere such as (Figure 7). The Yogyakarta MAN 2 Library OPAC web also provides a list of new additions, in which it searches all available databases such as books, CD-ROMs, and article databases. Web OPAC also provides a search facility for Serials/ Periodicals ownership. It provides an account login where the patron can log in with his username and password and view check-out collections under his name. They can also view the history of issues and returns. Developers can also recommend books online to Librarians via Web OPAC.

As a form of library information system that makes it easier for users, the MAN 2 Yogyakarta library also has a website in the form of sites. Google which contains information about the Yogyakarta MAN 2 library in general, such as information on library history, rules, services, collections, and so on as shown below. This website can be used easily by all users of information such as (Figure 8).

In the form of service to the public with management through the Libsys application, the MAN 2 Yogyakarta library uses an open service for madrasa residents by inviting them to find their books and bring them to the circulation desk to borrow them. But some things require closed doors for older teachers and students who do research. In the face of an increasingly developing era that causes the need for science to grow, library visitors are increasingly heterogeneous. Thus, the library must be open and not sacred in the sense of being loose, but still in one realm that can be understood (Gayatri, 2022).

To keep abreast of technological developments, the Yogyakarta MAN 2 library is also developing a digital library through Edo. It is currently in the activation stage by sending

membership data to the Edo system developer, so this system has not been formalized and socialized.

Conclusions

The continuous transformation of information systems along with the times has been implemented by MAN 2 Yogyakarta. This indicates the importance of the function of information so that the management of information must be done properly. MAN 2 Yogyakarta has a website that contains various information that can support the teaching and learning process and madrasa administration. The existing transformation is supported by digital report cards that make student teaching and learning assessments effective and efficient, as well as the Libsys system that manages books in the library as learning support. The development of existing information systems as the demands of the times are getting faster. Thus, it is hoped that MAN 2 Yogyakarta will be able to become a superior madrasah with technological sophistication that can provide good information services to the public.

This research study ultimately addresses how students, parents, teachers, administrators, other professionals, and members of the public use the madrasah Web site or madrasah services and what their use and value of the site warrants. The results of such studies will provide useful information for educators and developers who work with them to create and maintain resources that function as information systems and act as intermediaries between stakeholders in the education process. The overall results show that excellent service is excellent through management information systems and efficient implementation of service technical tasks, as well as very effective technology and information in student learning.

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