

INFORMATION SYSTEM FOR EDUCATIONAL EVALUATION OF UNIVERSITY'S ACADEMIC ACTIVITIES

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ABSTRACT

The aims of this research are to design and implement quality management system based on ISO in higher education or university with android and to know the respondents' reaction regarding the new design quality management system based on ISO in higher education or university with android. The tools that used in this research are hardware and software. In this research use quality management system based on ISO 9001 (quality control) and the process of managing the data in the application of Android will use to implement the system to achieve the result of the research. The sample is 15 students of Information System Department students in Diponegoro University. The method analysis use in this research is descriptive analysis. The result of this study is the design of information systems used in the higher education or university to know the quality management system based on ISO using Android. The information system to know the quality management system based on ISO using Android is very useful and easy to applied. New findings/significance that the design of this information system can help to applied quality management system based on ISO using Android.

General Terms

Educational, information system

Keywords

ISO, educational system, academic activities.

1. INTRODUCTION

The system of academic advisors in higher education institutions is a program created to enable students and academic advisors to communicate with each other. The main purpose of the existence of this system is to provide guidance and mentoring to students in their academic direction. Method of implementation of the system becomes more effective with the development of information and communication technology today. Web interaction between advisors and students has become a trend to communicate in the affairs relate to education and learning. Most of the higher education institutions have adopted the use of information technologies such as web-based system to implement the academic advising program (Noonan and Stapley, 2015).

Web-based system has been used as a medium for students to obtain information specifically related to academic course of study and learning. The use of the web-based system is to facilitate the process of selecting courses for planning of

studies. This, in turn makes it is easier for students to make decisions related to their course of study. The use of the web-based system also allows an academic advisor to monitor the activities and achievements of students under their supervision. And this makes the process of the academic advising system itself more interesting (Martin, 2014).

The importance of interactive advisory is to create an electronic environment actively working within advising system, and convert from traditional paper-based Academic Advisory into a real system interactive Advisory that aims to enrich the advise process with discussions, opinions and experiences within rules and regulations governing the whole advising process. The elements of advisory process will not be completed unless the advising process became more independent from time and place, same time the higher education total solution will not be completed unless Academic Advisory became an integrated part of the total solution (Brindley et al, 2014).

The seamless process of electronic advisory as a part in the higher education total solution is the curative of most of the problems that students face. Academic Advisory as a collaborative educational process where by students and their advisors are partners in meeting the essential learning outcomes, ensuring student academic success, and outlining the steps for achievement of the students' personal, academic, and career goals. The development of the information technology has influenced all different kinds of science and provided new techniques that become the core and an essential part of the educational process in communication and information transfer (Martin, 2014).

Academic advisory is an evolving process which helps students in the interpretation of their life or career goals and in the development of educational plans for the recognition of these goals. The system of academic advisors in higher education institutions is a program created to enable students and academic advisors to communicate with each other. Higher education professionals who understand the student challenges are the best suited for academic advisors. The academic advisor is the most appropriate person to help students in academic decision-making quality (Heisserer and Parette, 2012).

Academic advisory can be categorized into four major systematic models: prescriptive, developmental, integrated and engagement. In prescriptive advising, students succumb to the direct advice given by advisors, making advisors solely

responsible for the decision making process. With development advising however, the advisor directs the student to the proper resources and the decision making process is shared between both parties with more responsibility being placed on the student, thus fostering a higher level of student-independence. Integrated advising is a fusion of formerly discuss methods and engagement advising is typically a type of development advising, with increased student-advisor meetings. It was noted however that intuitive students typically endorsed a developmental advising model while others seldom valued a collaborative relationship and hence seemed more content with that of a prescriptive advising model (Ahmar, 2011).

2. THEORY

Academic advising is perceived to have a positive impact on retention because it is usually structured with retention as a goal. The academic support services should collaborate with counseling departments to improve retention. Academic advisors help the student plan for completion of their program, and address concerns about the curriculum or schedules. The advisor also reviews with the student academic services available at the college. An academic advisor may refer a student to the counseling department for any psychological issues that may impact the student's learning or success. Students who are at-risk academically may benefit from both academic and psychological counseling (Sharkin, 2014).

Faculty advisors provide another support system for students and can connect them to resources. Research has shown academic advising may have a beneficial effect on retention. The advisor can help the student link their goals to the college's resources and create more integration with the institution. Advising may affect retention by influencing the students' perception that a college education is important for their future employment. Advising that is well done will help the student make good academic choices and see the benefits of degree completion (Metzner, 2009).

ISO 9001 Quality Management System is one of the ISO 9000 set of standards that provides a series of guidelines on how to establish a quality system to manage the processes that affect its product or services. It was first developed in 1987 which aimed at promoting the quality of services and goods provided by different sectors of the industry (Chin et al., 2013).

Since the establishment of ISO 9000 quality system by the International Organization for Standardization (ISO), it has been gradually adopted by all industries worldwide. It can be said that ISO 9000 is the most successful standard in ISO history because there is over 500000 registrations with registrants in over 100 countries from all continents, including USA, UK, European countries, Japan, Korea, Taiwan, Hong Kong, Singapore, and Malaysia (Lee, 2016)

Each organization can design its own system that fits its specific needs and that fits the general requirements of the ISO standards. A common misconception is that ISO would mandate higher levels of product quality. ISO certification gives no guarantee that the quality of products or services of an organization is better than the quality of other organizations. Thus, ISO certified organizations do not automatically have a good product quality (Motwani et al., 2016).

ISO 9000 standards help to ensure that organizations follow specific well documented procedures in the making of their products or services, and nothing more. These procedures

describe how operations in an organization must be conducted. When employees work according to the procedures that are described in the ISO series, and anything should go wrong then it is possible to find efficiently where the problem arose in the production process. By doing so, these procedures are meant to guarantee that the products or services of an organization are in accordance with customer specifications. As such, one could say that ISO certification is a necessary condition for good product quality. ISO certification is said to give certain benefits for organizations that can be divided into internal and external benefits. Internal benefits are related to the internal functioning of organizations. These benefits are related to the processes and structure of the organization. These are, for example, increase in productivity, improvement in efficiency, reduction in costs and waste, better management control, clearly-defined organizational task structure and responsibilities, improved co-ordination structure, support in decision making, and increase in personnel motivation. External benefits are benefits concerning the organization in relation to its environment. Notice that these benefits and disadvantages are often, in one way or another, incorporated in the performance indicators to measure an organization's performance (Buttle, 2007).



Figure 1. The Same Core of Element of ISO

Smart Device is used to create application programming tools which can be implemented on certain mobile phones such as PDAs (Personal Digital Assistant). Smart Device Programming at VB 2008 using .NET Compact Framework 3.5 and running on top of the system Windows CE (Compact Edition).

3. METHODOLOGY

In this research use quality management system based on ISO 9001 (quality control) and the process of managing the data in the application of Android will use to implement the system to achieve the result of the research. After that the questionnaires will be distributed to the respondents to know their responses about the quality management system design that implemented based on ISO 9001 in higher education or university.

Research tools used in this research are hardware and software. The detailed specifications of the device used as follows: Lap top hardware with detailed specifications used are Intel Core i7 processor, 16 GB RAM and 1 TB Hard Disc. Software with detailed specifications used in the operating system Windows 10, 64 bit, SQLite, Android Studio.

In this research population are all students in Diponegoro University, Information System Department, in Semarang. This study used proportional stratified sampling technique to select a sample size 15 students of Information System Department students in Diponegoro University.

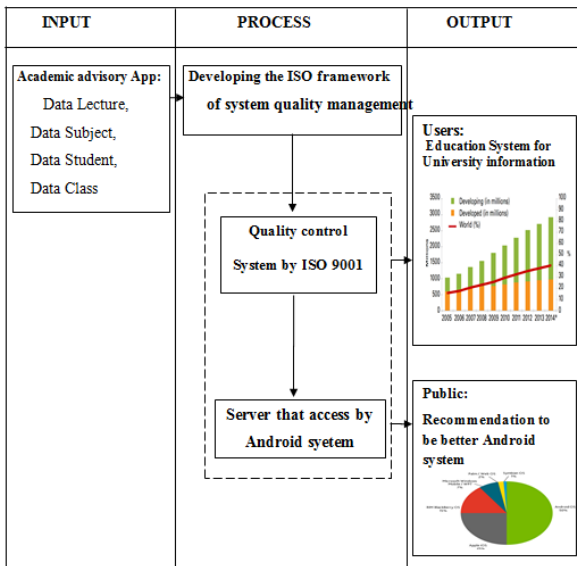


Figure 2. Information System Framework

4. RESULT

The result discusses the design of education information system implementation and discusses the user's response to educational information system that has been designed. This chapter also discusses what is in the educational information system based on its users ie students, lecturers and system admin.

4.1. Design and Implement Quality Management System Based on ISO in Higher Education or University with Android

The system is a complex and ordered whole, a design or combination of parts that constitute a complete unity. To provide a conceptual picture of quality information communication, it is necessary to have a measure of the information itself. Here is the design of information systems used in the higher education or university to know the quality management system based on ISO using Android:

1. Home is the main menu that showed the introducing of application
2. Main menu student portal, in this menu contain:
 - a. UNDIP, in this menu contains the introducing of UNDIP university that contain of history of UNDIP, address, phone number, enrollment, and motto.
 - b. Faculty, in this menu contains the name of all faculty in UNDIP university
 - c. Rule, in this menu contains the filling form registration, and registration.
 - d. MAP, in this menu showed the location of UNDIP university.
 - e. Log In, in this menu contains three menus that are: administrator, student, and lecture. Inside the menu of administrator, student and lecture has the same menus, that are subject, schedule, mark, event, holiday, reliability and e-book menu.
3. Exit, in this menu to log out from the application.



Figure 3. Main Menu of the Application

4.1.2. Evaluation Information System in Management System of University

4.1.2.1 Gender

Data of respondents characteristic based on the gender served in the (Figure 4), presents the number of male respondents is 8 respondents or 53% whereas the female respondents is 7 respondents about 47% of the populations. Thus the most number of respondents is male respondents with the number of 8 persons or 53%.

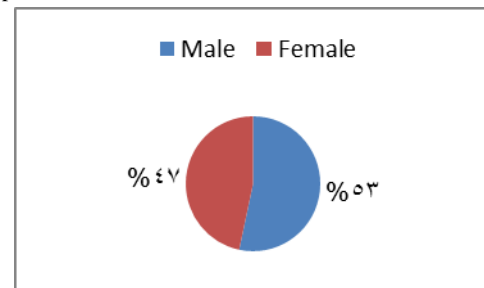


Figure 4. Gender of Respondent

4.1.2.2. Age

Data of respondent characteristic based on the age can be seen in the (Figure 5). Regarding to the Figure 4.39 bellow, we can figure out that the respondents in the age 21 – 23 years old is 6 respondent or 40%, more than 23 – 25 years old is 4 or 27%, more than 25 years old is 5 respondent or 33%.

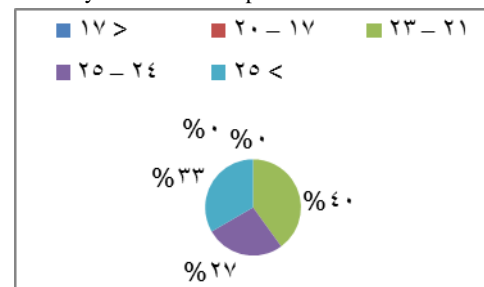


Figure 4 Age of Respondent

4.1.2.3. Description Analysis

5. Evaluation of information system in the ISO of university done using descriptions of data from questionnaires that are asked to the student of Information System Department in

Diponegoro University. Table 4.1 is a description of data from the respondent's answer.

Table 4.1 Description Data of Variables

Question No.	Mean	Min	Max	Median
1	4.67	4	5	5
2	4.53	4	5	5
3	4.40	3	5	4
4	4.40	3	5	4
5	3.93	3	5	4
6	4.60	2	5	5
7	4.27	3	5	4
8	3.40	3	5	3
9	4.00	3	5	4
10	3.33	3	4	3
Summary	4.15	2	5	4

Based on the description of the data (figure 6.) it can be seen that the summary answer of the questionnaire is known that the answer of the maximum respondent is 5 and the minimum is 2 whereas the mode or answer that often appears is 5 that means strongly agree (42%).

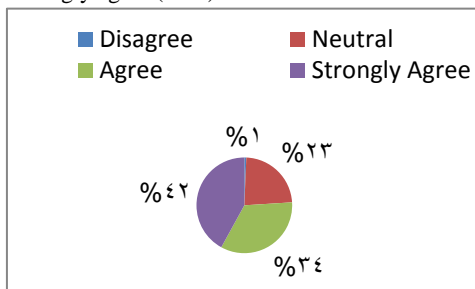


Figure 6 Result of the Questionnaire

5. Discussion

With advances in time and technology there is a need for faster information dissemination. The increased profitability of the automated system is now at the highest position resulting in many automated manual processes. Because automated systems are demanded now, educational infrastructure such as colleges requires their manual systems to function on mobile computing systems. The change in Information Technology (IT) allows agencies to utilize databases and applications such as the Student Information System so as to make access to centralized records. One of the emerging changes is web-based applications. This application is an improvisation of traditional transaction processing system.

Convergence of Mobile technology plays an increasingly important role in student academic life. Due to the combination of advanced mobile technology and computer technology today, mobile phones are not just phones, they have become smart phones. Specifically, after the 3rd Generation or 3G Mobile Telecommunications Network was officially launched in Thailand in May 2013, smartphones and other mobile devices can be used efficiently as data transmission speeds increase significantly.

Devices like smartphones, tablets, and e-book readers connect users instantly to the world, improve access to information

and enable interactivity with others. Apps running on this device let users not only consume but also find and produce content. Thus, they continue to change how students learn, as well as affect their learning preferences, both inside and outside the classroom.

There is a great need for automated systems that are fast, reliable, efficient and easy that will help update and provide the best way for interaction in short durations of time. The challenge is that people look forward to working, learning, and learning whenever and wherever they want (Johnson et al., 2010). Mobile computing solves this challenge by maximizing the impact of learning by ensuring it is timely and efficient (Johnson et al., 2010). Mobile devices now provide access to information and services that were previously only available on networked personal computers.

The proposed Android app that Manages College System is designed to make it easy for users to add and retrieve information quickly. As soon as the user opens the Android app, on the front end all the schedules / events are available to everyone in the right way. There are three types of users in this created information system. They are Students, Teachers, and College Administrators. Administrator is the primary user; he gets the most priority over other users.

Different functions involve administrators to update information, approvals, events, etc. Administrators can view and approve various records. Students can use Android app with multiple authentication. Students can view and enter information at all times and from any location. Students can edit their Profile, and update it constantly. Students can very flexibly search and view College schedules and details, view their values, know events to be held, holiday schedules and use of e-books. Student Enrollment is done by the students themselves. Students will keep in touch with automatic notifications via message. Lecturers can also use Android applications with some authentication. Teachers can edit their Profile, and update it constantly. Teachers can view College schedules, events, and details. They can take Presence by using the app, and also update student performance.

The administrator is connected to this system using a web app. He has centralized control of this system. He will have the authority to allocate higher authority to various departments. He can check the wise department's performance and post questions on the wall and also interact with others through messages. He organizes events, organizes notifications using this system. This guide is approved by an administrator followed by another.

The ISO 9000 standard defines quality management as a coordinated activity to direct and control an organization regarding quality. (SFS-EN ISO 9000, 2005.) In other words quality management is one of the management approaches, which focus on quality. Quality management is based on the participation of each stakeholder and aims for long-term success (Zink, 1998).

The ISO standard has set eight principles that top management should consider when pursuing better performance. These principles are customer focus, leadership, people engagement, process approach, systems approach to management, continuous improvement, factual approach to decision making and mutually beneficial supplier relationships. Furthermore the principles and benefits will be presented (International Organization for Standardization, 2013). With the campus management system that has been integrated with this information system is expected to improve the quality of management

6. CONCLUSION

Based on the result above, it can be concluded that:

1. With this system, students, lecturers can move at any time according to their own convenience so that it will improve the quality of management on campus. With this system student updates in a timely manner can be known directly by students or lecturers who deal directly. In the future this system can be implemented to automate most educational systems and can be designed for cross platform.

2. Based on the respondent's answer, it is known that the design of this information system can help the university or high school to make the quality management based on ISO.

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