

**MEDIA OPTIMIZATION OF STUDENT LEARNING OUTCOMES  
EVALUATION BASED ON WHATSAPP ROBOT IN HEALTH DEPARTMENT  
OF JEMBER STATE POLYTECHNIC****Riskha Dora Candra Dewi**

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**Abstract**

Online learning (e-learning) and conventional or classical learning tend to have the same effectiveness, but online learning has advantages in terms of flexibility. In carrying out their duties and functions, the researcher found that the evaluation system for student learning outcomes at the Jember State Polytechnic Health Department was not optimal. Thus, the study aims to describe the evaluation system for student learning outcomes based on WhatsApp Chatbot. Optimizing the evaluation of student learning outcomes has 8 stages, namely identifying problems through student respondent surveys, studying literature and supporting data for the manufacture of whatsapp robots, planning the process of making an evaluation system for student learning outcomes based on whatsapp robots, conducting a needs analysis of the whatsapp-based student learning outcomes evaluation system. Robots, designing systems, making media for evaluating student learning outcomes based on whatsapp robots, validating the system made by conducting trials and holding a Forum Group Discussion (FGD) for its use. In general, the optimization of the media for evaluating student learning outcomes with the WhatsApp robot-based application went well. However, this can continue to be developed, especially during the current covid-19 pandemic, some suggestions for the perfection of this application can hopefully be followed up as learning media innovations and evaluating student learning outcomes.

**Keywords:** WhatsApp chatbot; learning outcomes evaluation; online media optimization

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**INTRODUCTION**

Information and Communication Technology (ICT) has become a part of the academic world and is an important factor in the learning and teaching process (Castro & Tumibay, 2021). The development of the internet and online learning has opened up opportunities for teaching and learning activities that are not limited by place and time. Online learning (e-learning) and conventional or classical learning tend to have the same effectiveness, but online learning has advantages in terms of flexibility (Noveandini & Wulandari, 2010).

The Industry 4.0 wave which is characterized by data-based autonomous systems and the emergence of smart machines brings the industry to a more productive level and reduces waste. This wave inevitably also affects the world of education. Education 4.0 was born from the phenomenon of industry 4.0, where humans and machines are aligned to find solutions, solve various problems, and find innovations that are used to improve modern human life (Lase, 2019). Moreover, the prospects of billions of people connected by mobile devices, with unparalleled processing power, storage capacity, and access to knowledge,

seem to me to be a crucial domain for knowledge generation and learning in education (Salmon, 2019). This current demand both teachers and students, to have technological literacy.

The COVID-19 pandemic is an external shock that impacts people and organizations worldwide (Garretsen, et al, 2022). Especially Indonesia, has forced President Jokowi to give instructions to universities to temporarily suspend all face-to-face classes and replace them with online learning, in an effort to deal with the rapid spread of the corona virus. Many campuses that are not used to conducting online lectures are forced to change the face-to-face system to online distance lectures amid the limitations of the existing infrastructure (Pragholapati, 2020). This causes the learning carried out to be less efficient, students find it more difficult to understand the material provided by the lecturer, the lack of interaction between lecturers and students makes it difficult for them to understand the material provided, students find it more difficult to ask material that they do not understand and lack of student concentration if learning is carried out in a systematic manner (Hikmat, Hermawan, Aldim, & Irwandi, 2020).

Based on the researcher's initial survey of 106 participants, online learning uses several available applications, such as Google Classroom (73.6%), WhatsApp (WA) groups (67.9%), e-learning programs (58.5%), Zoom (50.9%), Google Meet (18.9%), Webex (1.9%), and others (9.4%). The survey results show obstacles in online lectures, almost half of which are limited quotas (49.1%), the next reason is slow access (17%) and weak signals (15.1%).

In carrying out their duties and functions, the researcher who is also a lecturer Civil Servants in Jember State Polytechnic Medical Record Study Program found actual issues or problems identified based on public services, ASN management and the Whole of Government, namely the not optimal system for evaluating student

learning outcomes at the Jember State Polytechnic Health Department. Thus, the researcher will describe the evaluation system for student learning outcomes based on the WhatsApp robot. The data and information in this presentation are taken from the results of the actualization program which is the basis for implementing the basic values of ASN activities as well as the position and role of ASN in the Republic of Indonesia.

## METHOD

To evaluate the system, it is carried out in 8 (eight) stages with each stage having certain sub-stages:

- 1) Stage 1 (23 – 24 July 2020). The first step is to identify problems through a survey of student respondents. Identification is done by making online surveys using google forms and distributing questionnaires to students.
- 2) Stage 2 (24 July 2020 – 26 July 2020). The second stage is to study the literature and supporting data for the manufacture of whatsapp robots as answers and innovations from the identification of problems that have been carried out previously.
- 3) Stage 3 (27 July 2020 – 28 July 2020). The third stage is to plan the process of making an evaluation system for student learning outcomes based on the WhatsApp robot.
- 4) Stage 4 (July 28, 2020 – August 1, 2020). The fourth stage is to analyze the needs of the WhatsApp robot-based student learning outcomes evaluation system.
- 5) Stage 5 (30 July 2020 - 5 August 2020). The fifth stage is to carry out system design.
- 6) Stage 6 (30 July 2020 - 5 August 2020). The sixth stage is to make a media for evaluating student learning outcomes based on WhatsApp robots
- 7) Stage 7 stage (7 August - 10 August 2020). The seventh stage I did Validate the system that was made by testing it

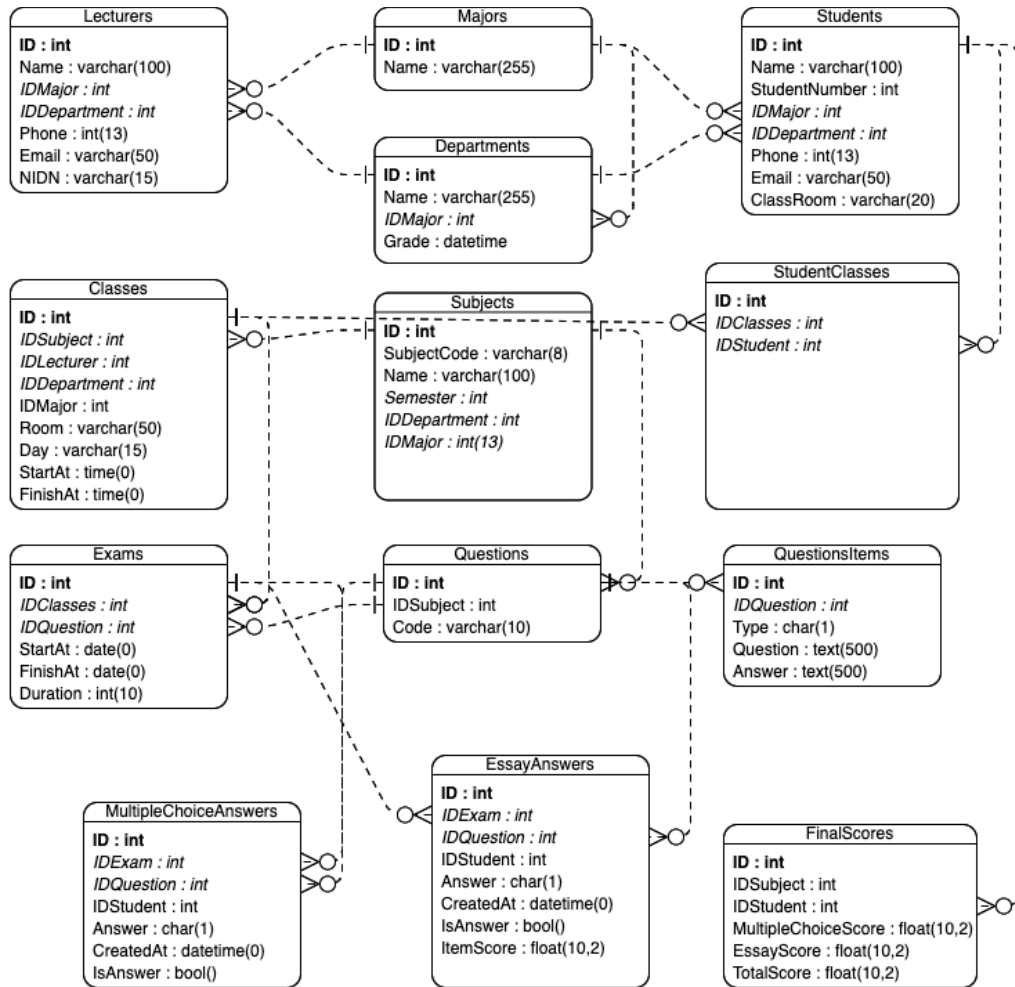
- 8) Stage 8 (11 August - 28 August 2020). The eighth stage carried out was holding a Forum Group Discussion (FGD) using the Whatsapp Bot-based Student Learning Outcome Evaluation Media.

### **RESULTS AND DISCUSSION**

From the results of a survey of respondents, the following results were obtained:

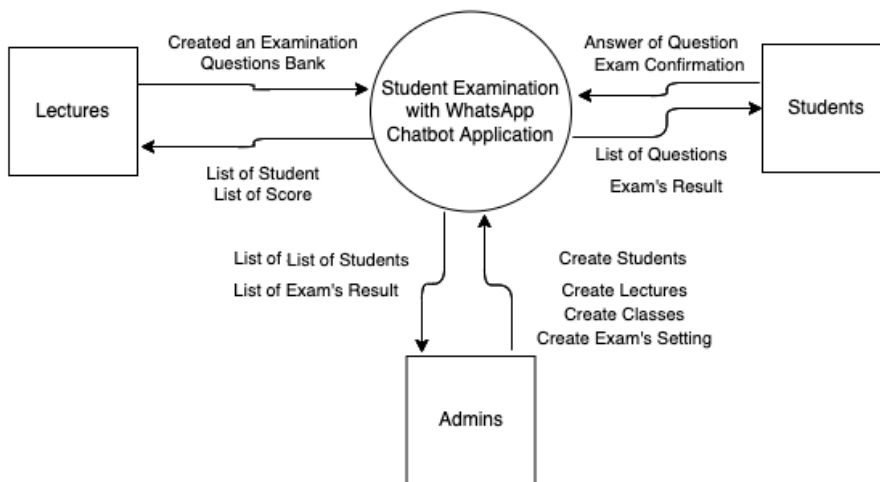
- 1) In the media used as a means of delivering lecture media, three most effective media were obtained. Namely, Google Classroom was chosen as the most effective medium with the greatest response. Followed by WA group media and e-learning.
- 2) The form of lecture material that is easily accessible during the online learning period is obtained in three forms. The first is in the form of presentation material (power point) followed by video links and e-books.
- 3) An effective media as a discussion forum between students or students and lecturers is the WA Group media, followed by Zoom and Google Meet media.
- 4) For effective media as a means of Exam, be it the Mid-Semester Examination or the Final Semester Exam, eLearning, Google classroom and WA Group.
- 5) There are 3 biggest obstacles when undergoing online lectures, namely limited quota, slow internet access to a weak signal.
- 6) There are 3 most obstacles encountered when taking online exams, namely servers that are often down so that they are difficult to access, slow internet access to weak signals.
- 7) Respondents' opinion on the use of WA media as a test medium on the grounds that it does not waste quota, does not have to use a laptop and is more stable.

In this study, the design of the WhatsApp Chatbot is shown in Figure 1.



**Figure 1. The Design of the Whatsapp Chatbot Data Structure Evaluation of Student Learning Outcomes at the Department of Health, the State Polytechnic of Jember.**

The context diagram for the WhatsApp chatbot application is shown in Figure 2:



**Figure 2. Context Diagram of the WhatsApp Chatbot Application Evaluation. Student Learning Outcomes at the Health Department of Jember State Polytechnic**

From the FGD results from the use of the WhatsApp Chatbot, several advantages and disadvantages of the system were found in Table 1:

**Table 1 advantages and disadvantages of WhatsApp Chatbot**

Advantages	Disadvantages
a. More efficient quotas	a. The answer cannot be changed
b. Can still function even though the network is unstable	b. It cannot skip questions to be answered later
c. The results of the evaluation can be directly known to students (real-time results)	c. It cannot recheck answers that have been answered
d. Possibility the answer is not saved when an error occurs is very small	d. It cannot know the maximum time to answer

Chatbots are considered one of the hottest technologies in recent years (Zubaidi & Ramdani, 2019). It is used by various sectors to serve its customers automatically. This benefits businesses, especially in customer service. Chatbots can be divided into two types. One operates based on a set of rules. It can be used with a specific set of commands. The second type uses machine learning and artificial intelligence to provide its services. Chatbots can also be used in the field of education. The campus provides services to its students or faculty by providing academic information and services. Generally, academic information and services have been supported by information technology, usually on certain websites. However, not all services are available and the latest information is not always accessible in a timely manner.

WhatsApp messaging application is one of the most widely used platforms in Indonesia (Wardani, 2019). According to Digital Report 2019 data from We Are Social and Hootsuite, 83 percent of internet users in Indonesia are WhatsApp users. As revealed by the Secretary General of the Ministry of Communication and Information, Rosarita Niken Widiastuti, currently internet users in

Indonesia have reached 171 million people or around 64 percent of the total population.

Even though the number of internet users in Indonesia is more than half of the population, user literacy on privacy and data protection is still considered to be quite minimal. For this reason, the government is now starting to promote digital privacy and security literacy. Quoting President Joko Widodo's speech, Niken said that data is one of the most valuable new resources both in Indonesia and the world. The government through the Ministry of Communication and Information is also preparing for the birth of the Personal Data Protection Law (PDP) which is expected to be submitted by the end of 2019 or early 2020 for discussion with Commission I of the Indonesian House of Representatives. This data protection is very much pending in this optimization. It is not only related to the leak of the questions to be tested. But the individual data of participants or WhatsApp Chatbot users also needs to be considered.

In research conducted by Ramadhan, Noertjahjono, and Irawan (2020) a system was created that involved a Laboratory Information System website as a medium for managing values and information about practicum, and a ChatBot by applying Artificial Intelligence Markup Language as a virtual assistant that bridges information from the database with student. The system test results show that the Laboratory Information System website functions well in managing (Create, Read, Update and Delete) student data, grades, groups, ASLAB and other data. While the ChatBot test shows that the program can respond to messages sent via WhatsApp, ranging from just empty conversations to requesting information from the database.

As a reference for comparison, it was quoted from Kushargina, Syafitri, Evani, and Fitriyani (2021) that information related to food for immunity was most sought after by subjects (37.40%). All WhatsApp Bot features are working. WhatsApp Bot Kita SeHatI was

useful (93.9%) and effective (91.8%). The same thing was also obtained from research conducted by Kholisotin, Prasetyo, and Agustin (2019), it was concluded that there was an effect of WhatsApp video-based counseling about childbirth on the knowledge and attitudes of third trimester pregnant women at the Klabang Public Health Center, Bondowoso Regency.

## CONCLUSION

The conclusion of optimizing the evaluation of student learning outcomes has 8 stages, namely identifying problems through student respondent surveys, studying literature and supporting data for making whatsapp robots, planning the process of making student learning outcomes evaluation systems based on whatsapp robots, conducting needs analysis of student learning outcomes evaluation systems WhatsApp robot-based, designing systems, making media for evaluating student learning outcomes based on WhatsApp robots, validating the system created by conducting trials and holding a Forum Group Discussion (FGD) for its use. In general, the optimization of the media for evaluating student learning outcomes with the WhatsApp robot-based application went well. However, this can continue to be developed, especially during the current covid-19 pandemic, some suggestions for the perfection of this application can hopefully be followed up as learning media innovations and evaluating student learning outcomes.

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