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page 126 - 137

Design of Hybrid Based Seminar Activity Support System During The Adaptation of New Habits

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ABSTRACT

The use of the internet continues to increase amid the Covid-19 pandemic. Various groups are required to continue working and studying from home by utilizing the internet and information technology. The prohibition to gather large numbers of people at one location makes seminar activities impossible. This makes webinars very popular. However, there are still deficiencies in webinar management such as management of registration, implementation, and publication of e-certificates that have not been integrated with certificates and e-tickets for offline blended hybrid implementation. The purpose of this research is to design and provide a smart webinar system to facilitate the implementation of integrated webinars based on these problems, so that it can facilitate and assist in holding webinars. Stages of research conducted and system development using the Waterfall methodology, namely the planning stage begins (Identification of problems, literature study, and data collection), analysis stage (running system, needs analysis, user analysis), design stage (system design, interface, database), Coding Stage (translating the design into programming language and Mysql) and Implementation Phase (testing and maintenance). The results of this study indicate that the system created functionally can meet the needs of conducting online and offline or hybrid seminars.

Keywords: System, Seminar, Hybrid, Design

1. INTRODUCTION

Advances in information technology of a company or business entity is very important in its use. The results of research conducted by researchers, engineers and industrial practitioners seem to have developed a lot and are needed by technology experts so that they can be applied until they are applied. To apply it properly, it requires good and precise planning so that research results can solve industrial problems. So that it has many positive things that can be felt with the enactment of information technology developments in a company related to easier data processing and more accurate results. The use of the internet continues to increase amid the Covid-19 pandemic. Various groups are required to continue working and studying from home by utilizing the internet and information technology. The prohibition to gather large numbers of people at one location makes seminar activities impossible. This makes webinars very popular. However, from the point of view of the webinar organizer, a system is needed that can simplify and assist in holding an online seminar.

E-ISSN : 2987 - 2685
page 126 - 137

The use of the internet continues to increase, especially with the presence of the Covid-19 pandemic, which has forced various groups to take advantage of the internet and information technology to keep working and studying without having to leave the house [3]. The Covid-19 pandemic gave birth to many new traditions in various aspects of life. One of the reasons is the prohibition on gathering large numbers of people at one location, making seminar activities impossible. This is a factor in the number of Webinar enthusiasts [4]. Webinars are a solution in presentations or teaching, which are delivered online using the internet. During the webinar activity, the participants, both presenters and participants, can communicate through images and text. The internet network is the key to success, a webinar can be received smoothly [5].

The components contained in the seminar website (Webinar), include audio, video and images, which are transmitted via a webcam and a computer or laptop device. Webinars allow real-time and synchronous communication between speakers and listeners, and it is possible to archive web-based information for use. The advantage of using a webinar is that it can be accessed anytime and anywhere according to a predetermined schedule, saves costs, and can be accessed by many participants. The internet is the main factor in accessing webinars. Through webinars, presentations, lectures, training or similar seminars that will be sent via the Internet to appear as a video. Web conferencing software is used to manage and communicate with participants [6]. Webinars are an e-learning educational method for listening, observing, and participating in the presentation of a particular topic [7][8]. E-Learning is a webinar term referring to a combination of the words "web" and "seminar" where seminar activities are carried out virtually through online media [9][10]. Webinars are one proof of the impact of increased technology in the field of education [1]. Webinars can be used to enhance distance learning [11]. The presence of a webinar during this pandemic has presented various perceptions for webinar participants [4], such as that webinars are more economical and make it easy to share information across professions and agencies, conducting webinars anytime and anywhere. In addition, the webinar as a whole went well, the speakers' voices were clearly heard by the participants. Webinars are also very easy to implement, starting from announcements, gathering participants, implementing and even distributing e-certificates [4][12][13]. Research similar to webinar application development that has been carried out by [13] produced an application with functionality considering the time, location and cost of the seminar; know whether the name has been registered or not; and can calculate the income of participants. Research conducted by [14] has login functionality, managing user data, recapitulating participant data, and paying seminar fees. Development of a webinar application for fostering new entrepreneurs [6] has user authentication functionality, displays seminar material, manages material, chats with participants and provides webinar implementation to participants. The results of research conducted by [15] are applications that can make it easier for seminar participants to independently download e-certificates that have been completed with the names of each participant. This application facilitates the distribution of e-certificates and without being constrained by distance in the era of the Covid-19 pandemic.

While the results of research conducted by [12] is that this application can provide notifications to members via email regarding seminar information based on the seminar

E-ISSN : 2987 - 2685
page 126 - 137

category that has been selected when registering. Meanwhile, seminar managers can get notifications of all seminar information posted via email and can add information on national seminars. The design of the smart seminar application has the function of displaying information related to announcements, event registration, attendance absences, and participants can send questions [15].

However, from the point of view of webinar organizers, a system is needed that can help organize a hybrid online and offline seminar. This information system is needed to provide information about the webinars being held, managing participant and speaker data, distributing modules and e-certificates, automatic e-certificate numbering, online attendance check-in and hybrid e-tickets, email notifications, webinar activity reports and also visualizes data so webinar performance can be measured. some Webinar information systems are still limited to providing easy access to online seminar information only. Therefore, we conducted this research with the aim of assisting webinar organizers in conducting pre, post and during the webinar event. Not only making it easy for the organizers, seminar participants also benefit from easy access to information about the seminar being held, seminar modules or materials, attendance, and certificates that can be downloaded independently.

2. METHOD

The stages of the research were carried out using the Waterfall Methodology with 5 phases starting from the planning, analysis, design, coding, implementation stages as in.

2.1. Planning Stage

In the planning implementation stage it is divided into 3 parts, namely starting with (1) identifying problems such as research initiation and problem formulation. (2) Literature Study or Research Review conducted on previous studies. (3) Data collection was carried out by observation and literature study, stakeholder interviews and analysis of related documents.

Observations were made by observing the flow of holding the seminar, the equipment used, and how actors work on the system, interviews by asking questions related to the ongoing seminar business processes, to the executors who manage the seminar activities. Document analysis by searching, collecting and studying documents related to the system. Study the literature by searching for and analyzing research related to application development webinars.

2.2. Analysis Stage

Implementation in this stage is how to analyze the running system, needs analysis and user analysis. The results of the analysis will be used for system development needs.

2.3. Design Stage

This stage includes planning for each need dissected in the previous stage. The design consists of system design, interface design and application architecture.

E-ISSN : 2987 - 2685
page 126 - 137

2.4. Coding Stage

The coding stage is translating the results of the preparation stages that have been made into a form that can be understood by a computer. The coding is implemented in PHP and MySQL programming languages.

2.5. Implementation Stage

In this stage it is divided into 2, namely the Testing stage to prove that the system has met and is in accordance with the expected requirements. At this stage maintenance is carried out on the finished software. In its use there is still the potential for errors to be found or there are new features that need to be added, so maintenance needs to be done.

3. RESULT AND DISCUSSION

The implementation of the research was carried out in several stages of research using the Waterfall Methodology with 5 phases starting from the planning, analysis, design, coding, implementation stages.

3.1. Planning Stage

3.1.1. Library Studies

Researchers do, among other things, collect data by searching for related information in books, ebooks, research reports, journals and proceedings as well as searching for articles related to the theme of the seminar that the researcher is researching which is published on the internet. This is what researchers do to support the making of applications and other theories that support research reports. Some of the books that became references for researchers in this study included E-Learning Concepts and Applications, Visual Modeling with UML, Information System Analysis and Design and several sites that supported researchers in collecting data in building systems, namely https://wordpress.org /plugins/tutor/ and https://edumall.thememove.com/.

3.1.2. Observation

Observation or observation is a fact-finding technique that is quite effective. In this case the researcher made observations of several things, namely the process of implementing seminars and webinars that are currently running on the web applications of training service providers, seminars and online workshops. This observation was made so that researchers were able to analyze the advantages and disadvantages of the existing system as evaluation material for the next system development, making observations on several seminar websites such as Udemy, IndonesiaX and other educational portals.

3.1.3. Interview

Interviews are a data collection technique that is recognized as important and widely used in application and system development. Following are some of the parties interviewed during the research process to support the development of the Hybrid Seminar System. Among them to the organizing committee as well as several seminar and webinar participants.

E-ISSN : 2987 - 2685
page 126 - 137

3.2. System Analysis

In developing the seminar system, researchers used the Waterfall system development methodology approach. The reason researchers use this methodology is because the development of this system will be cheaper in terms of cost and faster in implementation and involve end users in the development process, so that the main goal of the system is more focused on its development. The steps that the researchers took in developing the system using the Waterfall methodology were as follows:

3.2.1. Analysis of System Requirements

System requirements analysis is carried out to determine the system requirements to be made. The system created is a webinar system that adopts the Massive Open Online Course (MOOC) system. A distance learning system that has 3 main criteria modules is Massvie which means it can be joined by many participants, Open which means it is open to anyone and Online which means it can be accessed anywhere and anytime as long as participants have internet access.

Apart from that, there are also 6 complementary modules that can support the holding of seminars including enrollment, payment, seminar and certificate. Because this system is large and complex, the researcher focuses only on the seminar module. In this module there are several processes that can be done. These processes involve several roles such as institutions, instructors and participants.

3.2.2. Functional Requirements

Based on the analysis of the flow of the seminar process, several functional requirements can be formulated, namely:

a. Participants can open and see a list of available webinar activities
b. Participants can register
c. Participants can log in
d. Participants can join the seminar
e. Participants can do a percentage of attendance
f. Participants can download the webinar module
g. Participants can download certificates
h. Participants can receive feedback regarding seminar activities and systems
i. Admin can login.
j. Admin can manage webinar activities.
k. Admin can see the list of participants who have registered.
l. Admin can see the list of attendees.
m. Admin can manage download time of modules and certificates.
n. Admin can upload and manage certificates
o. Admin can print activity reports.
p. Admin can send reminders and webinar links via email to registered participants.
q. The system can display event information
r. The system can facilitate digital modules

E-ISSN : 2987 - 2685
page 126 - 137

3.2.3. Content Needs

Content is divided into individual views according to the type of information.

a. Menu Display. The display content is in the form of a header which contains an activity banner in the form of an image. Navigate to views and footer text.
b. View the Schedule of Events. This view will contain the page title text. Activity banners that can be in the form of images or text. Information on the date, time, and location of the activity. Rundown of activity events divided based on the time of implementation along with information on any activities during that time.
c. Speaker View. Contains photos and profiles of each seminar speaker in text that is no more than 1 paragraph.
d. Display Workshop. This view contains an index of the digital module of the workshop activities.
e. Display Module. The content of this page is text and/or images of workshop activity materials with chapter numbers and titles at the beginning.
f. Contact Display Contains the name and telephone number of the committee that can be contacted.
g. Display Feedback. This view contains the feedback forms for activities and activity applications.

3.2.4. Quality requirements

Several things must be considered in application development.

a. Usability. The ease of use of the system should be adjusted for the ability level of the general user.
b. Efficiency. Applications should be built as light as possible in order to run properly.

3.3. Design

After the data has been collected and the problem identification process and system development goals have been completed, the next step the researcher will take is to formulate and design a system that will be made into several stages, these stages include:

3.3.1. Actor identification

At this stage the researcher tries to formulate and filter who are the relevant main users involved in using the system and provide descriptions of the tasks they will perform in the new system. The actors and tasks will be discussed by researchers in more detail in the next chapter of this research report.

Table 1 List of Actor

No.	Actor	Description
1	Participant	Activities that can be carried out by participating actors are viewing information, requesting to attend seminars, downloading materials and certificates

E-ISSN : 2987 - 2685
page 126 - 137

No.	Actor	Description
2	Instructors	Instructors have the authority to manage seminars, can make additions and manage seminars
3	Admin	super user can perform all activities that can be performed by all existing actor categories. The main task of an admin is to provide and manage the rights of several users in the system and to maintain the system as a whole.

3.3.2. Identify Use Cases

At this stage the researcher will design an image or model that is able to explain the general functions of the system to be created.

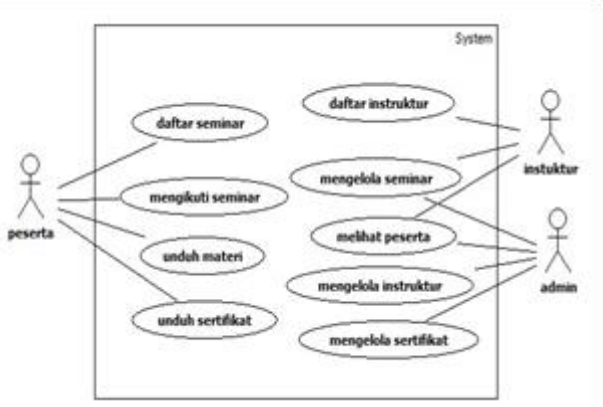

Figure 1*. Use Case Diagram*

After the design diagrams or use case drawings have been made, the next step is for the researcher to identify each use case or system function, namely a brief description table of the uses and benefits of each use case designed by the researcher.

Table 2 List of Usecases

No.	Usecase	Descripsion
1	Daftar Seminar	This use case is used as a medium for registration to become a participant
2	login	This use case describes the procedure for the user to enter the system
3	Participating in Seminars	This use case describes actors being able to participate in seminar activities
4	Download material	This use case describs can perform actors download the material
5	Download Certificate	This use case illustrates how actors can download certificates
6	List of Instructors	This use case describes actors who can register to become instructors
7	Managing Seminars	This use case describes actors when adding seminar activities
8	Seeing the participants	This use case describes the actors can get seminar informations

E-ISSN : 2987 - 2685
page 126 - 137

No.	Usecase	Descripsion
9	Managing Instructors	This use case describes the instructors can manage seminar activities
10	Managing Certificates	This use case describes actors being able to manage certificates

3.3.3. Interface Design

At this stage the researcher makes a representation of the form of the system to be created.

Figure 2 *Design Interface Home*

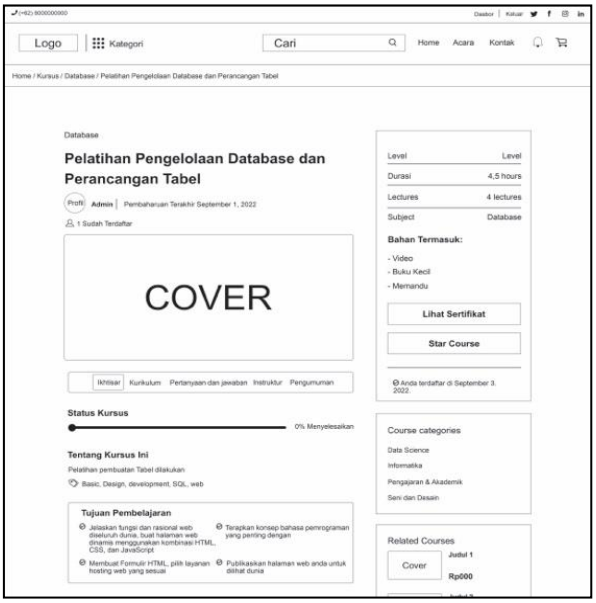

Figure 3 *Design Interface Page*

3.3.4. Encoding

As for making a seminar hybrid system, software is needed that can support it so that it can run well without problems, including the following:

a. Language Programming using PHP or CSS etc;
b. Wordpress Platform or framework system;
c. Database System data storage place;
d. Web Server To access the system during manufacture and implementation;

E-ISSN : 2987 - 2685
page 126 - 137

e. Text Editor Tools for creating systems;
f. Web Browser Application to display the system during implementation.

3.4. Implementation

At this stage, researchers try to develop and improve the functions that have been proposed in a more attractive and functional form. In addition, at this stage the researcher also developed additional application features. This stage also includes the testing process carried out by users and researchers through a system application demonstration mechanism by researchers with potential users. Program demonstrations are carried out online using a registered domain name and web hosting.

3.4.1. Coding

On this page the system will display the system start page. So the first time you open the system, both participants and instructors will be faced with this page. The display inside also consists of several menus such as recommendations and categories of seminar activities.

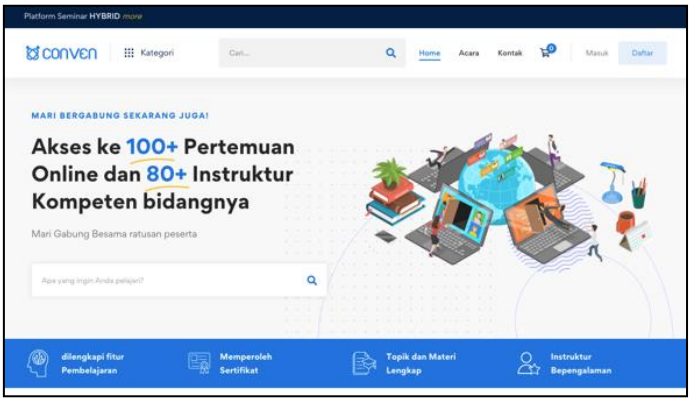

***Figure 4**. Interface System*

On this page the system will display a list of seminar activity agendas that will be held, accompanied by the type and category of activity.

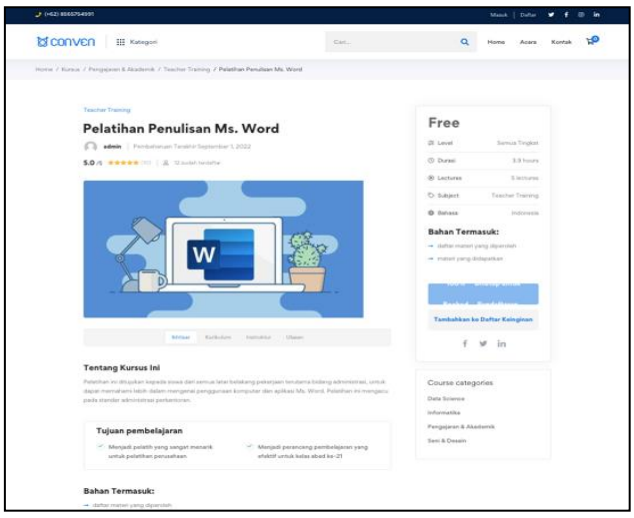

***Figure 5** Interface system seminar*

E-ISSN : 2987 - 2685
page 126 - 137

3.4.2. System Testing

System testing is carried out using the User Acceptance Testing (UAT) approach, which is a verification process that the solutions created in the system are suitable for users. The type of system testing carried out by UAT is using the Black Box method. UAT Black Box Testing is often categorized as functional testing, to a certain extent, this testing method analyzes specific functionality without letting the tester see the internal code structure of the software.

Table 3 System Testing

No.	Scenario	Result Functionality	Result
1	Login Seminar	participants can log in	Valid
2	Conducting seminars Seminar	participants can attend seminars	Valid
3	Conducting attendance seminar	Participants can conduct attendance attendance	Valid
4	Downloading the module	Participants can download the webinar module	Valid
5	Download certificates	Participants can download certificates	Valid
6	Conducting seminar feedback Seminar	participants can receive input feedback regarding seminar activities and systems	Valid
7	Login admin Seminar	admin can login.	Valid
8	Managing seminars Seminar	admins can manage webinar activities	Valid
9	isplaying the participant registrants	Admin can see the list of participants who have registered.	Valid
10	Displaying the list of attendees	Admin can view the list of attendees.	Valid
11	Managing certificates and modules Seminar	admins can manage download times for modules and certificates.	Valid
12	Performing managing certificates	Admins can upload and manage certificates	Valid
13	Printing activity reports	Admin can print activity reports.	Valid
14	Sending seminar information	Seminar admins can send reminders and webinar links via email to registered participants.	Valid
15	Displaying seminar information	The seminar system can display event information	Valid
16	Displaying digital modules Seminar	systems can facilitate digital modules	Valid

4. CONCLUSION

The research conducted has succeeded in developing a seminar system that can facilitate both online and offline hybrid seminars. This system functionally has provided

E-ISSN : 2987 - 2685
page 126 - 137

valid results based on blackbox testing scenarios. This information system can be used to conduct seminars to fulfill offline and online or hybrid based seminars.

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