



Infographic of Internet Usage Data for Learning Process in the Province of Indonesia

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ABSTRACT

The development of telecommunications in Indonesia has significantly affected the emergence of the digital age, as the internet has become a daily necessity for community activities. Information and communication technology (ICT)-based learning is influencing teaching methods and learning media to use the internet for the learning process in the field of education. This study aims to analyze and graphically present data on the internet usage of rural and urban residents in all Indonesian provinces concerning their education levels. The presented data is in the form of types of internet usage that support the learning process so that it can become predominant in the use of the internet by rural and urban areas and serve as a positive input for internet service providers in the improvement of education-related services. The results indicated that using the Internet to support the learning process by communities in rural and urban areas of Indonesian provinces is one of the goals of using the Internet to obtain information for the learning process is 10%. D.I.Yogyakarta has the highest percentage 58,1%, indicating the most significant number of internet users for educational purposes. When students and student users access the internet to support the learning process, they engage in a variety of activities, including doing assignments, accessing e-learning tools, accessing media information to support learning, using web browsers to display social media, and accessing e-mail to submit assignments using smartphone media, which is the most prevalent form of internet access.

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1. INTRODUCTION

Internet access has evolved into a daily necessity for supporting community activities. The distribution of network infrastructure from each communication service provider to all urban and rural areas in Indonesia is crucial to the development of the Internet in Indonesia (Tim Peneliti Puslitbang SDPPI, 2018)(Zarina Din Maryati Mohd Yusof, Jamaiah

Yahaya, 2021). The community engages in many daily activities that are inextricably linked to the internet (Gani, 2020). As a direct result of the spread of the internet, people's lifestyles have transitioned to a digital society. Due to the internet, distance is no longer a barrier, and the communication gap between city dwellers and rural dwellers is narrowing (Suherlan et al., 2022). Differences in time, location, and types of individuals within a community no longer retard the rate of knowledge diffusion. The advancement of telecommunications in Indonesia has had a substantial effect on the advent of the digital era. The Indonesian Internet Service Provider (APJII) anticipates that the country's internet penetration rate would reach 77.02 percent between 2021 and 2022 (Pahlevi, 2022). The annual growth rate of the percentage of Indonesians who have internet access is consistent. Internet usage, particularly on smartphones and other electronic devices, facilitates communication, employment, and education. It affects teaching methods and learning media for teachers who frequently use internet-based media for the learning process in the world of education, particularly where ICT-based learning is now used for learning activities.

Internet technology support on smartphones in the realm of education is one of the supporting aspects in the success of students in carrying out learning activities. Cellular telephone networks play a key role as a means of Internet access (Dewantara et al., 2022). Cellular phones are the most prevalent means of Internet access. In 2019, 96.95 percent of individuals will use their cell phones to access the internet, and by 2020, this percentage will increase to 98.31 percent. Laptops are the second most popular way for people to access the internet, but their usage is declining compared to the previous year. Especially during a pandemic which necessitated online learning, such that all learning activities used the concept of distance learning. This was also represented in research (Eriani & Yolanda, 2022) which said that the function of the internet in remote learning had become a need for students and teachers, however not all schools in locations with suitable internet network infrastructure could carry out distance learning (Hariyanto & Wahyuni, 2020). There are numerous media and technologies that students and teachers can use to promote online learning, so that students and teachers spend time in front of laptops or access via cellphones to carry out activities on the internet to help the learning process (De Vega & Arifin, 2022).

This study's objective is to examine and graphically exhibit data on the internet usage of rural and urban populations in all Indonesian provinces in relation to their education level. The data is presented in the form of types of internet usage that support the learning process, so that it can become knowledge in the dominant factor in the use of the internet by people in rural and urban areas, thereby serving as a positive input for internet service providers in the improvement of education-related services.

2. RESEARCH METHOD

2.1 Internet Telecommunications Network

Telecommunications networks include fixed networks for public telecommunications and leased circuits and mobile networks as terrestrial, cellular, and satellite mobile networks (Moore et al., 2011). Internet Protocol Suite-based interconnection-networking (Internet) connects computer networks worldwide (Gani, 2020).

2.2 Analysis Method

Descriptive quantitative method is the type of research method that was used in this study. Descriptive quantitative method is a method that aims to describe or describe a situation objectively and systematically based on factual data and using numbers, beginning with the collection of data and ending with data visualization [11]. In this study, using data obtained from the Central Statistics Agency of Indonesia, the data is in the form of time series data, and it is processed with Microsoft excel to create a picture or

visualization of data (Suhardjono et al., 2022) regarding the use of the internet for people in rural and urban areas throughout the entirety of Indonesia (Azis et al., 2022)(Wiguna et al., 2021). Figure 1 provides a visual representation of each stage of the research process.

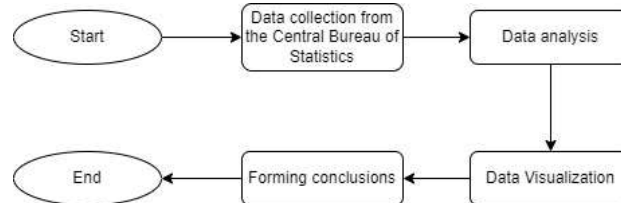


Figure 1. Research Flow

The processes of data collecting from the Indonesian Central Bureau of Statistics pertaining to Indonesian communication statistics can be explained using Figure 1, as the basis for this explanation. Following the collection of the pertinent data, the research phase proceeded to carry out the analysis phase in each of Indonesia's 34 provinces with regard to the objective of utilizing the internet in both rural and urban populations for the purpose of enhancing the educational experience. There is a learning process involved in analyzing data on how people in rural and urban locations utilize the internet. Through the use of graphs, the results of the analysis can be read more quickly and easily when they are presented in the form of percentages. The last step in the process is to draw conclusions, specifically drawing conclusions from the analysis and visualization of data that conveys data findings in the form of a description or description of an object that was previously abstract in order to make the research process more understandable.

3. RESULTS AND DISCUSSIONS

3.1 The Purpose of Internet Use in Indonesia's Rural and Urban Provinces

According to a study by (Suhardjono et al., 2022), there are 34 provinces in Indonesia in terms of the reason people in rural and urban areas utilize the internet. In Suharjono et al.'s (Suhardjono et al., 2022) study based on data from the Central Statistics Agency(BPS Indonesia, 2020), nine aspects of the purpose of internet use have been visualized as percentages. Figure 2 illustrates a data visualization.

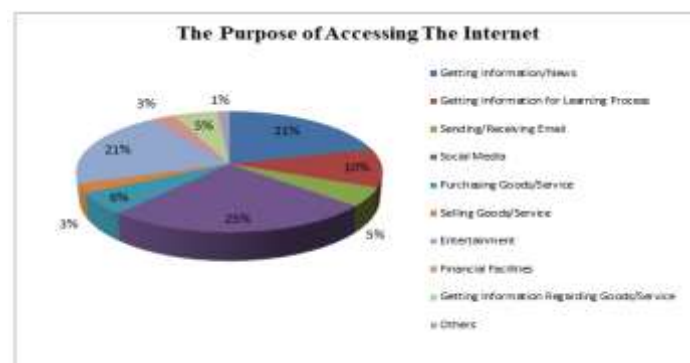


Figure 2. The Purpose of Internet Access (Suhardjono et al., 2022)

In addition, based on the study conducted by the researchers using data from the Central Bureau of Statistics, it is possible to assess the purpose of Internet use by province

for the years 2016-2020, one of which is to get information for the learning process by up to 10%. This percentage is extremely high, which suggests that the community utilizes the Internet not only for recreational purposes, but also to promote education, in which case the segmentation of users is students.

3.2 The Purpose Of Accessing The Internet For Getting Information for Learning Process

One of the goals of using the internet in 34 provinces in Indonesia, both in rural and urban areas, is for the Getting Information for Learning Process. From the BPS data, it is possible to view statistics on the top 10 provinces in Indonesia that use the internet the most in assisting learning and education processes. Figure 3 shows the provincial data.

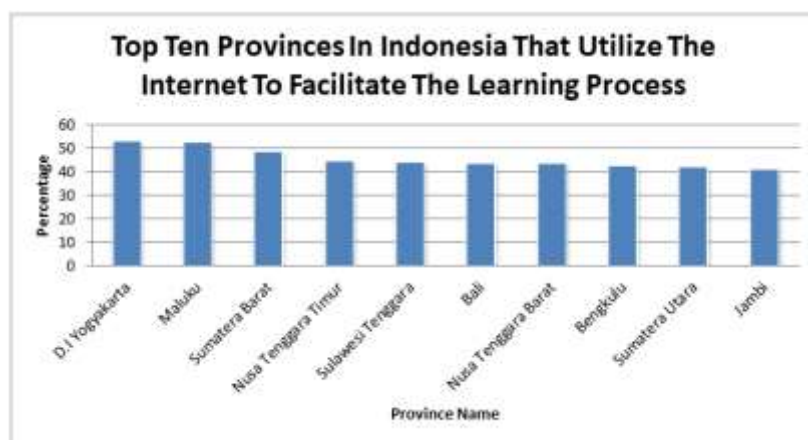


Figure 3. Top 10 Provinces in Indonesia that Utilize Internet for Learning Process

Figure 3 explains the provinces in Indonesia where individuals in rural and urban areas utilize the internet to enhance the learning process, with D.I. Yogyakarta having the highest rate of internet users (52.78%).

3.4 Segmentation of Internet Users to Support the Learning Process

It is crucial to understand the education level of internet users in order to help the learning process. The investigation is ongoing in order to learn more specifically about the segmentation of online users. In Figure 4 below, user statistics in terms of education level are displayed.

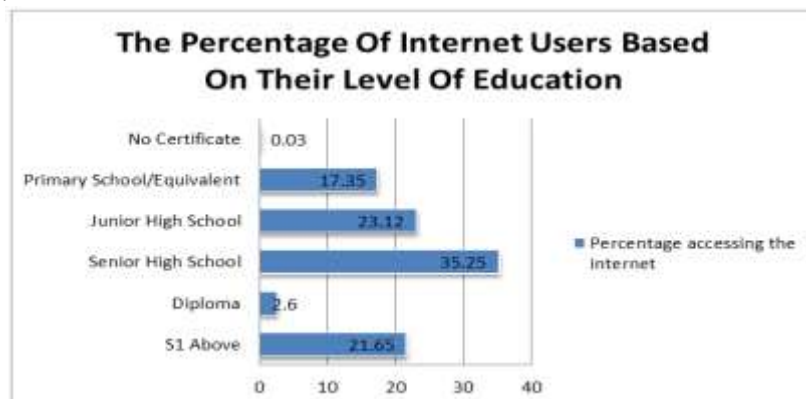


Figure 4. Percentage of Internet Users

Based on Figure 3, it can be explained that internet users in terms of educational level are dominated by residents at the high school/equivalent education level of 35.25%, followed by internet users with the last education level of junior high school/equivalent as much as 23.12%, users Internet users with the last educational level, namely S1 and above, are 21.65%, Internet users with the last educational level, namely Elementary School/equivalent, are 17.35%, Internet users with the last educational level, namely D1-D3, are 2.60% and Internet users who do not have a diploma or do not follow any level of education as much as 0.03%.

According to the results of the analysis presented above, internet users with a high school education level or similar are most likely to use the internet to support and get information on the learning process. From elementary school/equivalent to high school/equivalent, a relatively high percentage of students use the internet for the learning process. This, of course, provides data visualization that internet needs have become an integral part of learning activities beginning with elementary school, junior high, and high school levels.

3.4 Analysis of Internet Utilization in Supporting the Learning Process

Based on the data presented in Figures 2, 3, and 4, the next step is to examine the learning-supporting activities conducted by internet users. As stated in the previous analysis, the segmentation of users who use the Internet for the learning process consists of students in elementary school, junior high school, high school, and college. When accessing the Internet, certain activities are performed. There are several primary activities when student users and students access the Internet to support the learning process [15], including the activity of completing assignments by 39 percent of activities doing this task is closely related to searching for information related to the browser in order to access information services related to the subject matter or task material. Other activities obtained by students include accessing e-learning tools by 21%, accessing information media to support learning by 15%, accessing social media for communication about learning is related to the use of web browsers to display social media by 10%, and accessing email to submit assignments by 15%. Cellular phones are the most prevalent means of Internet access. With a 96.95 percent market share, cell phones are the most popular way for individuals to access the internet. Laptops are the second most popular way for people to access the internet.

4. CONCLUSION

The conclusion of the analysis of the use of the Internet to assist the learning process by rural and urban people in Indonesian provinces is that one of the purposes of utilizing the Internet is to collect information for the learning process by as much as 10 percent. This percentage is fairly high, indicating that the community's Internet usage is sufficient to sustain education; hence, students are the segmented user population. In terms of rural and urban areas in the provinces of Indonesia, there are D.I. Yogyakarta is the province with the highest proportion, 58.1%, indicating the highest number of users who utilize the internet for the purpose of learning. Students in elementary school, junior high school, senior high school, and university are segmented as users of the Internet for the learning process. When accessing the Internet, these students engage in a variety of activities. There are several main activities when student and student users access the internet to support the learning process, including doing assignments by 39%, accessing e-learning tools by 21%, accessing information media to support learning by 15%, using a web browser to display social media by 10%, and accessing email to submit assignments by 15%, with the use of smartphone media being the most prevalent in accessing the internet.

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