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THE EFFECTIVENESS *OF WHATS'APP* (WA) USERS IN CONVEYING INFORMATION AMONG STUDENTS MAJORING IN COMMUNICATION SCIENCES UIN NORTH SUMATRA

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Abstract: The purpose of this research is to find out how effective whats'app (WA) users are in conveying information among students majoring in communication science at UIN North Sumatra force 2018. This research uses qualitative research methods using a descriptive approach in their presentation. There are two sources of data used in this study, namely primary and secondary data. The primary data in this study is the result of observing the surroundings, interviews, and documentation. While secondary data is used to compare the theoretical perspective with the results of interview data. The technique of data accumulation (collection) is combined from the results of observations, documentation and interviews from class equipment and 2018 force Communication Science students at UIN North Sumatra. The data validity test is combined with the data accumulation technique, then analyzed and seen and assessed for the level of validity. Thus, the results of the study showed that the process of using WA in conveying information and communication among IKOM UINSU students was said to be effective and efficient. Where in its use and implementation it is faster to reach the intended person and practical to use, besides that WA is also very Accessibility and Functional. The obstacle that often occurs among students is the internet network which is sometimes slow, for friends who send messages to friends who are far from the city, must have a strong internet signal in order to get information.

Keywords : Keywords : Effectiveness, Whats'app User, Information

INTRODUCTION

Nowadays Whats'app (WA) is used by the general public to communicate and send messages to someone they are aiming for. Almost all people in Indonesia install and use Whats'app to communicate and exchange messages, by utilizing the internet network so that the information is conveyed quickly, so that the process can be said to be effective and efficient and users are satisfied with the service. (Trisnani, 2017)

The Whats'app application is a social media platform that is generally used to interact, communicate both personally and in groups. Whats'app provides an instant and fast service, so its users can connect two ways with each other at the same time. The process of exchanging information and communication can be through text (messages), voice messages (*voice notes*), *video calls*, and can share documents with its users. By utilizing the internet network, users do not need to be charged a large fee if they want to interact with other users. The following are the features provided by the Whats'app application, including:

- a. Whats'app is operated using internet technology where the information system and the process of sending messages are free of charge
- b. Whats'app also provides multimedia so that the application has the ability to send and receive documents, sura messages, videos and photos.
- c. Whats'app also designs that users can make voice calls and face-to-face calls (video *calls*) for free (free of charge) to other users.
- d. The Whats'app also provides a group chat feature, so that its users can form a community according to their needs and desires
- e. In addition to gadgets, the Whats'app application makes it easier for users by providing a Whats'web application that can be accessed by users on laptops, computers and so on so that there is no need to feel anxious and difficult if you want to interact and other activities.
- f. Whats'app can also read contacts on the user's *cellphone* where the other user's number can be automatically connected to our whats'app.
- g. Other features available in Whats'app are that the availability of GPS can help someone to point a path, share an address etc. Then there are camera, contact and audio features that make it easier for users to share whatever they want. Whats'app also provides automatic message removal services, backing up message history, sharing posts and can set ringtones for notifications in Whats'app

In Jumiatmoko's view, the Whats'app application is a type of social media based on the internet network, allowing users to share moments with the features that have been provided. The features provided can also be used to communicate by utilizing the internet network. In line with Jumiatmoko's views, Pranajaya and Hendra argue that Whats'app is a very popular type of social media and can be converted into a communication medium. At first, Whats'app users said that the reason for choosing to use this type of social media was because it was easy to operate, there were various features available and also did not need to spend a penny. (Pranajaya, 2017)

The features provided by Whats'app such as photos, voice messages, videos, documents and others can be automatically saved in the user's gadget gallery. As for sending videos, messages, voice messages, sending documents, making face-to-face calls (video *calls*) can be instantly connected and conveyed to other users and are also free of charge. So

that the availability provided by the Whats'app to its users directly can be said to provide convenience and comfort in interacting using social media. (Jumiatmoko, 2016)

At UIN North Sumatra, especially communication science students in 2018, almost all students install and use the Whats'app application to interact, communicate, exchange information and so on. The information is shared by the campus with its students by creating groups on the Whats'app to class devices. The class apparatus shares the information provided by the Study Program and lecturers to the students of each class by creating groups according to their respective classes, as well as groups of one large stambuk. The process of disseminating this information is often carried out before and after Covid.

During the Covid-19 period, the use of an online-based internet network requires everyone to always use Whats'app to get information and also take advantage of internet signals. So that the communication process has become a habit that is often carried out by Communication Science students at UIN until now.

In this study, researchers want to study whether the dissemination of information through Whats'app by its users can be said to be effective? how is the effectiveness of *whats'app users* in conveying information and communication among UINSU Ikom students? and what are the obstacles or obstacles that often occur in the process of conveying this information and how is it handled. Based on these thoughts, researchers are interested in conducting this study.

THEORETICAL STUDIES

A. Information

The system in Winarno's view is a set of various elements and compounds that work together to achieve certain targets and goals. Each element has a different function from one another, however, the elements combine and cooperate with each other and depend on each other. (Wing Rev. Winarno, 2006)

In Husein and Wibowo's view, an information system is a set of various interrelated and interconnected parts to collect data, process data, store and distribute it. Such information can support decision-making and as a supervisory system in an institution. The information system includes information about personal data, residence, and about the environment of the agency. .(Muhammad Fakhri Hussein and Amin Wibowo, 2006)

Meanwhile, Brysona and Kob (2004) explained that in review the term information system can be said to have a positive impact in an agency and its spread can be said to be effective. Meanwhile, in Weber and Pliskin's view, they argue that the information system can be described as how the implementation process of banking activities in disseminating information so that it can increase the effectiveness of an agency so that it has a positive impact and can improve its performance. (Witarto, 2004)

The information system can also be said to be successful if its users are willing and willing to use and apply it and feel satisfied with the performance of the information system, moreover in improving the quality and effectiveness and efficiency in doing work. So that conclusions can be drawn if the user of the information network system has the most important role in the success of the implementation of an information system.

The success of an information system can be seen from the level of the information system where an information system can provide a role in accessing the institution so that the goals of its vision and mission are achieved. The pattern of measuring the success of the information system can be seen from the increase in productivity, the change in the effectiveness of an agency, with this information system can be utilized in making decisions. In general, in this information system, there are two main focuses that want to be highlighted, such as prioritizing the level of efficiency and effectiveness. Its efficiency is more focused in terms of functionality such as the speed at which the information data reaches its users and can be completed over a certain period of time. The effectiveness is more directed in terms of external factors, namely the effects and impacts of the availability of the information system to help users in making it easier to carry out their work. (Eko Ganis Sukoharsono, 2008). The following is a scheme for the success of the information system, namely:



B. Communication

From various literature and references, many mean that the term 'communication' comes from the Latin 'communis', which means 'to make togetherness or build solidarity' between individuals and associations. The beginning of the mention of 'communis' is

'communio' which means 'to give or to share' in this case to share and give it is synonymous with the message.

The term communication in Lasweel's view quoted in the book "Introductory Communication science" written by Deddy Mulyana explains that it is a way of illustrating communication by answering various questions asked such as "*Who ? Say's what ? In which Channel ? To whom ? With what effect ?*". therefore, Lasswell said there are five elements that must be present in communication for the process to run smoothly. (Deddy Mulyana, 2019)

- (1) The existence of *a source (source)*, in the sender's communication is called by the name '*sender*', the codes or cues in communication are called '*encoders'*, the individual who interacts and communicates is called the 'communicator' or it can also be called a 'speaker', namely a speaker. A source is a party who initiates a conversation with others in other words, has a certain initiative or intention according to their needs.
- (2) The content of the content or message (*message*), when a person communicates, the message is the content or intention of the heart and the purpose that the speaker wants to convey to the interlocutor.
- (3) The existence of a communication channel or media that represents it (*channel*), media is a medium or tool used to convey the intention or content of the message to the party receiving it.
- (4) The existence of a party who receives a message commonly called a *communicant* 'communicant, audience, recvicier, recipient'
- (5) The existence of an effect or result (*effect*), after intection and communicating with someone the message conveyed by the sender of the message to the person who received the message will have an effect, impact or influence on the party.

Quoted in Haryanto there are seven elements that are contained when a person communicates, namely:(Didik Hariyanto, 2021)

- (1) Source: The underlying reason a person wants to communicate (the content of the message)
- (2) Communicator: A communicator is a person who speaks, here it can be either personal or set
- (3) Message: Inside the message can be both verbal and nonverbal. The message included in the communication is the content, content or information that can be in the form of anything that the speaker does to the interlocutor where the process can be in the form of oral, text (verbal) or facial mimics, stirring, gestures (nonverbal)
- (4) Media: Tools or containers used to help communicate and obtain information such as electronic devices
- (5) Results or Effects: From the interactions that are established, the creation of effects or impacts that can affect the recipient of the message
- (6) Feedback: The existence of an action or reply that the communicant gives to his communicator
- (7) Distraction: The occurrence of an obstacle or obstacle that can affect the communicator or communicant in receiving information

In Hafied Cangara's view, he said that "In the communication system, the meaning of a message is everything that a communicator conveys to the communicant, where the message is conveyed directly or face-to-face or can be through communication media channels where the message can be in the form of entertainment, information, science, propaganda and advice." .(Hafied Changara, 2016)

Meanwhile, Effendy argues that the message in communication is a symbol that has meaning, where the symbol can carry the thoughts, expressions and feelings of the communicator. A message is a subject or entity that must be owned by the sender of the message to the person to whom he or she is addressed. The form of the message can be in the form of ideas or thoughts and other things that have been or can be interpreted into symbols or symbols that are used to interpret a certain purpose and meaning.(Onong Uchjana Effendy, 1993). So it can be concluded that the term communication is the process of human efforts in conveying messages to others. Communication science is also a science that studies and analyzes the delivery of messages, the process of transmitting messages to communicants.

C. Social Media

The term social media is a new media where according to Nasrullah's view, social media is a tool or container that uses an internet network that can easily be used for users to represent themselves to socialize, interact and communicate with other users to form a virtual social fabric in cyberspace. In social media, the socialization process refers to the meaning of how to socialize or introduce others ((Errika Dwi Setya Watie, 2011)*cognition*), how to interact (communicate) and establish mutualism symbiosis or cooperation (*cooperation / team work*). (Rulli Nasrullah, 2015)

In his book entitled communication era 2.0 Ardianto said that social media is *an* online media not an online mass media, because social media is considered to have a role in providing social power that can influence the mindset and public opinion that is currently developing among the general public. By using social media, the audience can create fundraising or support or mass movement actions, this can be proven by looking at the case of Prita Mulyasari with RS. Omni International. This reason is what makes social media called not mass media. (Elvinaro Ardianto, 2011)

Social media also has a function as an illustration to see the work system, where in its presentation social media has four important functions, namely: as an identity, as a place to share and share information, be able to establish relationships with audiences, and can create certain communities. The following is an explanation of the four elements:

- (1) As *an identity*, identity in social media includes personal biodata, where users tell their name, gender, age, occupation and others so that other users can know and know them on social media
- (2) As a place to share and share information (*sharing*), on social media a user can share information and exchange ideas with other users by providing positive content such as education, entertainment and so on. In this case they share it can be in the form of narration or text, video, gambat (photo) and others.
- (3) As a medium that can establish relationships with audiences (*relationships*), social media users can bond or can connect with other social media account users.

(4) Can create a specific community (*group*), social media can form its users to create a community or association action for individuals who have the same interests, the same motives for obtaining information. This includes interests and talents, background, demographics, entertainment, social knowledge, and other actions

RESEARCH METHODS

Qualitative research is research whose data is collected and unified but not in the form of numerical figures but the data is obtained from interviews, observation reports in the field, personal documents, and other officially obtained documents. (Lexy J Moleong, 2018)

In this study also used a descriptive qualitative type, which in this study can explain the picture that occurs in the field that is explored specifically and in depth. The use of descriptive qualitative is intended to describe consciously and systematically the main point and focus of the problem of a problem that occurs in the social environment using research procedures using a descriptive approach. (Muri Yusuf, 2014)

The target and source of information in this study, according to Supranto, is a set of objects and elements in an institution and organization to be studied. Anto Dayan emphasized his statement by saying that the research targets are the main issues that are focused on being researched in order to obtain systematic data. As for in this study, the targets and informants to obtain data were people who had expertise in answering questions expressed by researchers in conducting this research, there were 5 people consisting of students who had a role in the classroom in disseminating information from lecturers such as class leaders, secretaries and also participating students who were in the classroom as recipients of information provided through devices class.

The data sources used in this research process are through 2 sources, namely primary and secondary data. Primary data include observations and direct interviews with informants. Meanwhile, secondary data includes various references for research in writing and research, namely references from books, journals, and various sources that can be used as a basis for carrying out this analysis.

The process of collecting data or facts is carried out through three stages, namely observation, interviews and literature studies:

- a. Observation : Observation in research is the process of witnessing phenomena that occur around using the five senses, such as seeing the incident directly, listening directly to information from the scene, and feeling directly. In this case, the direct feeling can be someone himself, or relatives and eyewitnesses. Where it is recorded in as objective a way as possible. Observation or observation activities are a way of collecting data in which a researcher must record the information he obtained during their implementation, conduct and witness the research. (W Gulo, 2002)
- b. Interview: Interview is a form of face-to-face communication interaction and is direct to the researcher and the source. The communication process is carried out in the form of a question and answer where researchers can see directly the movements, facial mimics both verbally and nonverbally of the source. Therefore, the interview not only takes information, understanding and ideas from the source but also captures the meaning of his circumstances and feelings, emotions, experiences and the motives he

has. According to Mohammad Ali, the advantages of interviewing as a process of finding information for research are: 1) the process of taking place an interview is not pegged by age and other things, anyone can and can be interviewed to dig and get information; 2) the data or information is directly acceptable because the process is face-to-face; 3) interviews can be conducted directly to the source who is considered and suspected to be an informant (data source); 4) the existence of interviews can improve and complement the results obtained through observations made by researchers on phenomena, objects and others, as well as the results obtained from questionnaires; 5) because the process is direct (face-to-face) the process is more flexible where the researcher can explain in more detail the question and its intention if the source does not know the intention of the question. (Mohammad Ali Sodik and Sandu Siyoto, 2015)

c. Central Studies: In this study, various theoretical literature used as the theoretical basis for researchers was obtained from various sources, namely books, journals, documents and documentation.

The data analysis process is used in this research and analysis with the intention of being able to answer questions from the formulation of the problem under study. In this research, it also used a theoretical approach to communication from Harold Lasswell. To test data analysis, a validity test is carried out or to test the validity or correctness of the data. The process of validity of such data uses 'data mascuulation'. Data triangulation is a process to find, obtain and explore in a deep way the truth of the information or data obtained and then traced using existing methods with a theoretical perspective approach obtained by books, journals, documents and documentation and other archives. it is intended that the data be viewed from a different perspective or point of view.

RESULTS AND DISCUSSION

Based on the results of observations and interviews that have been carried out, there are five sources of informants including 1) Class equipment (class leader) of Stambuk Communication Science students 2018; 2) Secretary; 3) Students participating in the classroom. In this study, researchers used the communication theory developed by Harold Lasswell as a theoretical foundation. From the *interview* process that has been carried out, researchers formulated two research results, namely from class devices and students participating in the classroom.

CONCLUSION RESULTS OF CLASS DEVICES

- (1) Source: The source of information obtained from the class device is sourced from the Study Program, lecturers of the course concerned and also the study program admin.
- (2) Content or message: The message consists of lecture schedules, information regarding UKT payment schedules, KRS filling in, assignments given by lecturers to class devices, attendance attendance, guidance in preparing trial files, information about sempro, comprehensive exams and final hearings. As well as providing information about the requirements for the judiciary, graduation and taking of diplomas.

- (3) Communication Channels: By using the Whats'app Group application as the dissemination of information and communication.
- (4) Beneficiaries: Participating class and student devices
- (5) Results or effects: The information conveyed is easy to understand, the message is conveyed quickly and easily. The communication process goes both ways, if the class device does not understand the information, the class device can communicate directly with the parties who provide the information personally.

Based on interviews conducted by researchers with the 2018 Communication Science study program class device, it was explained that the dissemination of information carried out by Whats'app application users using Whats'app media communication technology as a channel in providing information can be said to be effective and efficient. Because the Whats'app application is *a digital platform* that can facilitate its users to communicate quickly and practically. In addition, WA is also very accessibility and functional, which is not only used by students but most people now use wa to send and receive messages quickly. In the application of the dissemination of information carried out by the study program and lecturers to students, it has gone quite well and quickly delivered it.

As a person who serves as a class tool for obstacles during his time as class leader and secretary, there have been no too significant obstacles because in providing information, the study program and lecturers have provided an explanation of the information quite well and clearly. The obstacles or obstacles that often occur in the process of disseminating information submitted by lecturers to class devices to be distributed to students in class are:

- (1) Constrained by a poor internet network, so students or lecturers must have a strong enough internet network provider. What sometimes becomes an obstacle is that when you are in a WA group *chat room* to send information from lecturers to class members, it is also an obstacle. Because not all at the same time the classmates are in the city or an easy place to reach the internet. because there are still many areas or remote villages, so the network to reach WA social media is difficult to reach.
- (2) Lecturers prefer to type messages instead of using the *voice note* feature so that sometimes it can make students ambiguous if the information is not specifically explained

Thus, obstacles in terms of conveying information from lecturers to students can still run well. Students also rarely lack understanding in the information obtained because the information is easy to understand. In terms of the response given by students in disseminating information through WA, it is very good because with WhatsApp Groups students can quickly get information and can also interact with each other in the WhatsApp Group.

The advantages of disseminating information through WA can be said to be effective and efficient. Students can quickly get information and also the information can be seen again if we are late in getting the information, if they still don't understand the information, students can reread the information until they understand. As for the shortcomings, there are still no too significant obstacles and because so far it has gone well.

The efforts made if students do not understand the information submitted by the lecturer to the class leader is that in this case students will give re-questions related to the information that has been informed to the class device, as a class device the assignment and

its function explain in as much detail as possible until they understand the information provided by the lecturer by asking again which parts are still unclear so that we can provide a more detailed explanation until the person understands, and also other friends also explain the information in the group provided.

The lecture method and information dissemination carried out through Whats'app can be said to be successful because students actively follow lectures and participate in the learning process. In addition, during the teaching and learning method from online until now there are no serious obstacles so that there are students who cannot follow the lecture process.

CONCLUSIONS OF STUDENTS WHO ARE PARTICIPATING IN THE CLASSROOM

- (1) Source: The source of information obtained by students in the class is obtained from class devices sourced from the Study Program, lecturers of the course concerned and also the study program admin.
- (2) Message Content: The message consists of lecture schedules, information regarding UKT payment schedules, filling out KRS, tasks given by lecturers to class devices, attendance attendance, guidance in preparing trial files, information about sempro, comprehensive exams and final hearings. As well as providing information about the requirements for the judiciary, graduation and taking of diplomas.
- (3) Communication Channels: By using the Whats'app Group application as the dissemination of information and communication.
- (4) Recipients of Information: Students participating in the classroom
- (5) Results or effects: Almost all information conveyed is easy to understand, the message is conveyed quickly and easily. The communication process goes both ways, if students do not understand the information, students can communicate directly with parties who provide the information personally both with class devices and in group forums by re-asking through the provided group or having a private chat.

Based on interviews conducted by researchers with students of the Communication Science study program in 2018, it was explained that the dissemination of information carried out by Whats'app application users using Whats'app media communication technology as a channel in providing information can be said to be effective and efficient as long as the information shared is explained in detail and clearly. This makes it easier for recipients to understand the information provided.

In receiving information, UINSU Communication Science students like the dissemination and delivery of information through whats'app or the like. The process of disseminating information submitted by lecturers to class devices to be disseminated into the classroom so far they can understand the entire information submitted by lecturers or class devices. If the communication that is established is direct communication, there are few barriers to communication, so they can more easily understand the information received. But if the communication occurs indirectly, as long as the information conveyed is clear, then they can easily understand it. In addition, the process of sending information through WA media can be said to be good because in addition to being effective and efficient, it is more practical and easy to use and understand. The obstacles that often occur in the dissemination of information conveyed by class devices and lecturers are:

- (1) Network. As one of the main components of online media, the quality of the network will affect the communication that is established. Poor network quality will result in delayed messages being spread and delayed feedback on messages.
- (2) Hardware (device). Online media applications such as Whatsapp and the like, have several criteria and specifications *of* an ideal device. Because *the device* with inadequate criteria, results in online media running poorly, making it difficult to use it.

The solution carried out by Communication Science students if there are obstacles in the process of interaction, receiving information and disseminating information by trying to check the network and devices used. Then improve the quality of the network and the device. If the obstacle is in the form of incomplete and clear information, then they will re-inquire through the group provided or chat privately.

The advantages and disadvantages of interacting, communicating, disseminating information and receiving information through Whats'app are:

- (1) The advantages of information spread through Whatsapp are the wide and massive scope of information recipients, the dissemination of diverse information -such as visual, audio, audio-visual, text, and documents; and the dissemination of information that can be carried out anywhere and anytime.
- (2) The disadvantage of spreading information through Whatsapp is that it is too dependent on the quality of the network and devices, so when the quality is poor, it will become a communication barrier. Users can also be a drawback, if only the user does not have a device to use or the user cannot operate the application properly.

CONCLUSION

By utilizing Whats'app as a medium for exchanging messages, information and communication, as well as many service features and ease in applying it, users (Communication Science students) feel comfortable, time-saving, cost-effective, and timely messages delivered to message recipients. The service and quality in WA is very satisfying for students. So that in lectures students also do not experience obstacles or obstacles in the process of interacting. Communication Science students can well follow the course of the lectures that take place. The obstacle that generally often occurs is problems on the internet network. Where Communication Science students who are outside the city of Medan or are in the village often feel disturbed by their communication if the signal is not running smoothly. Based on the results of observations and interview data obtained, it can be said that the spread of Whats'app users in disseminating information and communication in the Communication Science Study Program can be said to be effective and efficient.

REFERNCES

- Deddy Mulyana. (2019). "Ilmu Komunikasi Suatu Pengantar". Bandung: Remaja Rosdakarya.
- Didik Hariyanto. (2021). "Pengantar Ilmu Komunikasi". Sidoarjo: UMSIDA Press.
- Eko Ganis Sukoharsono. (2008). "Sistem Informasi Manajemen". Malang: Surya Pena Gemilang.
- Elvinaro Ardianto. (2011). "Komunikasi 2.0 Teoritis dan Implikasi". Yogyakarta: ASPIKOM Buku Litera dan Perhumas.
- Errika Dwi Setya Watie. (2011). "Komunikasi dan Media Sosial". Junal The Messenger Cultural Studies, IMC dan Media, 69-74.
- Hafied Changara. (2016). "Pengantar Ilmu Komunikasi". Jakarta: RajaGrafindo.
- Jumiatmoko. (2016). "Whatsapp Messenger Dalam Tinjauan Manfaat Dan Adab". Wahana Akademika, 51-56.
- Lexy J Moleong. (2018). "Metodologi penelitian kualitatif". Bandung: PT. Remaja Rosdakarya.
- Mohammad Ali Sodik dan Sandu Siyoto. (2015). "Dasar Metode Penelitian". Yogyakarta: Literasi Media Publishing.
- Muhammad Fakhri Husein dan Amin Wibowo. (2006). "Sistem Informasi Manajemen". Yogyakarta: UPP STIM YKPN.
- Muri Yusuf. (2014). "Metode Peelitian Kualitatif, Kuantitatif & Penelitian Gabungan". Jakarta: Prenadamedia Group.
- Onong Uchjana Effendy. (1993). "Ilmu Komunikasi Teori dan Praktek". Bandung: PT. Remaja Rosdakarya.
- Pranajaya, H. W. (2017). "Pemanfaatan Aplikasi WhatsApp (WA) Di Kalangan Pelajar (Studi kasus Di MTs Al Muddatsiriyah dan MTs jakarta Pusat)". Prosiding SNaPP2017 Sosial, Ekonomi dan Humaniora, 98-109.
- Rulli Nasrullah. (2015). "Media Sosial; Persfektif Sosioteknologi". Bandung: Simbiosa Rekatama Media.
- Trisnani. (2017). "Pemanfaatan WhatsApp sebagai media komunikasi dan kepuasan dalam penyampaian pesan dikalangan tokoh masyarakat". *Jurnal Komunikasi, Media Dan Informatika*, 1-12.
- W Gulo. (2002). "Metoodologi Penelitian". Jakarta: Gramedia Widiasarana Indonesia.

Wing Wahyu Winarno. (2006). "Sistem Informasi Manajemen". Yogyakarta: STIM YKPN.

Witarto. (2004). "Memahami Sistem Informasi". Bandung: Informatika.