

Internet use identification as a learning platform for biology education students

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Abstract

Advances in technology, especially the internet, provide significant benefits to education, but studies are needed to explain internet use by students. This study aims to identify the use of the internet as a learning platform for biology education students at Labuhanbatu University. This study used a survey method with a closed questionnaire as an instrument and interviews. The population in this study was 120 biology education students (semesters I, III, V, and VII), while the sample was taken by total sampling. The questionnaire was distributed via Google form and WhatsApp group containing 22 statements. The results of the study show that in accessing the internet, students use mobile phones more often (93%). The place where students often access the internet is at home (48%). The website that students frequently access is Google Scholar (40%). The identification aspect of the use of the internet as a learning platform for biology education students shows the time intensity of internet use (78.40%), reasons for internet access (3.87%), and the function of the internet as an educational facility (81.35%). The percentage of internet use among students with the highest acquisition is in semester VII, and the lowest is in the semester I. The high level of internet use by students needs to be one of the foundations for planning good lectures.

Abstrak

Kemajuan teknologi khususnya internet memberikan manfaat signifikan pada pendidikan, namun diperlukan studi untuk menjelaskan penggunaan internet oleh mahasiswa. Penelitian ini bertujuan untuk mengidentifikasi penggunaan internet sebagai platform pembelajaran mahasiswa pendidikan biologi di Universitas Labuhanbatu. Penelitian ini menggunakan metode survei dengan kuesioner tertutup sebagai instrumen, dan wawancara. Populasi dalam penelitian ini adalah 120 mahasiswa pendidikan biologi (semester I, III, V dan VII), sedangkan penarikan sampel dilakukan secara *total sampling*. Kuesioner disebarikan melalui *google form* dan *whatsapp group* berisi 22 pernyataan. Hasil penelitian menunjukkan bahwa dalam mengakses internet, mahasiswa lebih sering menggunakan handphone (93%), tempat mahasiswa sering mengakses internet adalah rumah (48%), dan *website* yang sering diakses mahasiswa adalah *google scholar* (40%). Aspek identifikasi penggunaan internet sebagai *platform* pembelajaran mahasiswa pendidikan biologi menunjukkan intensitas waktu penggunaan internet (78,40%), alasan akses internet (3,87%), dan fungsi internet sebagai sarana pendidikan (81,35%). Persentase penggunaan internet dikalangan mahasiswa dengan perolehan tertinggi berada pada semester VII, dan terendah pada semester I. Tingginya tingkat penggunaan internet oleh mahasiswa perlu menjadi salah satu landasan dalam merencanakan perkuliahan yang baik.

A. Introduction

Currently, the use of the internet as a tool for acquiring knowledge is expanding quickly. Year after year, the internet's expansion and role have accompanied the world of education with such ease. Using the internet with all its features will facilitate access to numerous academic knowledge resources and can directly increase comprehensive knowledge and goal-attainment success (Rusman, 2015). In keeping with it now, the internet also enables the cost-effective transmission of knowledge-based information services, making remote education more accessible than ever before (Tondang & Arwita, 2020). Students in tertiary institutions (students) utilize the internet for instructional purposes increasingly frequently due to its ease (Nurdin, 2015).

According to Supriyadi & Kholid (2019), internet use as a type of information and communication technology has generated a paradigm shift in the education process in modern-day Indonesia, such that the notion of activities in higher education institutions has undergone significant modification. It is in line with the opinion of Komalasari & Naumi (2018) due to the advancement of the internet, the method of educational activities has altered. The internet has transformed the old schooling method into a more contemporary one. Students are expected to be active to comprehend more with restricted distance and information sources that have been resolved with the advent of the internet (Rahman, 2021).

Research conducted by Nisa & Edi (2015) stated that the internet is handy for learning, with 76.67% in the high category, and the time intensity of using the internet is in a low category with a percentage of 49.32%. According to Salsabila et al. (2020), as a result of advancements in internet technology, various types of learning platforms have been developed to modernize education, including the use of communication media such as WhatsApp, Google Classroom, and YouTube, as well as the Zoom application, which can facilitate home-based learning.

According to Amboni et al. (2021), internet use can provide its own color among students. The use of the internet will be better if supported for learning purposes. The existence of the internet can be a place of creativity for its users. Students can search for learning information through images or videos. In searching for information related to biology learning, students must be able to use search engines such as Google. In tune with it, Tondang & Arwita (2020) in their research concluded that most students take advantage of the use of the internet as a source of learning biology.

The utilization of the internet as a source of learning biology on academic ability is said to be good.

It is in line with the research of Martin et al. (2022) that by using the internet as a learning resource, you will get a lot of the latest information according to the material needed. One way to use the internet is by browsing or searching so the required information relating to the necessary material will appear. In contrast, the research results of Nurhayati & Musa (2020) concluded that if students do not understand the search for information via the internet. Students only understand internet use for social media activities, while information and learning resources are still relatively low.

Multiple prior studies have indicated that using the internet for educational resources has numerous advantages. Internet access can assist students in obtaining information pertinent to the class topic.

Labuhanbatu University is one of the higher education institutions that has implemented internet-based biology learning; internet-based biology learning is beneficial to students and lecturers in enhancing the efficiency of the learning process (Wibawa, 2021). The many applications of the internet platform seek to produce student resources capable of learning while also meeting the requirements of the information age of this century (Sugiharto, 2015). The many applications of the internet platform seek to produce student resources capable of learning while also meeting the requirements of the information age of this century. Based on this description, the researchers feel compelled to study Internet Use Identification as a Learning Platform for Biology Education Students.

B. Material and Method

Researchers employed a survey technique with a closed questionnaire as the instrument and conducted interviews to collect extra data. Survey methods collect information on the past or present about beliefs, opinions, characteristics, behavior, and others. Observation is commonly used in the survey research approach for data collection. The observations are by conducting interviews or distributing surveys. This method's outputs are utilized in the generalization procedure.

All 120 students enrolled in biology education at the Faculty of Teaching and Education, Labuhanbatu University, were included in this study. There were 30 first-semester students, 33

third-semester students, 22 fifth-semester students, and 35 seventh-semester students. The sampling method was conducted using a total sample size of 120 students. The data was collected via distributing questionnaires using a Google form and Whatsapp Group. Respondents were students in the biology education program at Labuhanbatu University.

There are three indicators in the questionnaire that can provide information from respondents regarding the use of the internet as a learning platform for biology education students. The indicators used consist of (1) the Intensity of internet use time, (2) Reasons for internet access, and (3) The function of the internet as a means of

education, and these three indicators are modifications of the authors from journal adaptations (Nurdin, 2015). In the next stage, the data obtained will be presented in diagrams and described. The instrument grid for using the internet as a learning platform can be seen in table 1. This questionnaire uses a Likert scale with five alternative answers. Sugiyono (2016), states that the Likert scale measures one's attitudes, opinions, and perceptions of social phenomena (See Table 2). Data analysis using descriptive analysis is presented in percentage form. In determining the descriptive criteria, the percentage of interest in internet reading is obtained so that in the calculation, a category follows Table 3.

Table 1 Questionnaire grid

No.	Indicator	Declaration Number	Statement Item
1	Usage Time Intensity	1, 2, 7, 12, 16	5
2	Reasons for Internet Access	6, 8, 10, 11, 14, 19, 20, 21	8
3	Internet Functions As Educational Means	3, 4, 5, 9, 13, 15, 17, 18, 22	9
Total			22

Table 2 Alternative Answer Scores

Alternative Answer	Statement Score
Always	5
Often	4
Sometimes	3
Seldom	2
Never	1

(Source: Sugiyono, 2016)

Table 3 Percentage Value

Rasio	Criteria
80% - 100%	Very High
60% - 80%	High
40% - 60%	Moderate
20% - 40%	Low
0% - 20%	Very Low

(Source: Modified from Yani, 2018)

C. Results and Discussion

Internet Access Device Type

The results of processing research data on the types of devices used in accessing the internet by biology education students are presented in percentage form in the form of a pie chart in Figure 1. Based on the picture above, biology education students' most widely used device to access the internet is a handphone. Mobile is one of the devices students use, as much as 93%. Furthermore, students also use laptops (7%), but a computer is not.

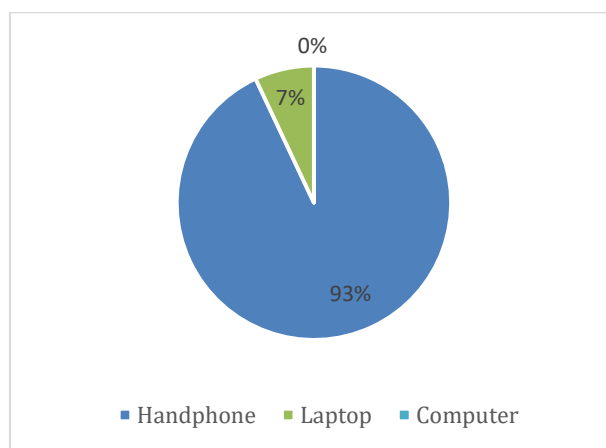


Figure 1 Device Type for Accessing the Internet

Previous research also identified similar results, that the devices used by students were dominated by handphones, with a percentage of 86.44% (Abadi & Nawawi, 2022). Therefore, it is inevitable that nowadays, almost everyone has a handphone or smartphone, including lecturers and students. Besides, Lestari & Yarmi (2017) stated that the high use of handphones dominates students because handphones have many positive impacts on users. This domination makes communication easier, finding information, searching teaching materials, and the learning process more accessible with the internet facilities provided. Providing entertainment facilities such as games, audio, and video; makes students and adults literate in technology so that all matters occur effectively and efficiently.

In the field of learning, mobile devices have great potential to change the learning environment from traditional classrooms to be more interactive and exciting. Educators teach without any time and place restrictions. Students can also study independently via handphones or smartphones (Raihan, 2022). According to Tondang & Arwita (2020), students use handphones to access the internet as a necessity in finding biology material or completing assignments from lecturers. In the end, the researcher concluded the conveniences that exist on handphones in the form of features that support learning to make the reasons why biology education students must and must have handphones as a fundamental need to keep better learning activities.

In addition, a device Biology education students also use a laptop. However, researchers found that laptop users among biology education students are only 7%. Research conducted by Jariyah & Tyastirin (2020) stated that the use of laptops is only about 22% compared to handphones. Ghofur & Rachma (2019), in their research, also demonstrated the use of laptops and computers that are less practical to use anywhere and anytime, so students rarely use them.

Internet Access Place

In general, there are several places where students can access the internet, such as campuses, outside campuses, homes, and internet cafes. Based on the percentage results in Figure 2, students who access the internet at home 48%, in-campus 28%, off-campus 16%, and internet cafes 8%.

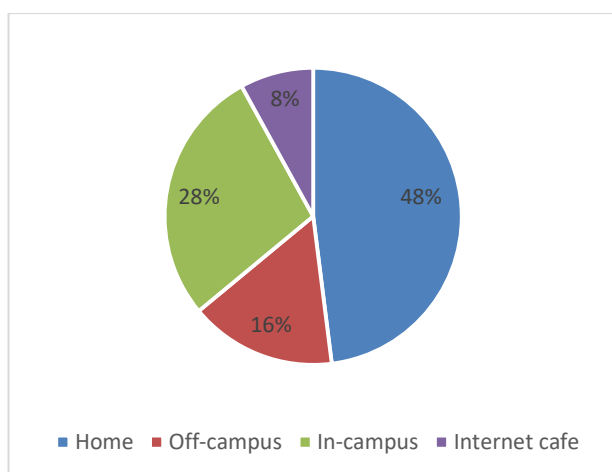


Figure 2 Place to Access the Internet

From Figure 2, many students take advantage of the internet network through hotspots from their handphones at home. Internet facilities on campus are minimal, and many students do not

know the wifi password, so students often access the internet at home.

According to the survey results, the home is one of the most common locations where students access the internet. Similarly, previous research has found that students use as many as 92% of their homes to access and participate in online lectures. This explanation demonstrates that internet connectivity is prevalent in student dormitories (Riadi et al., 2020). It is in line with research conducted by Nurdin (2015) that 50% of homes are the most common Internet access points. The significant number of students who use the internet at home indicates that the degree of skill and awareness of students regarding the availability of the internet in their home environment and student economy is stable, indicating the existence of an online network.

The next favorite place to access the internet is the campus. According to Nurdin (2015), The enormous number of students who access the internet on campus demonstrates that the campus setting can provide infrastructure in the form of the internet. However, the internet services supplied by the school are pretty restricted since the number of students exceeds the number of accessible internet connections. Therefore, external campuses and internet cafes are the other locations where students may use the Internet (Hasugian, 2011).

Accessed Internet Types

The results of the research are presented in Figure 3. It can be seen that the internet has several types of searching for information. According to Ningrum et al. (2019), the internet has an information search engine or search engine that has many types, including Google Scholar, Wikipedia, Brainly, Google Scholar, and YouTube.

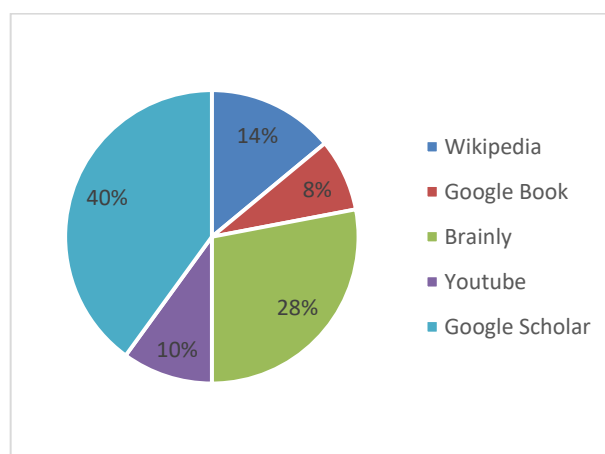


Figure 3 Accessed Internet Types

The research data is on the internet used by biology education students at Labuhanbatu University to help with lecture assignments and reading activities. In Figure 3, Google Scholar is the type of internet most used by students (40%), then Brainly (28%), Wikipedia (14%), YouTube (10%), and Google Scholar (8%).

Students are utilizing Google Scholar. According to previous studies, Google Scholar is a top-rated search engine service among academics. This platform facilitates the discovery of references to online reading materials (Husain, 2019). It is in line with research conducted by Khairiyah & Marlina (2022) that Google Scholar's response to the information needs of students is quite good, with a score of 3.26 with an interval scale of 3.25-4.0.

Google Scholar is a type of internet that helps students find information or references related to lecture material, journals, theses, final assignments, and theses. In search of a comprehensive source of educational literature, Google Scholar has a wide

range of online journals of scientific publications. Information on lecture materials and references for final assignments sought through Google Scholar is more relevant and accountable because there are official websites for educational institutions and tertiary institutions (Makmur et al., 2018). Suppose research results in scientific articles are in the form of journals found on Google Scholar. In that case, it can also make it easier for students to complete lecture assignments usually given by course lecturers, namely writing papers (Herawati, 2019).

Another kind of internet that students frequently utilize during lectures is brainly. This program makes it simple for students to discover answers without consulting additional resources. Without using other programs, students utilize this to accomplish tasks from their instructors. Brainly users can discuss and ask inquiries on learning-related issues and answers (Nugroho, 2021). In addition, students prefer to find references for assignments using Brainly rather than Wikipedia, Google Scholar, and YouTube.

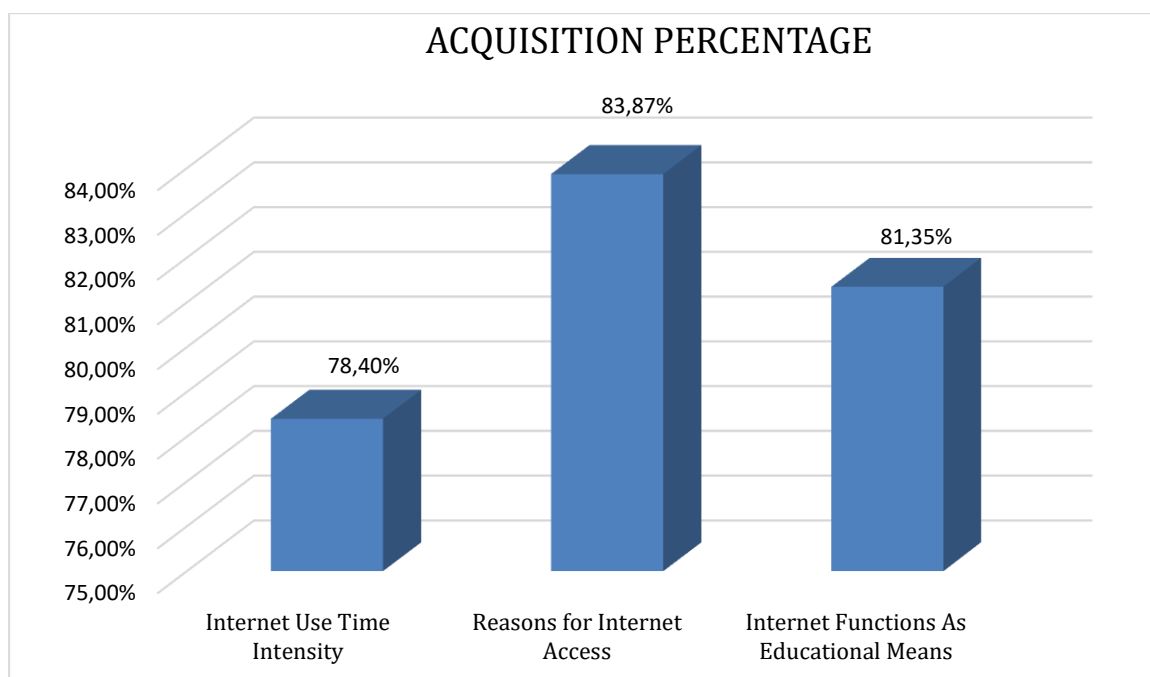


Figure 4 Internet Use Indicator

Internet Use Percentage

Based on the data in Figure 4, the indicator of students' reasons for internet access is 83.87%, the students' internet functions as educational means are 81.35%, and the internet use time intensity is 78.40%. Previous research by Hamka (2015) also found that 48% of students use the internet to browse lecture material. The web searching facility assists students in completing assignments from lecturers. Hasugian (2011) stated that 63% of

students with the primary purpose of using the internet to find scientific information.

According to Buwono & Dewantara (2020), internet-based media support lecture activities in which students access reference information from the internet. One of the reasons why students utilize the internet is the simplicity with which they can get lecture materials and complete tasks assigned by professors. It may be concluded from these statistics that students use the internet as a

source of scientific material to fulfill lecture requirements and expand their knowledge.

The effectiveness indicator of the internet as a teaching medium is 81.35 %. Most students consult the internet as a learning resource during lectures. Because internet-based learning media is efficient and regularly updated, it may be utilized to seek information and knowledge without time constraints. Students are encouraged to study independently with literary resources through digital libraries due to the benefits of the internet for educational activities (Walidaini & Arifin, 2018).

Prior research conducted by Muis & Pitra (2021) stated that students could easily and quickly submit messages in the form of course assignments using e-mail, one of the many useful internet tools. In addition to using newsgroups and chat groups to disseminate course-related information, students frequently utilize them in group activities.

Research conducted by Walidaini & Arifin (2018) also found that students used the internet to gain access to literature sources to gather knowledge relevant to the learning task. While the research results from Isdhana (2011) demonstrated that internet collaboration media tools such as zoom meeting, google meet, and google classroom are utilized by students for collaborative research. The availability of collaborative media facilitates the establishment of discussion activities and information sharing amongst students in various locations.

The intensity indicator for internet use is 78.40%. The questionnaire data shows that most students of the Biology Education Study Program took time and diligently accessed the internet to study biology. The length of internet access shows that students are very active in using the internet. The data shows that students accessing the internet for study needs only about 1-3 hours. It is in line with research conducted by Hasugian (2011) that the majority of students, 82%, access the internet for about 1-2 hours, and around 16% access the internet for about 3-5 hours. The length of time used to access the internet is influenced by several factors, including time, network speed, and the type of information.

Students use the internet to complete assignments from lecturers within a week about four times according to the class schedule. In looking for references or reading sources on lecture material, students access the internet for about 1-3 hours, and only a few access the internet for more than 3 hours to find references.

Internet-accessible references to course content are one of the reasons why students utilize the internet. Students are needed to continue

adding material and knowledge relating to their current study program; therefore, they must use the internet to contribute vast reference sources and insights (Komalasari & Naumi, 2018).

Internet Use among Students at Each Semester Level

Based on Figure 5, the percentage of internet use among biology education students at Labuhanbatu University in each semester, namely, the first semester was 54.03% (moderate), the third semester was 60% (moderate), the fifth semester was 71,57% (high) and semester VII as much as 83.11% (very high). Semester I students are new to the world of lectures, with interest in reading of 54.03%, so it takes time to adapt to every lecture activity. Higher education implements SKS (Semester Credit System), which requires students to study independently. According to Stiawan & Mulyaningtyas (2021), students can learn independently through references found on the internet. Students have not utilized the internet to its full potential. Hence it falls under the category of the medium. Adult curiosity about the outside world is still accompanied by a world of humor, similar to when they were in high school. Hence, adaption to the campus environment is still gradual compared to the severity of education. The same was true for third-semester pupils, with a 60% accomplishment rate in learning interest (moderate). Even after one year of sitting through lectures, students still need to adapt and acclimate to the campus learning environment.

The approach to learning at the high school level differs substantially from that of higher education institutions. If students enroll and graduate simultaneously at the high school level, then studying on campus requires personal learning independence. Students may develop their learning independence by reading a great deal of knowledge, which changes their attitude (Ahmad & Alek, 2016).

During the 7th semester, 83.11 % of students report using the internet. Ease of looking for articles and sources of content for a Bachelor's degree final project (thesis) using the internet. Look for sources Articles with a broad scope and an up-to-date discussion of current issues in the educational environment are often retrieved from the internet (Rukmana, 2021).

The internet use as a learning platform by Biology Education students at Labuhanbatu University is one of the numerous advantages of the internet for higher education institutions. The existence of various types of internet platforms can meet the needs of students in locating lecture

assignments and learning information, thereby making the use of the internet as a student learning platform in lectures more effective and efficient,

such as by recommending credible reference websites to support obtaining references to lecture material.

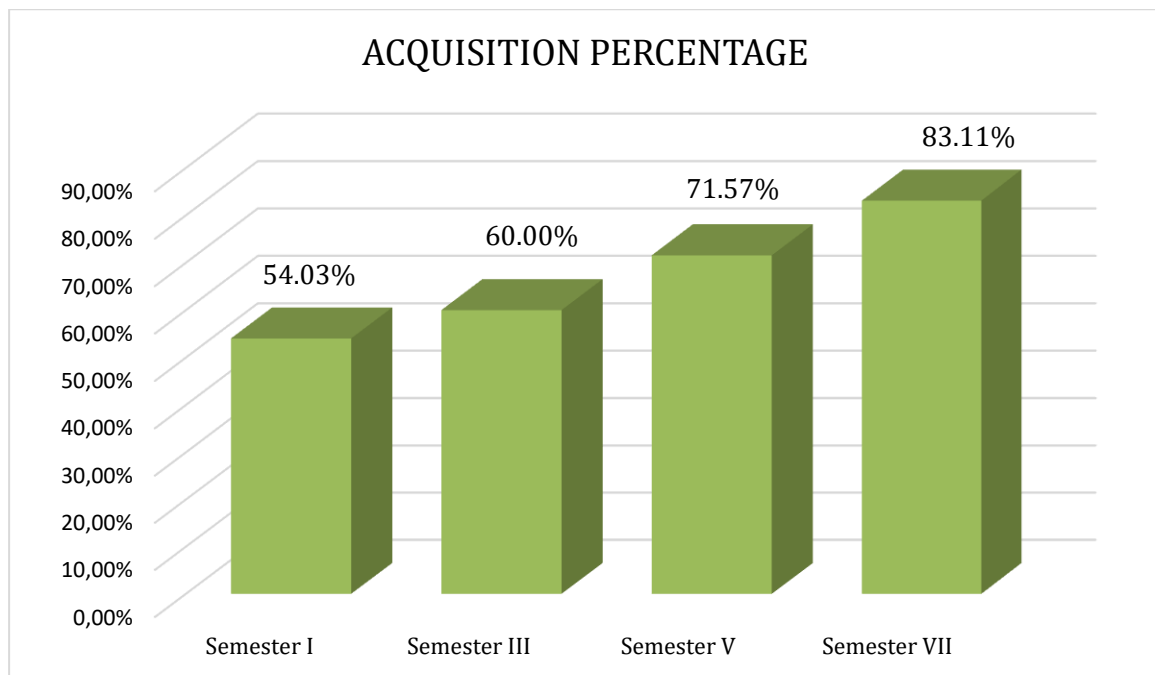


Figure 5 Internet Use among Students at Each Semester Level

D. Conclusion

Students increasingly use mobile devices to access the internet (93%), home is the most common location to access the internet (48%), and Google Scholar is the most frequently visited website (40%). The three aspects of indicators percentage about internet use as a learning platform for biology education students include: reasons for internet access is 83.87%, internet functions as educational means is 81.35%, and internet use time intensity is 78.40%. The percentage of internet usage among students at each semester level with the highest acquisition was in semester VII (83.11%; very high), and the lowest was in semester I (54.03%; moderate). Therefore, the researcher concludes that education must further optimize the use of this technology, particularly the internet, so that lecture activities can be more effective and efficient, such as by recommending credible reference websites to assist students in obtaining references for lecture material.

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