Nazhruna: Jurnal Pendidikan Islam
Vol. 5 Issue 3, 2022. pp. 956-971 E-ISSN: 2614-8013
DOI: https://doi.org/10.31538/nzh.v5i3.2427

THE PROCESS OF TECHNOLOGICAL INNOVATION IN ISLAMIC UNIVERSITIES: E-CAMPUS APPLICATION AT ISLAMIC INSTITUTE OF BUNGA BANGSA CIREBON

Fitri Meliani[2], Supiana[2], Qiqi Yuliati Zaqiah[3]
[1]IAI Bunga Bangsa Cirebon, Indonesia
[2,3]UIN Sunan Gunung Djati Bandung, Indonesia
Email: fitrimeliani@bungabangsacirebon.ac.id[1], supiana@uinsgd.ac.id[2], qqzaqiah67@gmail.com[3]

Received: 17-05-2022 Revised: 14-07-2022 Accepted: 8-08-2022

Abstract

The use of management information systems in Islamic higher education is one of the efforts that can be made to improve the quality of education. This article aims to describe the innovation of e-campus services used by the Campus of the Islamic Institute of Bunga Bangsa Cirebon to make it easier for all elements of the campus community to access all information and academic services through one door. This research uses a qualitative approach with a descriptive method. The data collection technique is by conducting interviews and collecting several references. The interview was conducted on the subjects studied, namely the Rector, Vice-Chancellor for Curriculum, and IT Operator of the IAI BBC campus, by SWOT analysis to capture information about the mechanism for using the e-campus Information Technology application at IAI BBC. The results of this study describe the e-campus applications used at THE BBC IAI including the services of (1) PPDB; (2) Lectures; (3) Administration; (4) Data management of students and lecturers. The e-campus application is a platform that provides menus for the learning process (academic) and non-academic. The use of e-learning through the IAI Bunga Bangsa Cirebon e-campus is a combination of face-to-face (offline) with online (online) or concluded as blended learning. This learning stands on an information technology infrastructure and can be accessed anytime and anywhere that has open source characteristics for all users.

Keywords: Educational Innovation, Educational Technology, E-Learning, Information System Management

Abstrak

Penggunaan sistem informasi manajemen pada pendidikan tinggi Islam merupakan salah satu upaya yang dapat dilakukan untuk meningkatkan kualitas pendidikan. Artikel ini bertujuan untuk mendeskripsikan inovasi pelayanan e-campus yang digunakan oleh Kampus Institut Agama Islam Bunga Bangsa Cirebon untuk memudahkan seluruh elemen masyarakat kampus dalam mengakses segala informasi dan layanan akademik melalui satu pintu. Penelitian ini menggunakan pendekatan kualitatif dengan metode deskriptif. Teknik pengumpulan data adalah dengan melakukan wawancara dan mengumpulkan beberapa referensi. Wawancara dilakukan pada mata pelajaran yang diteliti, yaitu Rektor, Wakil Rektor Bidang Kurikulum, dan Penyelenggara IT kampus IAI BBC, dengan analisis SWOT dalam rangka menangkap informasi tentang mekanisme penggunaan aplikasi Teknologi Informasi e-campus di IAI BBC. Hasil penelitian ini mendeskripsikan aplikasi e-campus

yang digunakan di IAI BBC mencakup pelayanan (1) PPDB; (2) Perkuliahan; (3) Administrasi; (4) Pengelolaan data mahasiswa dan dosen. Aplikasi e-campus adalah platfrom yang menyediakan menu-menu untuk proses pembelajaran (akademik) dan non akademik. Penggunaan e-learning melalui e-campus IAI Bunga Bangsa Cirebon ini kombinasi tatap muka (luring) dengan online (daring) atau disimpulkan sebagai blended learning. Pembelajaran ini berdiri di atas infrastruktur teknologi informasi dan bisa diakses kapanpun dan dimanapun yang memiliki karakteristik yang terbuka (open source) bagi seluruh pengguna.

***Kata Kunci**: Inovasi Pendidikan, Teknologi Pendidikan, E-Learning, Manajemen Sistem Informasi*

INTRODUCTION

The concept of e-learning learning today is something that must be developed because of the demands of accelerating the pace of science and technology. Human physical limitations and ability to explore time and space can be overcome by mastering information and communication technology, such as holding teleconferences for remote face-to-face learning, giving and billing assignments to students via the internet, and even holding discussion forums with mailing-list and chat facilities, by the concept of the Internet, which is not going anywhere, but it is everywhere.[1] According to UNESCO, education is an organized and sustainable communication designed to bring about learning. For this reason, UNESCO further recommends four pillars in the field of education, namely learning to know, learning to do, learning to live together, and learning to be.[2]

Realizing that the development of information technology is going so fast, teachers and students are required to also master the science and technology of information communication and update it on an ongoing basis.[3] Especially for teachers, the packaging of learning packages that are adapted to educational innovations needs to be designed by paying attention to aspects of student needs and based on an analysis of the existing situation. To achieve the above, a lecturer at this time no longer only functions to teach conventionally, but also seems to have to improve his professionalism to master a completely new skill, namely exploring his ability in terms of programming as well as designing his learning media to be more dynamic.[4]

Today's lecturers must have multi-talents, not only required to be skilled in the preparation of learning program plans, but also to master how to translate the RPP into multimedia scripts.[5] Mastery of text processing software applications, graphics, audio, video, animation, programming logic, and knowledge of design principles in audiovisual art, must be

[1] Ilmi Zajuli Ichsan dkk., "Covid-19 dan E-learning: Perubahan Strategi Pembelajaran Sains dan Lingkungan di SMP," *JINoP (Jurnal Inovasi Pembelajaran)* 6, no. 1 (30 Mei 2020): 50, https://doi.org/10.22219/jinop.v6i1.11791.

[2] Putri Agriza Nur Azizah, Marsani Asfi, dan Ilwan Syafrinal, "Implementasi Model Scrum Pada Sistem Informasi Pembelajaran Diluar Kampus Untuk Skema Wirausaha Kampus Merdeka," t.t., 12.

[3] Ronald Fransyaigu dkk., "Technology-Based Character Education Through the 'Moodle' Application:" (2nd International Conference on Science, Technology, and Modern Society (ICSTMS 2020), Langsa, Aceh, Indonesia, 2021), https://doi.org/10.2991/assehr.k.210909.079.

[4] Rosyida Nurul Anwar, "Pelaksanaan Kampus Mengajar Angkatan 1 Program Merdeka Belajar Kampus Merdeka di Sekolah Dasar," *Jurnal Pendidikan dan Kewirausahaan* 9, no. 1 (19 Agustus 2021): 210–19, https://doi.org/10.47668/pkwu.v9i1.221.

[5] Annisa Mayasari, Yuli Supriani, dan Opan Arifudin, "Implementasi Sistem Informasi Manajemen Akademik Berbasis Teknologi Informasi Dalam Meningkatkan Mutu Pelayanan Pembelajaran Di SMK," *JIIP-Jurnal Ilmiah Ilmu Pendidikan* 4, no. 5 (2021).

trained and tried as often as possible to realize learning for students and to achieve fun learning. To organize e-learning, universities can choose two electronic-based learning models, namely synchronous learning and asynchronous learning. This method is a way (way of communication) to convey material or delivery system between two core actors, namely lecturer, and student.[6]

In the synchronous learning model, lecturers and students can interact directly at one time online. The learning experience will be better because the teaching and learning process will approach the learning atmosphere in the classroom. However, this model demands the availability of good facilities and infrastructure, because synchronous require excellent devices, networks, bandwidth, and applications. In the asynchronous learning model, providers are not required to provide excellent facilities and infrastructure, so that organizers can make cost efficiencies. The organizers are more focused on improving the quality of teaching content and other things so that the implementation of e-learning can run well.[7]

Islamic universities have a strategic role and function, especially in the preparation and formation of superior and professional human resources, because the improvement of human resources that have competitive academic advantages is a prerequisite in entering a global society full of challenges for Muslims in the context of applying Islamic teachings in various aspects of their community life[8]. The IAI Bunga Bangsa Cirebon campus has a strategy of building a culture of quality on-campus internally with a frame of work efficiency, work integration of IT-based institutions, and diversification of campus academic programs oriented towards vocational education. The purpose of this article is to describe the implementation of e-learning in learning in the form of e-campus applications at IAI BBC. This article aims to describe the innovation process of e-campus applications in the learning system at IAI Bunga Bangsa Cirebon.

METHOD

This research uses a qualitative approach with a descriptive method. The data collection technique is by conducting interviews and collecting several references[9] in the form of books, articles, documents, and others related to the implementation of e-learning. Then the data analysis technique used in this study is a SWOT analysis. This research was conducted at the Islamic Institute of Bunga Bangsa Cirebon which is located on Jl. Widarasari III, Cirebon Regency. This study aims to identify the implementation of digital and multimedia devices in administration, curriculum, and learning at the Institute of Islamic Religion, Bunga Bangsa Cirebon. The choice of this location is because IAI BBC is a campus that declares to be a pilot campus in integrating digital devices in every field, especially the curriculum field.

---

[6] Muhammad Rusli Baharuddin, "Adaptasi Kurikulum Merdeka Belajar Kampus Merdeka (Fokus: Model MBKM Program Studi)" 4, no. 1 (2021): 11.

[7] Muhammad Yamin dan Syahrir Syahrir, "Pembangunan Pendidikan Merdeka Belajar (Telaah Metode Pembelajaran)," *Jurnal Ilmiah Mandala Education* 6, no. 1 (30 April 2020), https://doi.org/10.36312/jime.v6i1.1121.

[8] Edy Dharma dan Humiras Betty Sihombing, "Merdeka Belajar: Kajian Literatur," *Jurnal Pendidikan* 4, no. 3 (2020).

[9] Sugiyono, *Metode Penelitian Pendidikan (Pendekatan Kuantitatif, Kualitatif, dan R&D)* (Bandung: CV Alfabeta, 2015).

Interviews are used with an open-ended type of question by writing down answers for later analysis, in line with Arikunto's opinion, that an interview is an activity with a face-to-face between two or more people, the interviewee is known as the interviewer, then the individual interviewed is called the interviewee.[10] The interview technique used in this study is semi-structured to explore alternative questions that are optional and can be used or not by researchers depending on the situation. The interview was conducted on the subjects studied, namely the Rector, Vice-Chancellor for Curriculum, and IT Operator of the IAI BBC campus, to capture information about the mechanism for using the e-campus Information Technology application at IAI BBC. The time of study was conducted in April-May 2022 at IAI BBC Campus.

RESULTS AND DISCUSSION

The Urgency of E-learning Implementation

A static organization, that cannot adapt to the changing environment and does not win the competition in that environment, then the organization will die. The excellence of an organization in the face of intense competition largely depends on the individuals in it who have speed, responsiveness, agility, learning ability, and competence of its employees, namely knowledge, skills, and abilities related to work. The managers of the organization must think about how to build and maintain a sustainable competitive advantage in the competition. Rapid environmental change requires every organization to quickly respond and adapt to changes, and the emergence of these changes is not being resisted or opposed, but must instead be managed.[11]

An information system is a system within an organization that brings together the needs of processing daily transactions, supports operations, is managerial and strategic activities of an organization, and provides certain outside parties with the necessary reports. An information system can be defined as a system created by humans consisting of components in the organization to achieve goals and present information.[12] The information system consists of components known as building blocks, including input blocks, model blocks, output blocks, technology blocks, database blocks, and control blocks. The depiction can be seen in figure 1 below.

[10] S Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktek*, Revisi IV (Jakarta: Rineka Cipta, 2002).

[11] Yuni Fitriani, "Analisis Pemanfaatan Learning Management System (LMS) sebagai Media Pembelajaran Online Selama Pandemi Covid-19," *Journal of Information System, Informatics and Computing* 4, no. 2 (28 Desember 2020): 1, https://doi.org/10.52362/jisicom.v4i2.312.

[12] Budi Yulianto dan Setiono, "Android-Based E-Traffic Law Enforcement System in Surakarta City" (ENGINEERING INTERNATIONAL CONFERENCE (EIC2017): Proceedings of the 6th International Conference on Education, Concept, and Application of Green Technology, Semarang, Indonesia, 2018), 020056, https://doi.org/10.1063/1.5028114.

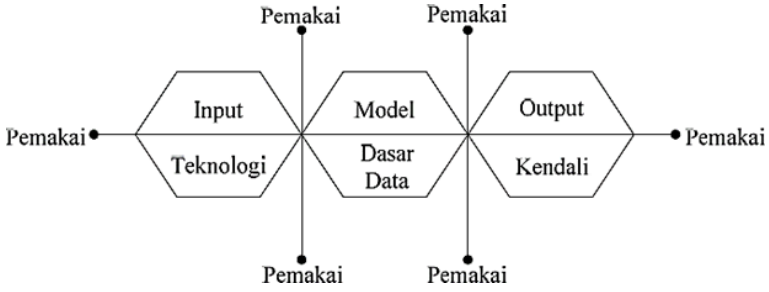

Figure 1. Information System Components (sumber: Jogiyanto, 2005)[13]

Analysis of Information System Needs in Higher Education

The lecture information system in higher education consists of two sub-systems, namely the lecture administration system, and the lecture operational system. The lecture administration system involves more administrative staff, precisely the academic administration department, while the lecture operational system does not involve much in the academic administration department but the lecturers and students.[14] From the analysis of the needs of the information system for e-learning lectures in higher education, the need for the system is obtained to be able to overcome various problems that exist in the ongoing system. The following are the system that needs to be obtained from the results of the analysis of the ongoing system, including the following.[15]

First, an online lecture application is needed as a medium that is not limited by space and time (online communication media), as support for lecture activities. Second, a computerized system utilizing internet technology is needed that can facilitate lecturers to provide lecture material files and practice questions to students, using an upload system. Third, Information and Communication Technology (ICT) facilities are needed, as a network server of the application system to be built, to support processes in the administrative system and lecture operational system. Fourth, an application is needed that is integrated with the database system so that it can store lecture materials, and the construction of the database system cannot be separated from the use of ICT facilities. Fifth, a website application that is integrated with a database system is needed, which can publish and document the results of lecturers' scientific work in scientific journals, lectures, and materials, to be able to create digitalization of learning in e-learning content.

[13] H.M Jogiyanto, *Analisis dan Desain* (Yogyakarta: Andi Pess, 2005).

[14] Tanti Handriana, Indrianawati Usman, dan Merlin Apriliyanti, "Analysis Audit Information Technology : Green Technology, Smart System And Innovation Behavior Working For Improving Business Services University In Indonesia (Case Study : UIN Surabaya and UIN Malang)," t.t., 12.

[15] Bambang Firmansyah, "The Effect of Academic Supervision and Use of Information and Communication Technology (ICT) Towards The Competence of Islamic Education Teachers of Islamic Education at National High School in Cirebon City," t.t., 10.

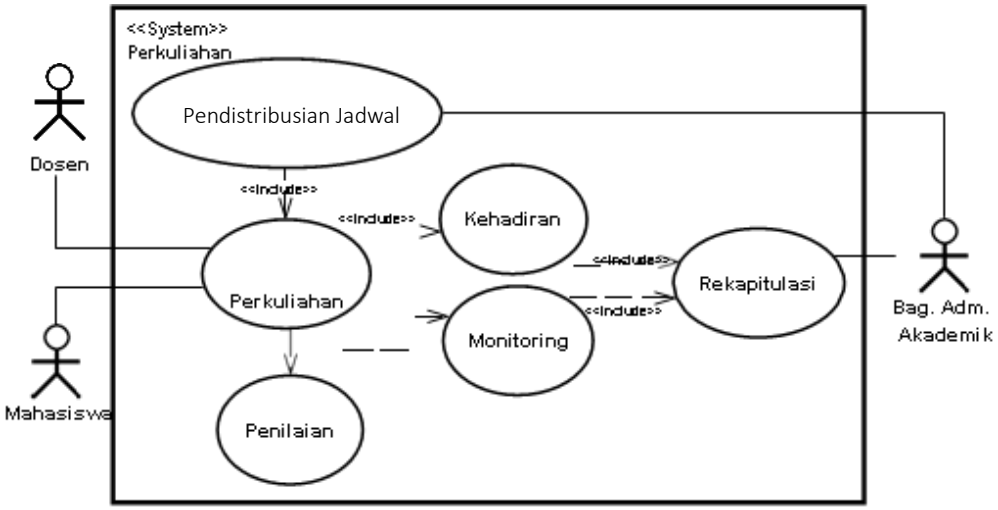

Figure 2. Lecture Information System

The Functions of Information Systems in Higher Education

Information systems come from the Greek word system, which means a set of objects that work together to produce a unified method, an engineering procedure that is combined and arranged in such a way that it becomes a unitary stu that serves to achieve a goal. A system can be explained simply as a set of elements that are combined for a common purpose. A subsystem is part of a larger system in which we are interested. All systems are part of a larger system.[16]

A system can also be interpreted as a set of elements that make up an activity or a processing procedure/chart that seeks a common goal or purpose by operating data to produce information. According to Jogiyanto Hartono in his book introduction to computer systems, a unit consists of two or more components or subsystems that interact to achieve a goal (Jogiyanto Hartono) In an agency or company, information systems are the heart of all management activities. It has also been explained that information is very important for management in making a decision. Information systems are needed from planning, operation, and maintenance to control.[17]

In the information system planning process, a planning model, incoming data, and model simulation are needed in the form of a conversion system to turn inputs into an output that can be used as a support in making decisions for management. An information system is an activity of organized procedures, when executed it will provide information to support decision-making and control in the organization.[18] A database is a complex object for storing structured information, which is organized and stored in a way that allows users to quickly and efficiently retrieve information broken down into tables, and each table stores a different entity. Thus the Database can be concluded as an orderly and interconnected collection of

[16] Suryawahyuni Latief dkk., "The Development of Islamic Education and Strengthening of National Education System of Indonesia," *International Journal on Advanced Science, Education, and Religion* 4, no. 2 (5 Juli 2021): 86–99, https://doi.org/10.33648/ijoaser.v4i2.105.

[17] Brezto Asagi Dewantara dan A. Ghufron, "Artificial Intelligent in Education: The Development of 'Disabel' System to Analyze Student Learning Styles," *Journal of Physics: Conference Series* 1233, no. 1 (1 Juni 2019): 012083, https://doi.org/10.1088/1742-6596/1233/1/012083.

[18] Nick Green dkk., "Behavior and Learning of Students Using Worked-Out Examples in a Tutoring System," dalam *Intelligent Tutoring Systems*, ed. oleh Alessandro Micarelli, John Stamper, dan Kitty Panourgia, vol. 9684, Lecture Notes in Computer Science (Cham: Springer International Publishing, 2016), 389–95, https://doi.org/10.1007/978-3-319-39583-8_46.

data that can be used together through certain applications in an integrated manner to produce information that is organized and stored in a computer by using the software as a manipulation process.[19]

A database system is an information that integrates a collection of data that is interconnected with each other making it available for several applications that vary in an organization. The database is also one of the important components of the information system. Because the database is the basis for providing information for users (users) of applications in the database information system. In the learning process in higher education, campuses require various information that can be stored in the website database, such as lecture schedules, lecturer teaching schedules, lecturer databases, student databases, and others. These various databases are stored and used for the benefit of the campus.[20]

The administration is a series of activities in the form of a process of controlling the efforts of cooperation of a group of people to achieve common goals that have been set together.[21] The following is a diagram of the lecture activity that refers to the user of the application.

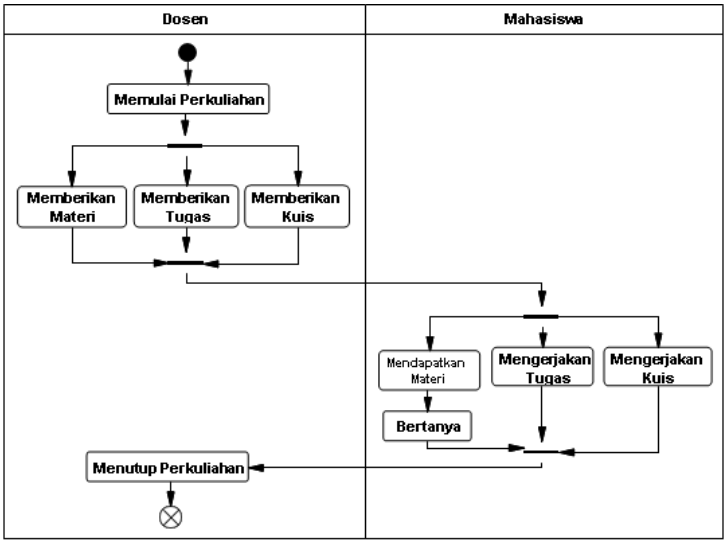

Figure 3. Lecture Activity Diagram

SWOT Analysis at the IAI BBC

Strenght

IAI BBC Human resources are consisting of 120 permanent lecturers, with the qualifications of Doctoral and Masters's graduates, plus the support of 10 administrative personnel, and 3 librarians. On the other hand, the number of regular students consists of 2000 people. The availability of institutions that support academic activities consists of 1 postgraduate study program, and 9 undergraduate study programs. Supporting facilities in the form of land covering an area of 1765 m^2 located on Jalan Widarasari III Tuparev Cirebon

[19] Bronwen Cowie dan Beverley Cooper, "Exploring the Challenge of Developing Student Teacher Data Literacy," *Assessment in Education: Principles, Policy and Practice* 24, no. 2 (2017): 147–63, https://doi.org/10.1080/0969594X.2016.1225668.

[20] Reynaldi r. Benedictus, Hans F. Wowor, dan Alwin Sambul, "Rancang Bangun Chatbot Helpdesk untuk Sistem Informasi Terpadu Universitas Sam Ratulangi," *Jurnal Teknik Informatika* 11, no. 1 (30 Juni 2017), https://doi.org/10.35793/jti.11.1.2017.16557.

[21] Firmansyah, "The Effect of Academic Supervision and Use of Information and Communication Technology (ICT) Towards The Competence of Islamic Education Teachers of Islamic Education at National High School in Cirebon City."

with a building area of 1124 m^2 including the leadership room building, meeting room, lecture room, library, da'wah / micro-teaching laboratory, administrative office. The Islamic mission attached to the BBC IAI is an added value in optimizing the Tri Dharma of Higher Education both at the scientific, social, and national levels. The geographical location of the center of the campus is in the center of Region III Cirebon, which is close to the City / Regency of Cirebon, Indramayu, Majalengka, and Kuningan which allows mobility in the implementation of the Tri Dharma of Higher Education will be more optimal.

Weaknesses

The weakness of IAI BBC is not optimal mastery and ability of foreign languages (especially Arabic and English) from some of the academic community. The lack of librarians and researchers in addition to the interest of the academic community in the research itself is still felt to be lacking due to, among others, the low research funding budgeted by DIPA. The lack of optimal empowerment of student institutions, especially around coaching professional development and student creativity. The role and function of the department have not been optimal as the spearhead of science and student empowerment. There is still a dichotomous understanding among the academic community regarding the basics of Islamic science with other sciences.

In addition, the suboptimal selection of prospective students, the admission of prospective students is more inclined to a quantitative approach to the number of students than qualitative. Not optimal academic support facilities such as libraries and laboratories. There is still a lack of funding that supports the operational activities of education, research, and community expropriation. So far, operational funding is more based on funds obtained from students through tuition fees. There has not been an optimal academic culture for the realization of the attitude of a scientist or aspiring scientist.

There is still a weak mental attitude toward student leadership and entrepreneurship. The lack of optimally displaced the campus environment is beautiful, clean, orderly, and Islamic. The performance of IAI's cooperation with other institutions, both at home and abroad, has not been optimal. There is still a weak power ability of both quality and quantity. The results of the scientific work of lecturers at IAI are not optimally published to the public. So that the bargaining power of IAI lecturers in the community is still not optimal.

Opportunity

The things that become opportunities are the opening of opportunities for the development of universities and cooperation with the government and the private sector both at home and abroad. The spirit of reform and democratization developed by the Indonesian nation is seen as a positive stimulus for the IAI BBC academic community to improve and improve quality in various aspects. The high expectations of the public for the development of IAI BBC as a center of excellence for Islamic studies that combines faith, science, and charity. The support of the central and regional governments and the people of West Java in particular to the importance of improving religious life adds to the conduciveness for IAI to optimize the Tri Dharma of Higher Education.

Treaty

The autonomy policy set by the government has implications for the diminishing and shifting role of the government in various matters, especially funding issues. The liberalization of world trade, especially AFTA for the ASEAN region, requires the importance of superior, competitive, and entrepreneurial insights. The results of the study are presented in the form of graphs, tables, or descriptive. Analysis and interpretation of these results are necessary before

they are discussed. For experimental research, the order of presentation of the results is adjusted to the research hypothesis, while for qualitative research it is adjusted to the research questions.

Designing an E-campus Application at IAI Bunga Bangsa Cirebon

Blended learning through this e-campus began to be developed and tested in 2017 through the Rector's policies starting from assessment, correspondence, and finance, to learning. Analysis as the first stage consists of 2 things, namely performance analysis and analysis of student needs. Performance analysis is aimed at identifying problems in learning. The problem obtained is that many students are often late because the distance that must be traveled to campus is quite far, even those who work often do not go to college so they are less focused during lectures due to factors of fatigue and boredom. Interesting results when interviewing students, they claim not to have enough material or teaching materials provided, and most of them do not like to record what the lecturer explained, especially if the way of delivery is only using lectures, it makes them get bored quickly.[22]

The analysis of student needs is aimed at identifying solutions that can be used to overcome the learning problems that have been expressed. Some solutions include using communication media in providing material so that they have an idea before participating in the lecture process because the syllabus that has been shared is not enough. The communication media used must be familiar media for students to be easy to use, based on that, the media chosen is the campus application developed at IAI Bunga Bangsa Cirebon.[23]

This campus application is expected to be able to assist students in accessing their learning materials and help educators to disseminate their teaching materials efficiently and effectively and media/applications as well as their learning and learning in the future order of society (digital society). The next stage is learning design. The design aims to design the learning experience that students need to have while attending lectures. The learning experience includes descriptions of learning media, and teaching materials, for the evaluation, used. An indicator of the success of the learning process is the achievement of learning goals that are in the plan that has been made and agreed upon at the beginning of the lecture. The result of this design is a lecture storyboard which is then developed into blended learning.[24]

The development plan begins with making a meeting agenda formulated by the Rector and all policymakers so that learning is by their needs, namely the number of meetings both face-to-face (offline) and online (online), while the menu carried out through the IAI Bunga Bangsa Cirebon campus includes synchronously carried out directly through video conferences, discussions and quizzes and asynchronous or carried out in a delayed manner through learning videos, the other menus are individual tasks and group tasks. Students can access it either from a computer or from a smartphone they have. This flexibility and flexibility is the hallmark of blended learning.

The trial phase of blended learning with the e-campus application has been running for 5 years. The entire meeting has been successfully carried out in accordance with the plan agreed upon at the beginning of the use of e-campus in lectures. The input in this learning is the limited quota and tools owned by students and digital learning that has not been cultured

[22] Taufik Ridwan dan Iman Nasrulloh, "Analisis Pelaksanaan Learning Organization di Institut Aagama Islam Bunga Bangsa Cirebon," *Edulead* 1, no. 2 (2016): 14.

[23] Firmansyah, "The Effect of Academic Supervision and Use of Information and Communication Technology (ICT) Towards The Competence of Islamic Education Teachers of Islamic Education at National High School in Cirebon City."

[24] Inka Fauziah, "Sistem Informasi Pembayaran Administrasi Mahasiswa Menggunakan Metode User Centered Design (Studi Kasus: STAI Bunga Bangsa Cirebon)," *Jurnal Inovasi Pendidikan* 1, no. 1 (2020): 9.

at home, this condition results in less efficient learning. Apart from these conditions, students find it easier to access lecture materials or materials so that they have better preparation during the lecture process. The use of this media also creates a condition that is mutually open between educators and students. Because the learning materials and materials uploaded by educators for lectures can be freely accessed by students.[25]

The same access is also given to students, making these two parties have the same rights in using the account. Blended learning, which has been the reason for an educator not to enter the classroom, has now become a medium of communication between educators and students in flexible, effective, and efficient learning. Referring to the results of the evaluation carried out on blended learning in the IAI BBC campus, the following results were obtained: (1) Most (87%) lecturers and students have used blended learning through the IAI BBC e-campus, (2) Most lecturers and students (82%) have uploaded or downloaded learning materials, found interesting results from some learning menus that are of great interest to students are learning videos and quizzes (3) Some (76%) think learning is already varied and can learn from home so that it is considered more effective and efficient and (4) Most (81%) students can see the achievement scores of study results faster and easier.[26] The proposed e-campus application at the IAI BBC can be seen in figure 4 below.

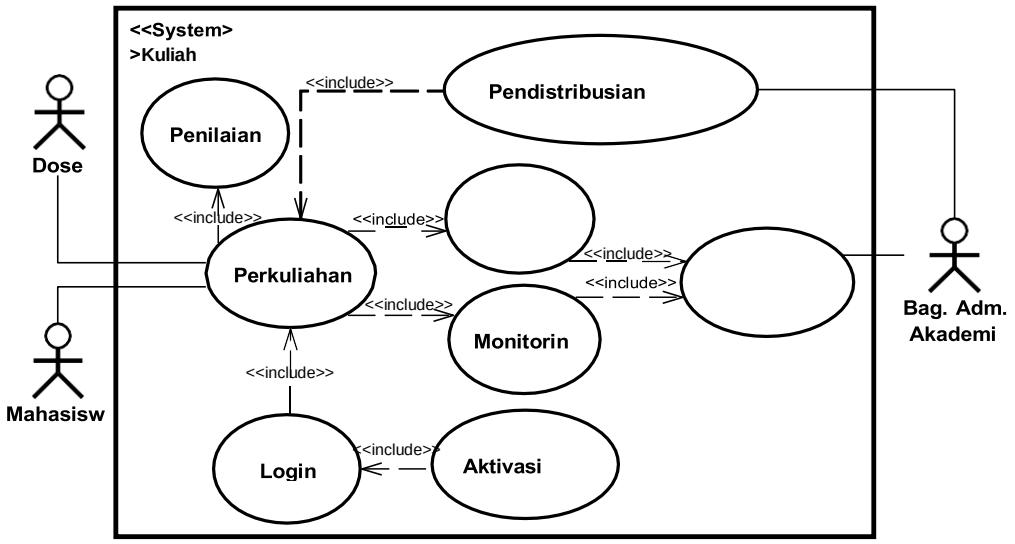

Figure 4. E-campus Application Process

The IAI BBC information system was built and developed to enter global competence with the instrument of mastery of integrated information systems. The integrated Information System was developed to support the management and improvement of the quality of academic programs, administration, infrastructure, networks, management, and finance. Information systems are developed through an informatics technology development approach that can form an integrated information system database, analysis, storage, and retrieval of data. Presentation of data and information and communication with interested parties is built centrally at the IAI BBC level and distributed to relevant units. The data and information developed by IAI BBC include academic information systems, student affairs, human

[25] Joseph O Odigure, "Green Technology: A Veritable Tool for Achieving Technological Transformation and Diversification of the Nation's Economy," t.t., 17.

[26] Eman Sulaeman, "Pengembangan Mutu Pembelajaran Alquran di Program Studi PIAUD melalui Penerapan Metode Fattaqun (Uji coba di Kampus Uin Sunan Gunung Djati Bandung dan IAI Bunga Bangsa Cirebon)," 2017, 12.

resources, infrastructure and facilities, administration and finance as well as data deemed necessary for the benefit of various parties.[27]

The development of information systems is also used to maintain internal communication and coordination as well as cooperation with other institutions, government, alumni, companies/industries, or the wider community. The development of information technology is directed to be able to carry out professional management and updating of hardware and software, human resources, and managing organizations to ensure the growth of the information system that has been built.[28]

The information system program developed includes: One, the preparation of a blueprint development, management and utilization of information systems including systems that regulate data flow, data access authorization, and disaster recovery systems; Two, develop an Integrated Information System, which includes academic information systems, staffing, administration, facilities and infrastructure, funding, cooperation, and others; Three, a decision support system that assists leaders in better planning and analyzing self-evaluation and making decisions; Four, the preparation of databases and information that includes finances, assets, facilities and infrastructure, academic administration, profiles of students and graduates, lecturers and support personnel; Five, a Local Area Network (LAN) information network system that builds internal and external campus communication as well as access for students and lecturers to campus information sources; Six, the development of internet capacity with an adequate bandwidth ratio for the entire academic community.[29]

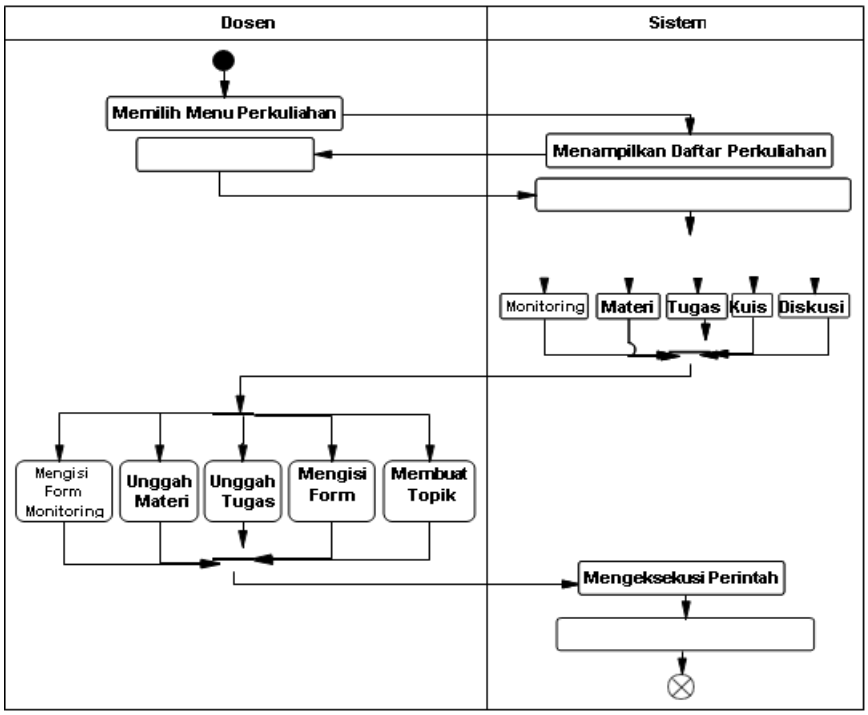

Figure 5. E-campus Information System

[27] Firmansyah, "The Effect of Academic Supervision and Use of Information and Communication Technology (ICT) Towards The Competence of Islamic Education Teachers of Islamic Education at National High School in Cirebon City."

[28] Y Supriani dkk., "The Process of Curriculum Innovation: Dimensions, Models, Stages, and Affecting Factors," *Nazhruna: Jurnal Pendidikan Islam* 5, no. 2 (2022): 485–500, https://doi.org/10.31538/nzh.v5i2.2235.

[29] Fitriani, "Analisis Pemanfaatan Learning Management System (LMS) sebagai Media Pembelajaran Online Selama Pandemi Covid-19."

As stated in the Decree of the Minister of Religious Affairs of the Republic of Indonesia No. 50 of 2003 concerning Guidelines for the Implementation of the Preparation of the Kinejra Accountability Report for Organizational / Work Units within the Ministry of Religion, it is also explained about the obligation to prepare a Strategic Plan for each Organizational Unit within the Ministry of Religion, including the IAI BBC. The Strategic Plan as part of the accountability system for the performance of government agencies, is the first step that must be taken by each organizational/work unit to be able to answer the environmental demands of local, national, regional, and global strategies while remaining in the order of the Unitary State Administration system of the Republic of Indonesia.[30]

Through a clear and synergistic strategic planning approach, organizational/work units are better able to align their vision and mission with the potentials, opportunities, and obstacles faced to increase accountability for their performance. The e-campus application system can use a computer device (Personal Computer, Laptop, Netbook, etc.) or a mobile device, as long as the device has a web browser installed and is connected to the internet network. Below is one of the implementations of the e-campus application system interface.

System Testing

The testing used in the E-campus application system is a black box testing method. The definition of black box testing itself is the testing of fundamental aspects of the system without regard to the internal logic structure of the software. This method is used to find out if the software is working correctly. Black box testing is a method of randomizing test data based on software specifications. The stage starts with the generation of test data, then executed on the software, and then the output of the software is checked whether it is as expected.[31] The test factor to be used is an authorization. Authorization testing is a test carried out to ensure that the data processing is by management provisions. The authorization concerns the transaction process in general and specifically. The test plan based on authorization factors with the black box test method can be seen in the table below.

Table 1. Testing Plan for Main/Public Pages

Test Class	Test Items
Student Login	Successful Login: student data (username, password) entered normal data or registered in the database.
	Login Failed: student data (username, password) entered incorrect data or not registered in the database.
Lecturer Login	Successful Login: lecturer data (username, password) entered normal data or registered in the database.
	Login Failed: the lecturer's data (username, password) entered incorrect data or not registered in the database.
Student Account Activation	Successful Activation: the activation data (email, password) is valid.
	Activation Failed: activation data (email, password) is not
Lecturer Account Activation	Successful Activation: the activation data (email, password) is valid.

[30] Sulaeman, "Pengembangan Mutu Pembelajaran Alquran di Program Studi PIAUD melalui Penerapan Metode Fattaqun (Uji coba di Kampus Uin Sunan Gunung Djati Bandung dan IAI Bunga Bangsa Cirebon)."

[31] Handriana, Usman, dan Apriliyanti, "Analysis Audit Information Technology : Green Technology, Smart System And Innovation Behavior Working For Improving Business Services University In Indonesia (Case Study : UIN Surabaya and UIN Malang)."

Activation Failed: activation data (email, password) is not

In the next stage, the classes and test items that have been determined in the test plan stage will be used as a reference for the test cases to be carried out, so that the test results of each of these cases are obtained. From the test results in this study, it can be concluded that testing based on authorization factors can be carried out properly and by the expected results. Therefore, it can be ensured that the E-campus application system is by the functionality of the system specified in the design phase and is ready to be implemented.[32]

System Implementation

The implementation stage of the system is carried out after the testing stage. The implementation of the system is carried out concerning the results of the system design. The system implementation stage includes the determination of implementation restrictions, the installation of the required software and hardware, the implementation of databases and system interfaces, to the creation of ways of using applications. Below is one of the implementations of the E-campus application system interface.

Figure 6 Main/Public Page Interface Implementation

CONCLUSION

From the results of research that has been carried out, it can be concluded that the e-campus application can be used by the IAI Bunga Bangsa Cirebon community. The e-campus application can be used for member management, assignment letter management, academic information, lecturing information, management of teaching materials, online libraries, and new student admission systems, based on several application features that have been built, it shows that the development of this web-based information system application is quite good and by the needs of the entire academic community of IAI Bunga Bangsa Cirebon. With the e-campus application system, it is hoped that it can increase the effectiveness of lecturers in

[32] Latief dkk., "The Development of Islamic Education and Strengthening of National Education System of Indonesia."

providing lecture material files and practice questions to students because this application system is equipped with facilities for distributing lecture materials and providing questions online using the internet network. With the e-campus application system, it is hoped that it can optimize the utilization or utilization of Information and Communication Technology (ICT) facilities in a planned manner in lecture activities, both in the administrative system and the lecture operational system, and foster a paperless culture in lecture materials, this can be realized because the application system provides storage (storage) for lecture material files. With so many users in one place, e-campus requires stable electrical power, anti-virus, and large drivers to accommodate, protect, and facilitate all the needs of the campus community. The limitation of this article is that it has not been able to uncover emergency management if the e-campus application is down or network disruption. Then this can be a suggestion for subsequent researchers to be able to research backup management if e-campus is disrupted and cannot be used.

ACKNOWLEDGMENT

We are grateful to Prof. Dr. H. Supiana, M.Ag and Dr. Hj. Qiqi Yuliati Zakiah, M.Ag, as the lecturer of the Curriculum Innovation and Technology of Islamic Religious Learning course in Pascasarjana UIN Sunan Gunung Djati Bandung. We also would like to express gratitude to all those who gave us a lot of suggestions and input to complete this article.

REFERENCES

Anwar, Rosyida Nurul. "Pelaksanaan Kampus Mengajar Angkatan 1 Program Merdeka Belajar Kampus Merdeka di Sekolah Dasar." *Jurnal Pendidikan dan Kewirausahaan* 9, no. 1 (19 Agustus 2021): 210–19. https://doi.org/10.47668/pkwu.v9i1.221.

Arikunto, S. *Prosedur Penelitian Suatu Pendekatan Praktek*. Revisi IV. Jakarta: Rineka Cipta, 2002.

Azizah, Putri Agriza Nur, Marsani Asfi, dan Ilwan Syafrinal. "Implementasi Model Scrum Pada Sistem Informasi Pembelajaran Diluar Kampus Untuk Skema Wirausaha Kampus Merdeka," t.t., 12.

Baharuddin, Muhammad Rusli. "Adaptasi Kurikulum Merdeka Belajar Kampus Merdeka (Fokus: Model MBKM Program Studi)" 4, no. 1 (2021): 11.

Benedictus, Reynaldi r., Hans F. Wowor, dan Alwin Sambul. "Rancang Bangun Chatbot Helpdesk untuk Sistem Informasi Terpadu Universitas Sam Ratulangi." *Jurnal Teknik Informatika* 11, no. 1 (30 Juni 2017). https://doi.org/10.35793/jti.11.1.2017.16557.

Cowie, Bronwen, dan Beverley Cooper. "Exploring the Challenge of Developing Student Teacher Data Literacy." *Assessment in Education: Principles, Policy and Practice* 24, no. 2 (2017): 147–63. https://doi.org/10.1080/0969594X.2016.1225668.

Dewantara, Brezto Asagi, dan A. Ghufron. "Artificial Intelligent in Education: The Development of 'Disabel' System to Analyze Student Learning Styles." *Journal of Physics: Conference Series* 1233, no. 1 (1 Juni 2019): 012083. https://doi.org/10.1088/1742-6596/1233/1/012083.

Dharma, Edy, dan Humiras Betty Sihombing. "Merdeka Belajar: Kajian Literatur." *Jurnal Pendidikan* 4, no. 3 (2020).

Fauziah, Inka. "Sistem Informasi Pembayaran Administrasi Mahasiswa Menggunakan Metode User Centered Design (Studi Kasus: STAI Bunga Bangsa Cirebon)." *Jurnal Inovasi Pendidikan* 1, no. 1 (2020): 9.

Firmansyah, Bambang. "The Effect of Academic Supervision and Use of Information and Communication Technology (ICT) Towards The Competence of Islamic Education Teachers of Islamic Education at National High School in Cirebon City," t.t., 10.

Fitriani, Yuni. "Analisis Pemanfaatan Learning Management System (LMS) sebagai Media Pembelajaran Online Selama Pandemi Covid-19." *Journal of Information System, Informatics and Computing* 4, no. 2 (28 Desember 2020): 1. https://doi.org/10.52362/jisicom.v4i2.312.

Fransyaigu, Ronald, Ramdan Asnawi, Ary Kiswanto Kennedy, Bunga Mulyahati, dan Dini Ramadhani. "Technology-Based Character Education Through the 'Moodle' Application:" Langsa, Aceh, Indonesia, 2021. https://doi.org/10.2991/assehr.k.210909.079.

Green, Nick, Barbara Di Eugenio, Rachel Harsley, Davide Fossati, dan Omar AlZoubi. "Behavior and Learning of Students Using Worked-Out Examples in a Tutoring System." Dalam *Intelligent Tutoring Systems*, disunting oleh Alessandro Micarelli, John Stamper, dan Kitty Panourgia, 9684:389–95. Lecture Notes in Computer Science. Cham: Springer International Publishing, 2016. https://doi.org/10.1007/978-3-319-39583-8_46.

Handriana, Tanti, Indrianawati Usman, dan Merlin Apriliyanti. "Analysis Audit Information Technology : Green Technology, Smart System And Innovation Behavior Working For Improving Business Services University In Indonesia (Case Study : UIN Surabaya and UIN Malang)," t.t., 12.

Ichsan, Ilmi Zajuli, Henita Rahmayanti, Agung Purwanto, Diana Vivanti Sigit, Edi Kurniawan, Aryani Kadarwati Dewi, Nina Wirdianti, Farah Muthi Hermawati, dan Giry Marhento. "Covid-19 dan E-learning: Perubahan Strategi Pembelajaran Sains dan Lingkungan di SMP." *JINoP (Jurnal Inovasi Pembelajaran)* 6, no. 1 (30 Mei 2020): 50. https://doi.org/10.22219/jinop.v6i1.11791.

Jogiyanto, H.M. *Analisis dan Desain*. Yogyakarta: Andi Pess, 2005.

Latief, Suryawahyuni, Yeasy Agustina Sari, Muhammad Yusuf, Armila Armila, dan Riyan Erwin Hidayat. "The Development of Islamic Education and Strengthening of National Education System of Indonesia." *International Journal on Advanced Science, Education, and Religion* 4, no. 2 (5 Juli 2021): 86–99. https://doi.org/10.33648/ijoaser.v4i2.105.

Mayasari, Annisa, Yuli Supriani, dan Opan Arifudin. "Implementasi Sistem Informasi Manajemen Akademik Berbasis Teknologi Informasi Dalam Meningkatkan Mutu Pelayanan Pembelajaran Di SMK." *JIIP-Jurnal Ilmiah Ilmu Pendidikan* 4, no. 5 (2021).

Odigure, Joseph O. "Green Technology: A Veritable Tool for Achieving Technological Transformation and Diversification of the Nation's Economy," t.t., 17.

Ridwan, Taufik, dan Iman Nasrulloh. "Analisis Pelaksanaan Learning Organization di Institut Aagama Islam Bunga Bangsa Cirebon." *Edulead* 1, no. 2 (2016): 14.

Sugiyono. *Metode Penelitian Pendidikan (Pendekatan Kuantitatif, Kualitatif, dan R&D)*. Bandung: CV Alfabeta, 2015.

Sulaeman, Eman. "Pengembangan Mutu Pembelajaran Alquran di Program Studi PIAUD melalui Penerapan Metode Fattaqun (Uji coba di Kampus Uin Sunan Gunung Djati Bandung dan IAI Bunga Bangsa Cirebon)," 2017, 12.

Supriani, Y, F Meliani, A Supriyadi, S Supiana, dan Q. Y Zaqiah. "The Process of Curriculum Innovation: Dimensions, Models, Stages, and Affecting Factors." *Nazhruna: Jurnal Pendidikan Islam* 5, no. 2 (2022): 485–500. https://doi.org/10.31538/nzh.v5i2.2235.

Yamin, Muhammad, dan Syahrir Syahrir. "Pembangunan Pendidikan Merdeka Belajar (Telaah Metode Pembelajaran)." *Jurnal Ilmiah Mandala Education* 6, no. 1 (30 April 2020). https://doi.org/10.36312/jime.v6i1.1121.

Yulianto, Budi dan Setiono. "Android-Based E-Traffic Law Enforcement System in Surakarta City," 020056. Semarang, Indonesia, 2018. https://doi.org/10.1063/1.5028114.