

THE ROLE OF INFORMATION SYSTEMS IN COLLEGE

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ABSTRACT

In the business world, the development of information technology from all aspects encourages a university to carry out strategic stages so that it can remain superior in all fields. The role of information technology in higher education can be felt in terms of academic activities / processes. Several private and public universities in particular have made use of information systems which are part of information technology. Academic information systems are very helpful and play a direct role in a college program, this can be seen by the implementation of information systems in the teaching and learning process, arranging schedules, lecture rooms, exam schedules, all of which are tasks of the teaching section categorized as internal College. The use of information systems for every activity or internal incident in higher education will be a factor in the success and progress of the college graduation.

Keywords: Academic, College, College, Teaching

1. INTRODUCTION

A competition in higher education institutions seems to be getting tougher. Changes in the world that are very fast in terms of technological advances (products, services and processes) as well as a social and economic life of the community, encourage the need to take anticipatory steps through policies and strategies of higher education so that later they can survive in all fields.

The success and success of a university is not only seen from one factor, but many factors determine the success and success of a university, both internal and external factors. and an external strategy, namely a strategy for the university where internal factors include adequate number and quality of lecturers, supporting facilities and facilities, students as potential drivers, satisfying service and others.

Meanwhile, the external factor is the relationship between the university and the community, government and other universities. Based on internal and external factors, universities are required to have a strategy to survive. This strategy is an internal strategy that optimizes something operational in higher education, such as the teaching and learning process, room arrangement and lecture schedules, exam schedules, all of which are the task of the education and teaching section as well as external strategies. that is, a strategy so that universities are in demand by the community.

Companies and the government, such as holding seminars, workshops, training and student affairs, taking part in scientific works, research that can give results, sending lecturers to higher levels so that the knowledge they get is wider. The progress and success of higher education can also be seen from the quality of higher education.

The implementation of competency-based education is a government decision, in this case the Ministry of National Education, as an effort to improve the quality of education. Improving the quality of education is the main requirement to produce human resources capable of playing a role globally. Therefore, programs to improve the quality of education must be a development priority in all regions.

The world of education and teaching is increasingly competitive (competitive), where the competition for the organization of educational institutions is getting tighter. This is marked by efforts to improve the quality of teaching, research on the provision of facilities and experienced human resources (HR) to build relationships both at home and abroad.

The use and utilization of information systems for each internal university activity will also be a determining factor for the success and progress of higher education. There are many things that need to be done with information systems such as academics that manage data on teaching and learning schedules, lecturers, students and student scores. The existence of an information system will also greatly facilitate universities to produce information related to data processing.

Information is obtained from an information system (information system) is a system within an organization that brings together the needs of daily transaction processing in support of operational activities both managerial and strategic which are able to provide reports in the form of activity information to interested parties (Muhammad Taufiq).

2. A THEORETICAL REVIEW

There are several theories that will be discussed in this chapter related to information systems and are described in the following:

2.1 Technologi Infrmation

In the development of Information technology (IT) which includes all integrated tools and methods for use in capturing or capturing data (capture, save, process (process), send (distribute), or present information needs electronically in various formats, which is useful for the user (information users). This technology can be a combination of hardware and software (hardware and software) from computers, non-computers (manuals), procedures, operators and managers in a system that is integrated with each other.

The development of Information technology will result in changes in the industrial structure and management practices of business organizations in competing and carrying out activities to serve customers, so that the rapid development of Information Technology has changed the existing business and management concepts, it will also have an impact on information needs for managers. in internal and external accounting to support problem solving for decision making, seize opportunities and achieve goals.

2.2 The role of information technology

Industrialization brings new technology in manufacturing activities because more and more raw materials can be processed into products and with the additional energy, the human power capacity can be multiplied, so that it will have an impact on the way of life and thinking patterns in society, as a result more and more special products are available providing fulfil ment. specific needs (specialized). Industrialization together with existing technology led to very basic changes in social and economic aspects, the creation of public prosperity adhering to the concept of efficiency through large-scale operations carried out through the production process around the 1950, found semi conductors in computer technology which marked the start of the information age, so the factors that encouraging the growth of the social and economic system is no longer labor or machine power but information. For those who master and utilize information that will succeed, as stated by Alfin Toffler: "Whoever wants to master the era of globalization will master the information". Countries that are competent because they have great economic power are those that are able to use knowledge workers effectively, by mastering and utilizing information, the paradigm of creating wealth can be dominantly realized and in today's era, information technology is more and more supported by the role of digital computer technology and technology. Communication.

2.3 Information Systems

Information system is a set of management operational functions to those capable of producing a precise, fast and clear decision which is an arrangement arranged systematically and regularly of information networks that connect each part of a system, if communication is possible between functional parts.

a. Jogiyanto, (2005),

an information system is a system within an organization which is a combination of people, facilities, technology, media, procedures and controls aimed at getting important lines of communication, processing certain types of routine transactions, giving management signals important internal and external events and provides an informed basis for sound decision making.

b.

nformation systems are developed and built because they have great benefits for system components in an organization or company management. The benefits obtained from the information system can be classified as follows: 1) Benefits of reducing costs 2) The benefit of reducing mistakes 3) Increase activity speed 4) Improve management planning and control
The benefits of information systems are in the form of tangible and intangible benefits, namely: Tangible advantages include: a) Reductions in operating costs b) Reduction of telecommunication errors Intangible advantages include: a) Better service improvement b) Increasing personnel job satisfaction c) Improved decision making

2.4 Information

a) (Sutanta, 2011),

Information is the result of data processing so that it becomes an important form for the recipient and has a use as a basis for making decisions that can be felt directly at that time or indirectly in the future. Information has a quality level, which is determined by several things, including: 1) Ease of obtaining it 2) Extensive nature and completeness 3) Accuracy 4) Compatibility 5) Punctuality of time. 6) Clarity 7) Flexible 8) Can be proven 9) No prejudice 10) Can be measured

b) (Sutedjo, 2006)

In order to obtain useful information for the recipient, it is necessary to explain how the cycle is needed or needed to produce information which consists of the following stages: 1) Data collection, at this stage an original data collection process is carried out in a certain way such as sampling 2) Input at this stage is the process of entering data and data processing procedures into the computer through an input device such as a keyboard 3) Data processing at this stage is the stage where the data is processed according to the procedures that have been entered. 4) The output at this stage is the result of processing data that will be displayed on output devices such as monitors and printers as information 5) Distribution after data processing is carried out, the resulting information must be distributed immediately

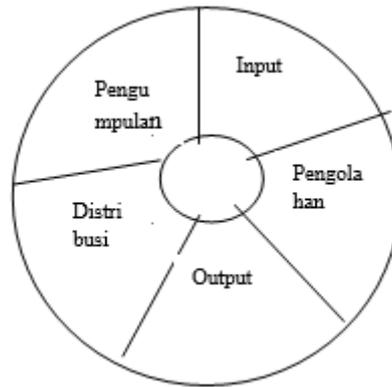


Figure 2 . Siklus Informasi

2.5 Database

The term "database" has its roots in computer science. Although then the meaning is broader, including things outside the field of electronics, this article is about computer databases. Records that are similar to databases actually existed before the industrial revolution, namely in the form of ledgers, receipts and business-related data sets.

Database is a database is a collection of information stored in a computer systematically so that it can be checked using a computer program to obtain information from the database. Database is a representation of a collection of facts that are related to each other stored together in such a way and without unnecessary redundancies, to meet various needs.

The database is a system consisting of a collection of interconnected files or tables and a Database Management System (DBMS) that allows multiple users to access and manipulate these files

(Fathansyah, 1999).

The database system has several components, namely:

- Hardware (Hardware)

The hardware that is usually contained in a database system is the secondary memory hard drive.

- Operating System (Operating System) Operating System (Operating System) is a program that activates or functions a computer system, controls all resources (resources) and performs operations on the computer. Operating systems that are widely used such as: MS-DOS, MS-Windows 95 MS Windows NT, and Unix.

- Database (Database)

A database (Database) can have several databases. Each database can contain or have a number of database objects such as files or tables. Database Management System (DBMS) Physical database processing is not carried out by the user directly, but is handled by a software called a DBMS which determines how data is stored, modified and retrieved.

- User (User)

Users can interact with the database and manipulate data in programs written in a programming language.

2.6. Administration Basically

administration is the administration of administrative work related to writing or collecting data, including in financial matters and so on in a company, organization or state. Below is the definition of administration according to experts:

According to Nawawi and Martini (1996) Administration is the activity of holding, collecting, recording, storing, duplicating, and sending various information data that is useful for realizing the main tasks of the organization.

According to The Liang Gie (1996) Administration is a series of activities of recording, reproducing, collecting, processing, sending and storing various kinds of information needed in every organization.

According to Saiman (2002) Administration is an activity of recording and compiling various kinds of information. The aim is that the information can be used directly for materials or sources of information for anyone who needs it, especially the leadership of the organization / company concerned.

2.7 Study program

A study program is a unitary study plan as a guideline for the implementation of academic and / or professional education which is organized on the basis of a curriculum and is intended so that students can master knowledge, skills, and attitudes in accordance with curriculum objectives.

2.8 Courses

The courses themselves consist of two, namely Compulsory Courses and Elective Courses. What is the difference? Check out the explanation below.

a. **Compulsory Courses**

Compulsory courses are courses in which students on campus or University must take these courses, as a condition for graduating and becoming a Bachelor, Diploma, and so on. The government and the DPR have agreed to affirm the position of the four main courses at the higher education level (diploma and bachelor's degree). All tertiary institutions are required to provide these four courses to all their students. The four subjects are Indonesian Language, Pancasila Education, Citizenship Education and Religious Education.

b. **Elective courses**

Elective courses, are courses chosen based on student needs which are of course also very important. For example, for students taking courses in the Sociology Department, there are Educational Sociology Courses and Gender, both of which are Elective Courses for the Department of Pure Sociology. Students can choose one of these courses, this choice is determined to fulfill the SKS that is the target.

How to Choose Elective Courses

1. **Consider the teacher**

Also consider the teaching faculty in each of your chosen courses. Every campus has its favorite lecturers and killer lecturers that students avoid. Find out information about lecturers and their teaching habits to seniors on campus. You can also try studying in several classes to find out firsthand how to teach the lecturer.

2. **Also pay attention to the combination of courses**

Make a class schedule by combining several fields so you don't get bored. Also combine theoretical courses with practice.

3. **Consultation with academic advisors**

If you are still confused, then you can also ask for advice from an academic advisor or guardian lecturer. They can guide you in choosing courses and completing studies on time.

4. **Pay attention to the class location of each course**

Class location can also be a consideration when choosing courses. Don't let you choose courses with tight schedules and class distances far apart. Because later, if you are late, you will be the one to lose

5. **Watch time if you can't get up early**, then don't take early morning classes. Vice versa. If you are more refreshed from studying in the morning, then take advantage of the afternoon for additional activities outside of college.

2.9 Lecturer

In my opinion, a lecturer is a teacher who holds the title of a position according to his own expertise who has the responsibility to provide broad and deep insights to students so that they develop science, technology and art according to their respective interests and talents. While the standard definition of Lecturer is as follows; Lecturers are professional educators and scientists with the main task of transforming, developing and disseminating science, technology and arts through education, research, and community service.

2.10. Course Schedule

Lecture Schedule is a list that contains or contains the name of the course, the lecturer who teaches the course, time, lecture room and so on. How to Make the Right and Safe Class Schedule Your lecture may be determined by the class schedule that you make yourself. If you make a safe and precise class schedule, your lecture can run smoothly and without hassle. Making the wrong class schedule can make you tired during the lecture process. Your class schedule may not have a day off so you don't have time to refresh and relax. Especially if you have to have a full class from morning to evening does it not burden you if in one day your assignments accumulate so that you are overwhelmed and even interfere with your studies. Therefore, you must prepare a class schedule in advance before the KRS War will be held so that you can make a more optimal schedule. To maximize your class schedule, here are tips for making the right class schedule.

1. **Prepare a lecture schedule in advance** When you get a list or catalog of class schedules from campus, you can immediately select and compile your class schedule as soon as possible. Class schedule catalogs are usually given 2-3 weeks before the KRS will be implemented. You can schedule your class with your friends so you can have friends in class.

2. **Ask with Big Brother**

If you have made a class schedule that you think is right then you can ask your questions. You can ask them for suggestions regarding the class schedules that have been prepared, lecturers, and also courses. Regarding this lecturer, maybe you have to be diligent in asking the seniors, usually the questions about who is the lecturer who gives fair and good grades, how to teach, and whether or not they can enter the material they teach.

3. **Don't be afraid to make semester** skipping class schedules The purpose of the semester contest is if you are currently in the 3rd semester and will take courses in semester 5. This is not a problem especially if you are sure you want to take these courses. Especially if there are friends who also want to take these courses so that you can study together and do assignments.

4. **Consider Day and Time**

In making the right class schedule, you should pay attention to the time and day of class selection. For example, if you have trouble getting up in the morning you can choose a class during the day. If you have many important ways on Friday then you can vacate the class on Friday. Consider the day and time appropriately and don't let the courses collide with each other.

2.11 Library

According to the Library Law in Chapter I Article 1 states the library is an institution that collects printed and recorded knowledge, manages it in a special way to meet the intellectual needs of its users through various ways of knowledge interaction.

In a traditional sense, a library is a collection of books and magazines. Although it can be interpreted as an individual private collection, a library is more commonly known as a large collection that is financed and operated by a city or institution, and is used by people who, on average, cannot afford to buy so many books at their own expense.

However, with the collection and discovery of new media other than books for storing information, many libraries are now also places for storage and / or access to folders, prints or other art, microfilm, microfiche, audio tapes, CDs, LPs, video tapes and DVDs. and provide public facilities for accessing CD-ROM data warehouses and the internet.

Libraries can also be interpreted as a collection of information that is scientific, entertainment, recreation, and worship which are essential human needs. Therefore modern libraries have been redefined as a place to access information in any format, whether the information is stored in the library building or not. In this modern library, apart from a collection of printed books, some of the books and collections are in a digital library (in the form of data that can be accessed via a computer network).

2.11.1 Role of Libraries

The library is an effort to maintain and increase the efficiency and effectiveness of the teaching-learning process. A well-organized and systematic library, directly or indirectly, can facilitate the teaching and learning process in the school where the library is located. This is related to advances in education and improvements in teaching and learning methods which are felt to be inseparable from the problem of providing educational facilities and facilities.

2.11.2 Purpose of the Library

The purpose of the library is to help people of all ages by providing opportunities with encouragement through library services so that they:

- a. Can educate himself sustainably;
- b. Be responsive to progress in various fields of science, social and political life;
- c. Can maintain the freedom of constructive thinking to become a better member of the family and society;
- d. Can develop the ability to think creatively, develop spiritually and be able to use their abilities to be able to appreciate the results of human art and culture;
- e. Can increase tarap in daily life and employment opportunities;
- f. Can be good citizens and can participate actively in national development and in fostering mutual understanding between nations;
- g. Can make good use of leisure time which is beneficial for personal and social life.

3. RESEARCH METHOD

Research methods undertaken to design related information systems are: a. Observation Done by observing the object being researched in this case, namely information technology in the form of an information system that is applied to tertiary institutions. b. Library (Library Research) Using previous research books and journals related to the topic in this study

4. ANALYSIS AND RESULTS

4.1. The role of information systems in education

According to Reinsic (2002), when people think about education and learning, they generally have questions regarding what information is most important to learn? . What is the best way to transform information from teacher to student? And what is the best way to convey information that is easy to understand and learn? Meanwhile, according to Karsidi (2000), the main problems faced by education in Indonesia include improving quality, equal distribution of educational opportunities and the relevance of education to national development. This problem requires a solution other than the conventional methods known so far. In general, information system applications in education are expected to be able to do the following:

- a. Can disseminate information widely, uniformly and quickly.
- b. Can help, complement and replace teaching assignments when needed
- c. Can support community learning activities and invite community participation
- d. Can increase the diversity of resources and learning opportunities.
- e. Can add interest to learning
- f. Can save costs

Initially, educational technology was seen as only having a role at the level of implementation of the curriculum in the classroom. Meanwhile, the new conception that will be used requires educational technology as input even from the curriculum planning stage. With this, the form of educational technology to be applied must be reviewed since curriculum planning. The choice of technology in education will open the possibility for the birth of various alternative forms of new institutions that provide learning facilities. A set of criteria for the use of technology in education, including: compatibility with existing facilities and technologies, to stimulate technological and scientific developments, and to be able to encourage efforts to improve the quality of education itself. This is with the application of a technology in education, it is very possible that there will be a large-scale change in teaching and learning interactions between learning resources and student actors in understanding their learning outcomes.

Obtained some data from the results of observations (observations) to several private and state universities in the city of Jember that have implemented information systems in their academic activities, for example STIE Mandala Jember and Jember University in Jember Regency. and some components as shown in the table below:

Table 1
Several Universities in Jember Regency that implement Information Technology

No	College	Information System Application Components
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1	Universitas Jember	Administration (Student Registration, KRS, KHS, Academic) Class schedule, lecturers (Lecturer personal, Student scores), library, finance
2	STIE Mandala Jember	Administration (Student Registration, KRS, KHS, Academic) Class schedule, lecturers (Lecturer personal, Student scores), library, finance
3	UNMUH Jember	Administration (Student Registration, KRS, KHS, Academic) Class schedule, lecturers (Lecturer personal, Student scores), library, finance
4	Politeknik Jember	Administration (Student Registration, KRS, KHS, Academic) Class schedule, lecturers (Lecturer personal, Student scores), library, finance

Some of these universities have implemented Information Systems in their academic activities as shown below.

4.1 Physical Design

The next stage is the physical design of the proposed system. The design of this proposed system is in the form of a prototype of an academic information system which is used as input in the development of an academic information system at the implementation stage

Data flow Information system design Study plan card and Study result card



Figure 1 : Data flow Information system design Study plan card and Study result card

4.1.1 Initial view design

When a student successfully logs into the system, it will be displayed in a sub menu that can assist students in filling out, printing study plan cards and study results cards

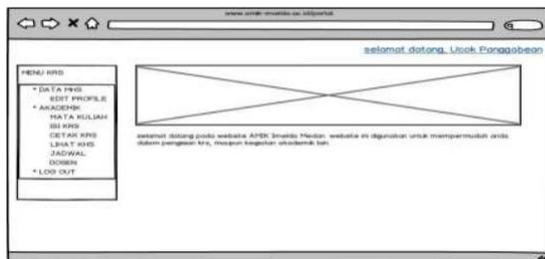


Figure 2. System Design preview

4.1.2. Study Plan Card Filling Plan

On this page, students fill out a Study Plan for the current semester. The results of this filling will be checked by the guardian lecturer for approval.

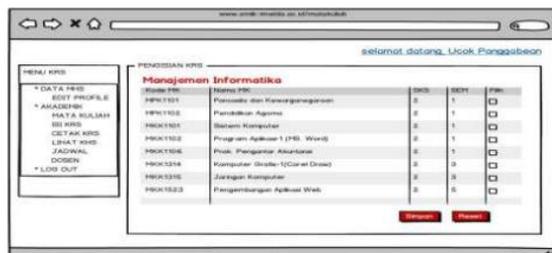


Figure 3. Study Plan Completion Plan

4.1.3 Study Plan Approval Draft

On this page, the academic supervisor will check the student's study plan by considering the student's ability and achievement index in the last semester. If the supervisor agrees, then the student can print the Study Plan Card, but if the academic supervisor does not agree, the student must change the study plan data according to the recommendation from the academic supervisor

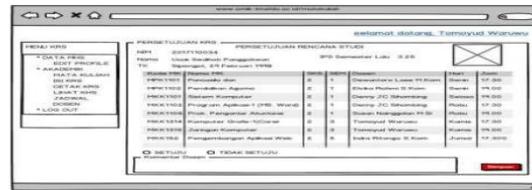


Figure 4. Study Plan Approval Page

4.1.4 Study plan card output design

In this system design, students can print a Study Plan Card that has been approved by the academic supervisor. Study Plan Cards that are printed through the academic information system can only be used in public and private universities



Figure 5 : Study Plan Card Design

4.1.5 Student Value Input Design

This page is used to input student grades based on certain courses. Value data is inputted by academic staff into the system. This value data is obtained by the lecturer in charge of the course. If all values have been inputted, then students can print Study Result Cards

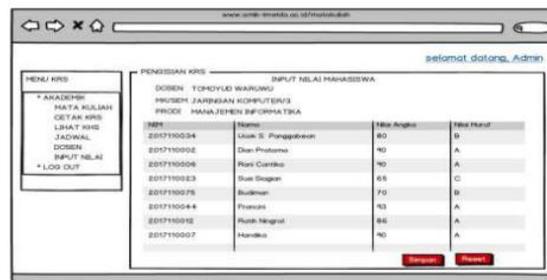


Figure 6 : Student Value Input Design

4.1.6 Study Result Card Output Design

After the lecturer gives the student grades in the course form, the system will calculate the temporary achievement index obtained by the student in the form of a Study Result Card. Study Results Cards printed by students through the academic information system can only be used within the STIE Mandala Jember environment

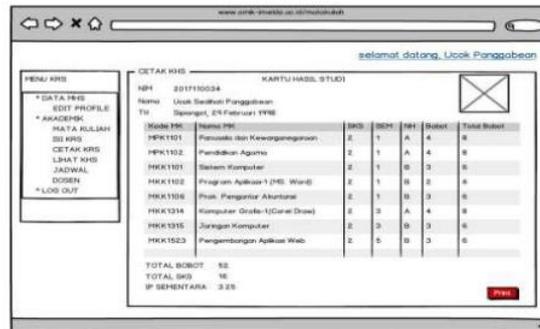


Figure 7 : Study Result Card Design

5. CONCLUSIONS AND SUGGESTIONS

At the end of the discussion above, some conclusions can be drawn as follows:

1. Information System is an integrated system with computerization which is the result of the development of information technology that is able to properly manage the processed data to produce accurate and up-to-date information
2. Developments that occur in the world of education along with the pace of development of information technology are very diverse. Therefore, it is necessary to improve the quality and mechanism of services in education so that they are more efficient so that the Human Resources (HR) created can participate in building the outside world in accordance with the capabilities of each educational institution.
3. Gradually, an education in Indonesia has shifted from an educator-oriented system to a student-oriented system. In addition, distance education is starting to open up and is growing. Moreover, the existence of an online system of lectures (distance lectures) and information and telecommunications technology has made it possible to create a learning environment related to networks that provide learning resources and services electronically to students. Therefore, conventional education should provide an alternative way of learning that is a new technology requirement.
4. The development of information technology also affects activities at universities, especially in their academic activities. It can be seen that more and more universities are already using information systems in their academic activities.
5. Academic activities at universities that use information systems in terms of lecture schedules, filling out KRS, value information through KHS, lecturer data and student registration. In addition, the library and finance have also used information systems.
6. Information technology plays an important role in universities, especially in terms of academic activities for data processing. The more academic data that will be processed demands that this activity be carried out quickly, accurately and the information produced is good. This can be done with the role of information technology (computerization) which is supported by good applications such as web-based applications or single users.

The suggestions that can be given are the need to hold training and workshops on the application of information technology in universities so that universities can apply information technology in each of their activities, especially in their academic activities. Academic information system is something that is very much needed in overcoming academic problems and facilitates each party in the process of making Study Plan Cards and Study Results Cards. The design in research can be used as material in the development and academic information systems in state and private universities

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