Development of Research Clinic in Support Research and Scientific Writing Guidance Process

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Abstract

Intensive and harmonious relationship between students, supervisors, and managers is the key to successful mentoring of quality research and scientific works. The problem that often arises is that there is no media that meets the needs of students and supervisors to interact optimally. This study aims to develop a research clinic to support the research process and publication of quality scientific papers. The research method is the Research and Development (R&D) method and the manufacture of product designs is carried out through 5 stages, namely collecting potential and problems, gathering information on needs, product design, product design trials, and finalizing product designs. The results of the study indicate that the need for clinical research in a system can provide optimization for students, supervisors, and study program managers. SISTEMA product design can provide a smooth process by recording student interactions with supervisors and notifications from managers if the mentoring process does not run smoothly.

Keywords: Clinical Research, Mentoring, Research, Product Design, Publication

INTRODUCTION

Higher Education faces the challenges of considerable change in the era of the industrial revolution 4.0 and society 5.0. Higher education currrently focuses on humans and technology where there is an integration of virtual space and character values that must be developed, the spirit of defending the country, and empathy so that students are able to think critically, innovatively and creatively. The focus could also help students become competitive, adaptive, flexible, productive, empowered, and excellent. The mindset, learning culture and learning process are the keys to success in higher education.

In responding to the challenges of change, especially in the field of information and communication, universities must transform education based on the main performance indicators that have been set. To support the achievement of key performance, a research guidance system and scientific work in the form of a research clinic have been developed by utilizing information and communication technology. Utilization of information and communication technology in research clinics can help facilitate interaction between students, lecturers, and managers. Also, manages can take advantage of available information for administrative and decision-making purpose.

LITERATURE REVIEW

The research clinic is an information and communication system designed to provide an optimal guidance space to produce quality research and writings. The existence of research clinics is to meet the needs of students, lecturers, and managers in providing effective, efficient, and sustainable services. Research conducted by Putra (2015) and Rahayu (2020) shows that a thesis information system can expedite and simplify the process and can streamline mentoring time.

The existence of a research clinic will provide fundamental changes to lecturers and students in conducting guidance interactions, so they must change their communication culture. According to Satria (2012) the cultural aspects of information systems (IS) or information technology (IT) can be categorized into 4 groups, namely (1) culture as input, (2) culture as a process, (3) culture as impact, and (4) culture as an accelerator. In implementing the use of research clinics, the culture must be considered, so that optimal adaptation occurs.

The system built in the research clinic is carried out in several stages, Kurniawan's research (2018) shows that the system stages can be carried out in 4 stages, namely the needs analysis stage, the design stage, the coding stage, and the testing stage. Dick and Carry (1996) in Mulyatiningsih (2016), designed a learning system with the ADDIE Model (Analysis, Design, Development or Production, Implementation or Delivery and Evaluations). Based on the stages according to Kurniawan and Dick & Carry, Clinical Research research is designed in 5 stages, namely collecting information about potentials and problems, collecting information on the needs of various parties, designing and preparing information systems (product design), conducting product trials and validation and revising product designs, and finalizing product designs.

RESEARCH METHODOLOGY

The type of research used in this research is Research and Development (R&D). Research and development methods are research methods used to produce certain products, and test the effectiveness of these products (Arifin, 2012 and Sugiyono, 2016). Sugiyono further stated that R&D is often defined as a process or steps to develop a new product or improve an existing product. Products in this context are not always in the form of hardware (books, modules, learning aids in the classroom and laboratories), but can also be software (software) such as programs for data processing, learning in classroom, libraries or laboratories, educational models, learning, training, guidance, evaluation, management, etc. (Mulyana, 2020).

According to Borg and Hall (1989), in general the steps and R&D include: potentials and problems, collecting information, product design, design validation, design improvement, product testing, product revision, usage trials, further product revisions, mass product manufacture. Another model approach is the Analysis, Design, Development, Implementation and Evaluation (ADDIE) approach for content analysis and the System Development Life Cycle (SDLC) for information system development (Rahayu, 2020). Of the two methods, in general, the implementation of the research is carried out in 5 stages for the development of the Research Clinic information system. The five steps include: 1) Collecting information about potentials and problems, 2) Collecting information on the needs of various parties through surveys, 3), Designing and preparing information systems according to user needs (product design), 4). Conducting product trial and validation and revise product design, 5). Finalizing product design.

Building an information system by designing an effective and efficient research clinic product with content that suits user needs can support more publications of lecturers and students at national and international standards. The model designed is a circular model so that it will continuously change according to the needs and developments of information technology.

The process of guiding research and writing scientific papers includes several stages of activity, namely: submission and assessment of the feasibility of research proposals through research proposal seminars, appointment of supervisors and reviewers, results seminars, consultations or mentorships that lasts until students graduate. Consultation or mentorship runs quite a long time and this stage is carried out from the beginning to the final revision of reports and papers that will be published. Stages of consultation or mentorship include; guidance on research proposals, research reports, and scientific writings.

Figure 1. Research Step Model

FINDING AND DISCUSSION

Based on the data collected from the survey and product design of the SISTEMA research clinic and 5 stages, the following results were obtained,

1.   Collecting information about potentials and problems

The curriculum at Agribusiness Master's Degree Study Program-Faculty of Agriculture UPN "Veteran" Yogyakarta requires students to make a final project in the form of research and published scientific works, so students must do research. Lecturers are also required to make research and publications as their responsibility and the interests of promotion to their functional positions. The problem that often arises on the part of students is very diverse ability due to students' background; those who are fresh graduates, employees in state agencies or companies, employees in private institutions or companies, employees with various types of work.

Based on a survey of 26 students and lecturers, it is obtained the following data; the highest percentage of students are civil servants which shares 38.5 %, while entrepreneurs stand in the second position (30.8%), and students who are private employees are 15.4% and the rest of it, which is 15.4%, is from other backgrounds. Variety of students' background will provide different methods of mentoring that are applied. In the mentoring method, lecturers (53.8%) and students (76.9%) have the same tendency to use mixed methods (offline and online). For document in mentoring process, lecturers who like using softcopy is 23.1%, and those who choose hardcopy is 38.5%, and for mixed document type there are 38.5% of lecturers like to use it. While students who prefer softcopy is 84.6%, 15.4% of students like mixed file and no one likes hardcopy. In mentoring activities, 46.2% of lecturers take the initiative to remind students to be active, and there are 46.2% of lecturers giving advice on the need for a system to monitor student activity. From students' opinion, 61.5% of them prefer active mentoring through system settings, while those who like being reminded by their supervisors are 15.4%, 23.1% of students prefer mentoring when they need.

Based on the results of the survey, it is necessary to have a system that can control the smooth process of mentoring research and scientific works. The system that is built can overcome the limitations of time and space for students and lecturers to interact, while the manager can have archives or records to make decisions.

2.   Collecting information on the needs of various parties through surveys

Information on the needs of various parties (students, supervisors, and managers) to design information system product designs can be seen in Table 1.

Table 1. Needs of students, supervisors, and managers

No	Students	Supervisors	Managers
1	Planned mentorship time	Being active in mentoring process	Mentoring process in conducive academic atmosphere
2	Constructive solutions in the completion of mentoring	Quick in response during correction and mentoring process	Quality of writing (national and international class)
3	Relatively fast mentorship	Idealistic in writing	Students graduate on time

Table 1 shows that the harmony of students and lecturers as well as the management carried out by the managers can be the drivers of successful research and it also can make it run smoothly.

3. Designing and preparing information systems in accordance with user needs (product design)

Based on user interests, potential information and problems, a designed system called SISTEMA (Agribusiness Master Thesis Information System) is made. This system provides easy access for students, supervisors, and managers in order to make mentoring run smoothly. Home from SISTEMA displays profile information about student biodata, proposal status, guidance, feedback, and history. The process in SISTEMA starts from the student registration by submitting a research design. From the research design, an assessment is carried out by a quality assurance team chaired by the Study Program Coordinator.
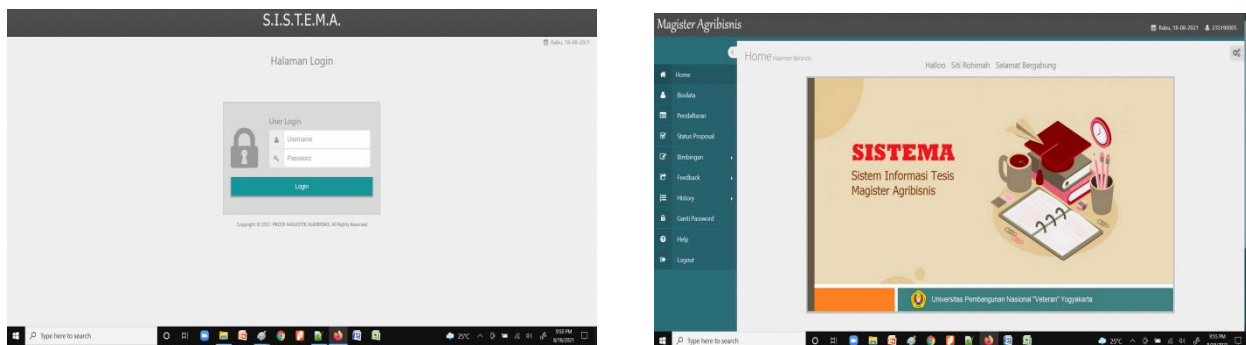

Figure 2. Home of SISTEMA

Students actively register by filling in their biodata form and research proposals. The manager will then notify the quality assurance team to assess the feasibility of the research proposal and recommend research supervisors according to their competence. After the proposal is declared feasible, and they get a supervisor, students can actively carry out mentoring to complete research proposals, conduct the research, make research reports and produce scientific papers for publication.
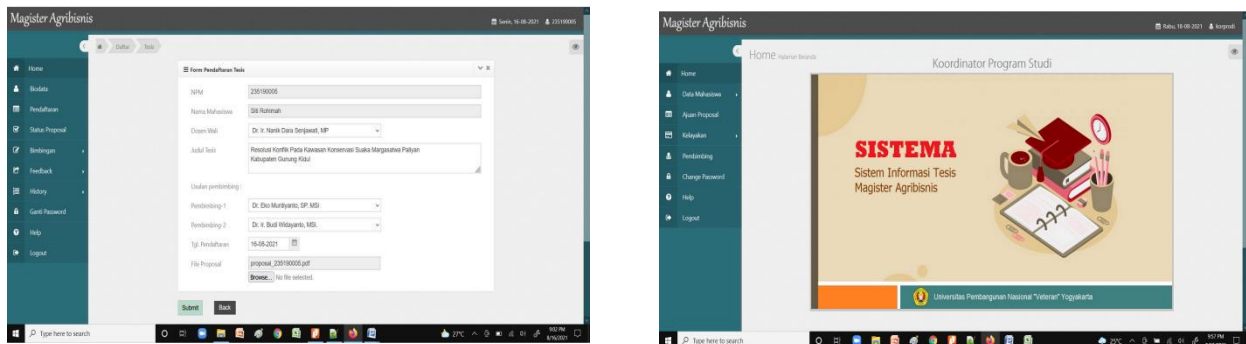

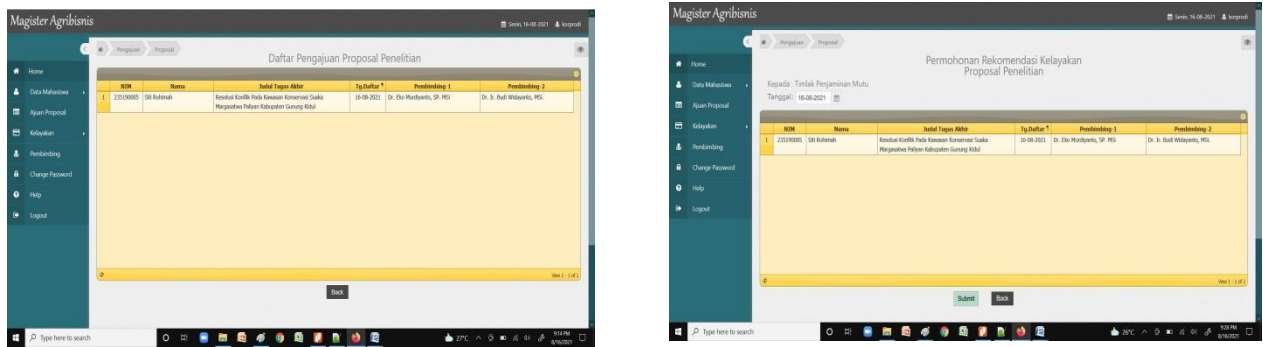Figure 3. Registration Menu and Home of Study Program Coordinator

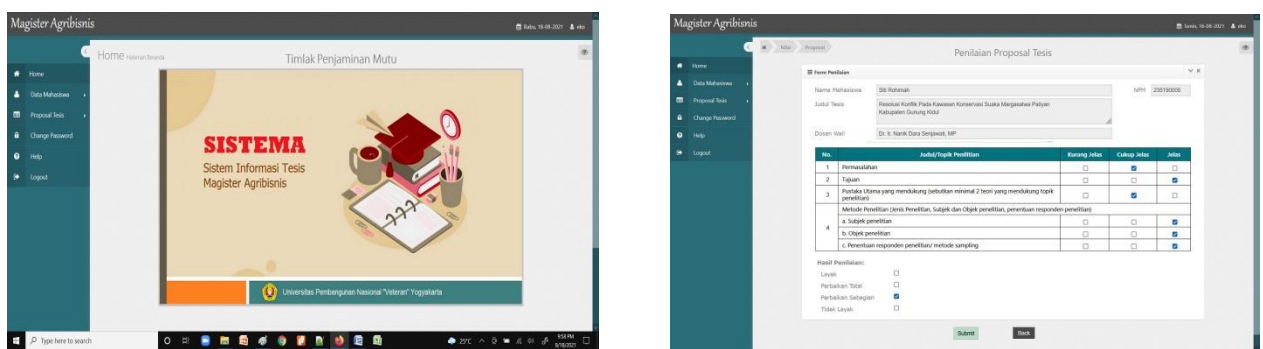Figure 4. Submission Menu and Recommendation of The Feasibility Menu

Figure 5. Home of Quality Assurance Team dan Assessment Form of Research Proposal

The specialty displayed in SISTEMA is the recording of detailed feedback reports between students and supervisors. These reports can be used to detect problems that occur, so that there is no miscommunication between supervisors and students that can hinder the smooth completion of their research. From the detection, the manager can take action so that the next mentoring process can run smoothly.
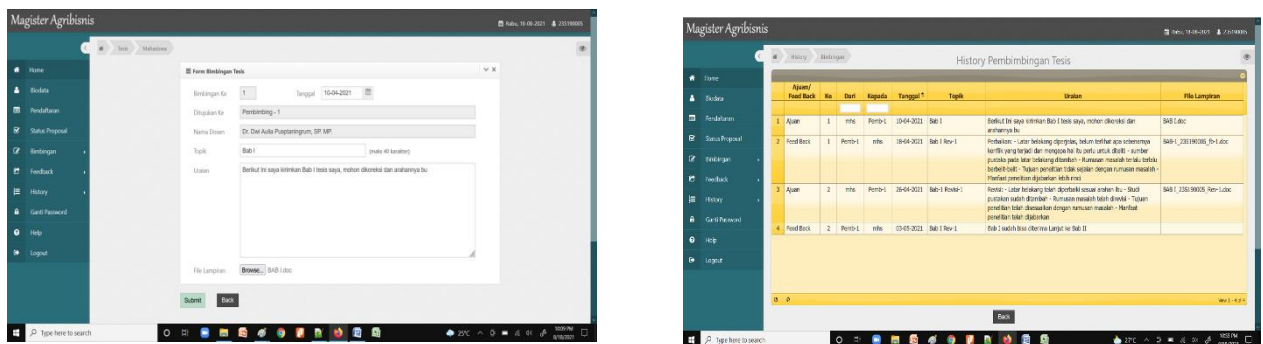

Figure 6. Mentoring Menu and History of Mentoring

Managers can provide notifications to students and supervisors if the mentoring process does not run well or is not harmonious. This disharmony can occur due to differences in writing material that are prolonged and the mentoring process that does not run well. By reviewing the existing records in the system, managers can take action to find a solution. While time is often a problem in mentoring meetings or time for supervisors to correct written material, managers can do time management by giving notifications to supervisors or students to immediately respond or provide guidance through the existing system.

4. **Conducting product trial and validation and revising product design**

Product design of SISTEMA that has been created is a product that will always undergo changes and adjustments to accommodate the existing dynamics. Changes are also directed at providing practical value and benefits for students, supervisors and PS managers. In the SISTEMA design, trials have been carried out and the changes that are made include: 1). Service facilities, and 2). Service access.

Service facilities include providing additional features to facilitate the operation and monitoring process by managers in the mentoring process. Service access includes managing the access of SISTEMA users. By providing flexibility of access to PS managers so that the mentoring process runs smoothly. Meanwhile, students and lecturers can access SISTEMA according to their responsibilities, namely the process of interaction and feedback in the mentoring process.

5. **Finalizing the product design**

SISTEMA is designed to be used in the online mentoring consultation process to complement face to face mentoring process. The design character of SISTEMA product provides two main benefits, 1). Ease of detecting problems that occur during the mentoring process so that they are easily resolved because of the consultation recording process, 2). There is a notification made by manager to students or supervisors if problems happen such as deviation, or when the mentoring process does not run smoothly.

CONCLUSION AND FURTHER RESEARCH

1. Research clinics that are built to support the research process and publication of scientific papers need to be assisted with clinical research applications (SISTEMA) to monitor student academic activities starting from submitting proposals, research, making journal manuscripts. Facilities or application features are being built to meet the needs of the research clinic for the Master of Agribusiness Study Program UPN "Veteran" Yogyakarta.

2. Research Clinics provide convenience in the management of research and scientific work by providing progress notes during mentoring process and tools to provide notifications to students and supervisors for optimizing the completion of mentoring.

3. There is a need for continuous evaluation and development of the operation of clinical research applications that have been made.

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