



# Implementation of Online and Independent Learning for Prospective Teacher Students

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**Abstract.** Education-related information technology is still developing and provides improvements to the learning process, such as strategies for teaching knowledge to students and new forms of learning media. Students and teachers alike need to be more adept at using the internet and new technology. Using computer information technology based on the Internet, often known as e-learning or virtual learning, is one technique to improve the learning capacity of online learning. The goal of this study is to evaluate how online and independent learning are used by future teachers in STKIP PGRI Sumatera Barat's biology education study program. PGRI Sumatera Barat. This kind of study is descriptive with a quantitative approach. Descriptive statistical analysis is the method of data analysis that is employed. Online learning was approved or accepted by 67.07 percent of prospective student teachers, 68.36% of online learning was carried out well, and 66.6% of the results student evaluation increases. According to an analysis of implementation of the Biology Education Study Program STKIP PGRI West Sumatra Padang's prospective students used independent and online study. This indicates that STKIP PGRI West Sumatra's online learning program aids the academic development of its prospective teacher students.

**Keywords:** Online learning · Independent learning · learning media

## 1 Introduction

Information technology is advancing in the realm of education and bringing new innovations to the learning process, including new learning media and strategies for teaching students from teachers. In order to use new technology and the internet effectively, teachers and students need additional training. In the era of the fourth industrial revolution, aspiring student instructors must also be adept at using technology. In the modern world, everything is digital, internet-based, becoming faster, with endless knowledge, and learning happens online [1].

There are several advantages to communicating between teachers and students when learning online. Online learning is distance learning that using telecommunications and

information technologies, such as the internet according to [2]. Online learning connects students to a variety of learning resources, including electronic books, subject matter experts, and online libraries. Students can learn from any location, at any time, without being constrained by geography or time constraints, thanks to online learning [3]. Online learning uses a platform, like Google Classroom, Zoom, or Google Meeting, Whatsapp, and others, to facilitate the teaching and learning process. To offer online learning services that are accessible to all study room participants is the goal of online learning [4].

Using computer information technology based on the Internet, commonly referred to as e-learning or virtual learning, is one technique to improve the learning capacity of online learning [5]. Virtual learning, often known as a virtual learning environment (VLE), is a type of learning that takes place on computers connected to the internet both inside and outside of educational institutions [6]. Virtual learning aims to overcome the separation of space and time between students and teachers through internet-based computer media. In addition to virtual learning, students can use a variety of web learning that can increase student knowledge.

Online learning takes place without space and time limits and can be carried out at any time. Students may learn independently, give timely comments, and choose materials from the library from any location thanks to online learning. Students can add knowledge and insight without restrictions through the internet [7]. Therefore, students can do independent learning without any obstacles in thinking and increasing their knowledge. The goal of free to learn is to ensure that the golden generation is ready for the digital age and does not fall behind other nations. In response to the demands placed on the educational system during the Industrial Revolution, the freedom to learn was created. 4.0. Free learning refers to a relationship where students and teachers work together to move and seek the truth rather than using teachers as a source of information [8]. The growth of the internet and technology is giving independent learning momentum. This study intends to examine how online learning is implemented for future teachers' pupils during their independent study time. Prospective students and educators are equipped to compete in the constantly evolving global education market in the fourth industrial revolution. Additionally, to create graduates who can compete in the workplace and keep up with scientific and technical advancements.

## 2 Methods

This kind of research uses a quantitative method and is descriptive. The research population consists of students registered in the Biology Education Study Program at STKIP PGRI Sumatera Barat in the even semester of 2020–2021 with 120 participants made up the study's population, and 58 participants served as samples. Sumatera Barat's STKIP PGRI Biology Education Study Program students were given questionnaires as part of the data gathering technique, which was a simple random sampling. The online learning analysis questionnaire examines three indicators: the acceptance of online learning by students, the use of online learning, and the outcomes of student evaluations of online learning. There were 18 statements total in this study. Descriptive statistical analysis is the method of data analysis that is employed.

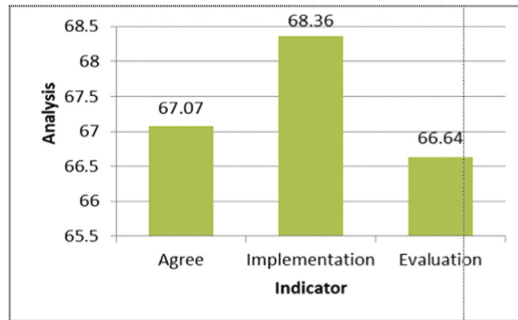


Fig. 1. The implementation of online and independent learning

### 3 Results and Discussion

According to the STKIP PGRI West Sumatra Padang's Biology Education Study Program's analysis implementation of online learning and independent learning, 67.07% of prospective student teachers agreed or accepted online learning, 68.36% Online learning was approved or accepted by 67.07 percent of prospective student teachers, and it was successfully implemented by 68.36 of online learning was carried out well and 66.6% of the results student evaluation increases (Fig. 1). This indicates that STKIP PGRI Sumatera Barat's prospective teacher students' learning processes are supported by online learning. Online learning at STKIP PGRI Sumatera Barat an e-learning platform. Students and lecturers can interact in the learning process, such as providing lecture materials, assignments, and evaluations. In addition, students can interact with other students and lecturers by using the features found in e-learning. Students agree that the implementation and evaluation are carried out through e-learning, this can be seen from filling out questionnaires that have been carried out by students.

Similar research results show that the online learning process can familiarize students to practice independently in the learning process [9, 10]. Universities as education implementers can conduct online learning, especially during the Covid-19 pandemic. Online learning as a forum in the learning process is very widely used today [11]. Online learning is widely needed and used in learning in the era of the industrial revolution 4.0 [12]. Universities must follow and use information technology so as not to be left behind with the progress of the times. Various efforts were made to improve the ability of students and lecturers. Providing e-learning and internet access for students and lecturers, so that students can access all learning information online. One type of autonomous learning is online learning. Independent learning means that students can obtain information from various sources and do not make lecturers information centers. Lecturers act as facilitators and a place for students to discuss and exchange opinions. Merdeka learning aims to prepare the golden generation in the digital era so that it does not lag behind other countries. In response to the demands placed on the educational system during the Industrial Revolution, the freedom to learn was created. 4.0. When students are free to study, they do not use their teachers as a source of knowledge but rather work together to explore and discover it [13].

The internet is usually used in online learning so that students can access a variety of resources for learning and teaching. During the teaching and learning process, online learning can establish connections between students and lecturers [14]. Android-based mobile iPhones, iPads, laptops, PCs, and phones can all be used for online learning. Online learning and independent learning have changed conventional forms of learning into digital-based learning. Digital learning uses digital learning media and learning resources are obtained digitally through web-learning and learning applications. Various learning webs are currently growing rapidly, such as Massive Online Open Courses (MOOC). Some examples of MOOCs are PhET, Courser, and IndonesiaX. Web learning <http://PhET.colorado.edu> is a site that provides interactive learning simulations packaged in games that make it easier for students to explore learning. Web learning <http://course.ra.org> is an online learning platform from America. Coursera provides a variety of online learning in collaboration with universities around the world [16] IndonesiaX serves the needs of learners through free online courses every day. Course participants can take topics according to their individual needs. MOOC is a large-scale, free, and accessible distance-learning method for anyone, and anywhere in the world. Online learning has many benefits, including convenience, time savings, cost effectiveness, ease of use for teachers and students, utilization of graphics, legible writing, a decrease in writing and punctuation issues, and page layout [17].

According to research findings similar to those of [18], biology education study program students at FKIP Jambi University are generally satisfied with online learning. Students feel more comfortable in asking questions in online learning without having to be afraid of mistakes. Likewise, the results of research by [19] said that online learning said that the awkwardness is eliminated by online learning, which ultimately encourages students to express themselves freely by asking questions and expressing thoughts. Some advantages are obtained through online learning, but there are always disadvantages.

## 4 Conclusion

Analysis the implementation of online and independent learning findings from the Biology Education Study Program STKIP PGRI Sumatera Barat, Padang revealed that 67.07% of prospective student teachers agreed or accepted online learning, 68.36% of online learning was carried out well, and 66.6% of the results student evaluation increases. This indicates that STKIP PGRI Sumatera Barat's prospective teacher students' learning processes are supported by online learning.

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