

DEVELOPMENT AND USE OF THE INTERNET IN EDUCATION

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Abstract: Globalization has triggered a shift in the world of education from conventional face-to-face education towards more open education. Internet technology has become a popular medium for developing global education. The internet network is a computer network that can connect computers throughout the world so that all types and forms of information can be communicated between parts of the world globally and instantly. In the world of education, the internet is an ideal medium for carrying out distance learning activities. Through the internet, you can connect students and lecturers, view class schedules, send course assignment files, see grades, consult, and hold virtual discussions. For teachers, the internet is useful for developing their profession, because it can: (a) increase knowledge, (b) share resources among colleagues, (c) collaborate with teachers abroad, (d) opportunity to publish information directly, (e) organize regular communication, and (f) participating in local and international forums. Apart from that, it can also be a source of teaching materials by accessing online learning plans or syllabi with new methodologies, accessing lecture materials that are suitable for students, and being able to convey their ideas. However, the use of the internet in the educational sector must be controlled and supervised so that it does not have a detrimental impact on the educational mission itself.

Keywords: internet; education; technology

Abstrak: Globalisasi telah memicu terjadinya pergeseran dunia pendidikan dari pendidikan konvensional yang bersifat tatap muka menuju pendidikan yang lebih terbuka. Teknologi internet telah menjadi media populer untuk mengembangkan pendidikan global. Jaringan internet merupakan jaringan komputer yang dapat menghubungkan komputer-komputer di seluruh dunia sehingga segala jenis dan bentuk informasi dapat dikomunikasikan antar belahan dunia secara global dan instan. Dalam dunia pendidikan, internet merupakan media yang ideal untuk melaksanakan kegiatan pembelajaran jarak jauh. Melalui internet, Anda dapat menghubungkan mahasiswa dan dosen, melihat jadwal perkuliahan, mengirim file tugas mata kuliah, melihat nilai, berkonsultasi, dan mengadakan diskusi virtual. Bagi guru, internet bermanfaat untuk mengembangkan profesinya, karena dapat: (a) menambah pengetahuan, (b) berbagi sumber daya antar rekan kerja, (c) menjalin kerjasama dengan guru di luar negeri, (d) kesempatan mempublikasikan informasi secara langsung, (e) mengatur komunikasi secara teratur, dan (f) berpartisipasi dalam forum lokal dan internasional. Selain itu juga dapat menjadi sumber bahan ajar dengan mengakses rencana atau silabus pembelajaran online dengan metodologi baru, mengakses materi perkuliahan yang sesuai untuk mahasiswa, dan mampu menyampaikan ide-idenya. Namun pemanfaatan internet dalam bidang pendidikan harus dikendalikan dan diawasi agar tidak memberikan dampak yang merugikan terhadap misi pendidikan itu sendiri.

Kata kunci: internet; pendidikan; teknologi

Introduction

In the current information age, internet technology has become a "basic" need for humans who want to control various information in the universe (Levin & Mamlok, 2021; Tohara, 2021). The internet network is a computer network that can connect computers throughout the world so that all types and forms of information can be communicated between parts of the world globally and instantly (Kaushik, Dahiya, & Sharma, 2021; Sharma et al., 2021). Information technology has opened the world's eyes to a new world, new interactions, new marketplaces, and a world business network without borders (Idris et al., 2020; Muttaqin et al., 2022).

Technological developments such as the internet have changed people's interaction patterns, both in business, economic, social, and cultural interactions (Achmad, 2021; George et al. 2021). The internet has made a major contribution to society, companies/industry, and government (Ganjavi & Fazlollahtabar, 2021; Bronner et al. 2021). The presence of the internet supports the effectiveness and efficiency of company operations, especially its role as a means of communication, publication, and a tool for obtaining various information needed by institutions Szymkowiak et al., 2021; Ekowati et al., 2021; Widjayanto et al. (2022).

In the field of education, the internet is an ideal medium for carrying out distance learning activities. Through the internet, you can connect students and lecturers, view class schedules, send course assignment files, view grades, consult, and even hold virtual discussions (Naim & Mokodenseho, 2022).

The use of internet technology for education was pioneered by military schools in the United States around the 80s (Francois & Lin, 2021; Moll, 2021). Since then, the trend of internet technology for education has developed rapidly and more than 100 universities in the United States have taken advantage of it (Wang et al., 2021; Gordon & Schultz, 2020). Likewise, this technology is developing rapidly in other countries. The results of a survey conducted by James W. Michaels and Dirk Smilie currently provide around 25% of higher education providers in the world that offer their programs via the internet (Yusuf et al. (2010). The vision of this university is to reach and provide services to the market without being limited or needing

to expand its physical facilities.

Allah SWT says in the Qur'anic verse Surah Ar Rahman: 33

يَمْعَشِرَ الْجِنَّ وَالْإِنْسِ إِنْ اسْتَطَعْتُمْ أَنْ تَنْفُذُوا مِنْ أَقْطَارِ السَّمَاوَاتِ وَالْأَرْضِ
فَأَنْفُذُوا لَا تَنْفُذُونَ إِلَّا بِسُلْطَانٍ

33. *O company of jinn and mankind, if you are able to pass beyond the regions of the heavens and the earth, then pass. You will not pass except by authority [from Allah].*

Surah ar-Rahman verse 33 is a verse that invites humans to cross heaven and earth. At the same time reminding that this is not possible except for Allah.

There are three interpretations related to the verse above, namely about humans' inability to escape from God's power, humans' inability to avoid accountability in the afterlife, and God's freedom to explore outer space. This interpretation contains motivation for studying and developing technology. Because humans cannot cross heaven and earth except with strength, the fruit of science and technology, however, this is still limited.

In Indonesia, the use of internet technology began around 1995 when the opened internet services. Then in the 1997s, it started to grow rapidly (Saptaningrum, 2021; Setiawan et al., 2020). However, it must be acknowledged that currently the use of this technology is still dominated by institutions such as banking, commerce, mass media, or industry (Kumar, 2020); Fernández-Villaverde et al., 2021; Heiberg et al., 2020). If you look at its potential, in the future educational institutions may dominate it.

The use of internet technology for education in Indonesia officially began when telematics was established in 1996 (Tosida et al., 2019; Tosida et al., 2020). In the same year, the Asian Internet Interconnections Initiatives was formed. This network, which is coordinated by ITB, aims to introduce, and develop internet technology for education and research, develop the internet backbone for education and research in the Asia Pacific region together with universities in the ASEAN region and Japan, as well as develop internet information which includes aspects of science, technological, cultural, social, and economics (Stubbs, 2002; Malik, 2018). To date, 21 higher education institutions (public and private), national research institutions, and related institutions have joined.

As time goes by, the use of the internet for education in Indonesia, especially in universities, continues to grow. For example, in 2001 the virtual university Indonesia Bangkit University Teledukasi (IBU Teledukasi) was founded in collaboration with Tun Abdul Razak University Malaysia, several universities also offer on-line course programs. The Open University develops on-line tutorials, the Indonesia Digital Library Network develops electronic libraries, and others (Rechdalle, 2005). The use of the internet for education is not only for distance education but is also developed in the conventional education system (Bates, 2005; Adnan & Anwar, 2020).

Currently, educational institutions, especially universities, are starting to pioneer and develop internet-based learning models to support the conventional education system (Paul & Tait, 2019; Retnawati, 2019). However, innovation always has pros and cons. The pros use various pretexts to convince those who are against the benefits of technological sophistication such as facilitating communication, world information sources, cooperation, entertainment, and shopping activities (Corradini, 2020; Salgues, 2018). On the other hand, it causes several negative impacts such as relatively large costs and easy influence of foreign cultures. The internet as a new media is also not very familiar to the public, including educational staff. Therefore, it is very necessary to continue to study, research and develop e-learning models.

Results and Discussion

Development of Information Technology

Information technology is a technology used to process data, including obtaining, compiling, storing, and manipulating data in various ways to produce quality information. Quality information is information that is relevant, accurate, and timely for personal, business, and government purposes as well as being strategic information for decision-making. This technology uses a set of computers to process data and a network system to connect one computer to another computer as needed (Rathore et al. (2016). Telecommunications technology is used so that data can be distributed and accessed globally (Stair & Reynolds, 2018; Benckendorff et al., 2019).

The role that this information technology application can provide is to obtain information, such as information about health, hobbies, recreation,

and spirituality (Himma, 2020). Then, for professions such as science, technology, trade, business news, and other jobs in business and government. A means of cooperation between one individual or group and another without knowing the boundaries of distance and time, country, race, economic class, ideology, or other factors that can hinder the process of exchanging ideas. The development of information technology spurs a new way of life, from the beginning of life to the end. This kind of thing is often called e-life, meaning that this life is influenced by various needs electronically. The application of information technology in various aspects of life is becoming a culture, such as e-commerce, e-government, e-education, e-library, e-journal, e-medicine, and e-laboratory, e-biodiversity (Haay & Sitokdana, 2022).

Internet as an Information Technology Product

Internet is short for internetwork. It means a computer network that connects several circuits. The internet network is also defined as a computer network that can connect computers throughout the world so that various types and forms of information can be communicated between parts of the world instantly and globally. Apart from the two definitions above, the internet is also referred to as a collection of computer networks that connect academic, government, commercial, organizational, and individual sites. The Internet provides access to telecommunications services and information resources for millions of users spread throughout the world. Internet services include direct communication (e-mail, chat), discussions (Usenet news, mailing lists, bulletin boards), distributed information resources (World Wide Web, Gopher), remote login and file traffic (Telnet, FTP), as well as various other services.

In line with the development of the internet, many activities have been carried out using the internet network, such as eCommerce, e-banking, e-government, e-learning, and others. One of the related activities is the learning process. E-learning is a manifestation of the application of information technology in the field of education in the form of virtual schools. E-learning is an effort to create a transformation of the teaching and learning process in schools in digital form bridged by internet technology.

Internet in Education

Globalization has triggered a shift in the world of education from conventional face-to-face education towards more open education. For example, in France, there is the "Flexible Learning" project, which proves Ivan Illich's prediction in the early 70s about a "Deschooling Society" in which extreme teachers would no longer be needed in learning (Wheeler, 2015). Bishop (1989) predicted that future education would be flexible, open, and accessible to anyone who needed it regardless of type, age, or previous educational experience (Muhayyang et al., 2021). Meanwhile, Mason (2005) in 1994 argued that future education will be determined more by information networks that enable interaction and collaboration, rather than school buildings. But technology will widen the gap between the rich and the poor. Meanwhile, Bates (2004) argues that technology can increase quality and reach if used wisely for education and training, and has a very important meaning for economic prosperity. From the views of several scholars above, it can be concluded that with information technology, especially the internet, future education will be more open and two-way, diverse, multidisciplinary, and related to work productivity and competitiveness.

The rapid development of information technology can now be widely applied in the distance learning process by using the internet to connect students and lecturers, view lecture schedules, send assignment files, view grades, consult, and even hold discussions. Web-based distance education must have elements, including a student activity center, where students can improve their abilities, read lecture material, search for information, and so on; Interaction in groups in the form of discussions between students and lecturers can be involved; Student administration system, where students can see their status and achievements; Exploration of material and exams for students who need it, according to their abilities; digital library, which contains various library information in the form of databases and online library information that can be accessed.

The web is an internet technology that has been developing for a long time and is most used in the implementation of long-distance education and training (Zhang, 2020). In general, applications on the internet are divided into two types, namely: synchronous and asynchronous systems (Gunawan

et al., 2021). Synchronous system is an application that runs in real-time where all users can communicate at the same time, for example: chatting and video conferencing. Meanwhile, an asynchronous system application does not depend on a certain time, where all users can access the system and communicate between them according to their respective times, for example: mailing list and email (Puspitasari, 2021).

Keller (d.1996), an educational technologist in the 1960s, criticized the application of conventional learning methods which were less interesting to students' daily lives. According to him, students must be given wider access to making decisions about what they want to learn according to their interests, needs, and abilities. He also said that the teacher is not the only authority on knowledge in the classroom. Students must be given independence to learn by utilizing various learning resources (Akeru, 2017).

The wealth of information that is now available on the internet has further reached the hopes and even the imaginations of the inventors of the system. Through the internet, unlimited and actual sources of information can be accessed very quickly. The existence of the internet allows someone in Indonesia to access libraries in the United States in the form of a Digital Library (Bunahri & Hermawan, 2021). There has been a lot of experience regarding the benefits of the internet in research and completing student final assignments. Exchanging information or asking questions and answers with experts can also be done via the internet. Without internet, many final assignments, and theses or even dissertations might require more time to complete.

Academics are one of the parties who have benefited most from the emergence of the internet. Various references, journals, and research published via the internet are available in abundance. Students no longer must rummage through books in the library as material for doing their college assignments (Madakam et al., 2015). Just use a search engine, and the materials needed can be quickly done. Apart from saving energy and costs in searching, the materials that can be found on the internet tend to be more up-to-date.

For teachers, the internet is useful in developing their profession (Szymkowiak et al., 2021; Abdel-Basset et al., 2019), because the internet can

increase knowledge, share resources between colleagues, collaborate with teachers abroad, can publish information directly, organize regular communications, and participate in local and international forums. Apart from that, teachers can use the internet as a source of teaching materials by accessing lesson plans or online syllabi with new methodologies, accessing lecture materials that suit their students, and being able to convey their ideas. Meanwhile, students can use the internet to learn independently and quickly to increase and expand their knowledge and learn to interact and develop abilities in the field of research.

Ristiyono (2020) mentions several benefits of the internet for education in Indonesia, namely access to libraries, access to experts, online lectures, academic information services, provision of data search engine facilities, provision of discussion facilities, and collaboration facilities. Purbo (2017) said that the internet has three positive impacts on education, namely that students can easily take courses anywhere in the world without institutional or country boundaries; Students easily learn from experts in their fields of interest; and learning materials are easily accessible from various corners of the world without depending on the school where they study. Apart from that, now there is an internet library that is more dynamic and can be used throughout the universe. In line with that, Katz and Rice (2002) said that the benefits of the internet for education are that it can provide access to information sources, access to resource persons, and as a medium for collaboration. Access information sources, namely online libraries, literature sources, access research results, and access lecture materials. Access to sources can be communicated without having to meet physically. Meanwhile, as a collaboration medium, the internet is a medium for conducting joint research or creating a kind of joint paper.

Research in the United States on the use of communication and information technology for educational purposes is known to have had a positive impact (Bulman & Fairlie, 2016). Another study conducted by the Center for Applied Special Technology (CAST) found that the use of the internet as an educational medium has shown a positive impact on student learning outcomes (Cradler et al., 2002; Mistler-Jackson & Songer, 2000).

The internet as an educational medium has many advantages. However,

it has weaknesses, including that internet infrastructure is still limited and expensive, funds are limited, and our reading culture is still weak. This is where the challenge lies in how to develop a learning model via the internet.

Various experiences and literature provide clues about the benefits of using the internet, especially in open and distance education, including: Students can communicate easily via internet facilities regularly when communication activities are carried out without being limited by distance, place, and time; Teachers and students can use structured and scheduled teaching materials or study guides via the internet so that both of them evaluate each other regarding the teaching materials studied; Students can always study or review teaching materials on the computer if necessary; If students need additional information related to the material being studied, they can easily access it via the internet; Teachers and students can hold discussions via the internet which can be attended by many participants, thereby increasing knowledge and broad insight; Efficient for those who live far from conventional universities or schools, as well as for those who are busy working, and so on.

The use of the internet for learning or e-learning is also not free from various weaknesses (Wong, 2017), including: Lack of interaction between teachers and students or even between students themselves, which ultimately slows down the formation of values in the teaching and learning process; The tendency to ignore academic or social aspects, and instead encourage the growth of business/commercial aspects; The teaching and learning process tends to be called training rather than education; Changes in the role of teachers from those who previously mastered conventional learning techniques, are now required to know learning techniques that use ICT; Students who do not have high learning motivation tend to fail; Not all places have internet facilities due to the lack of electricity, telephone or computer availability; Lack of personnel who know and have skills in internet matters; and lack of mastery of the language used on the computer.

Conclusion

The internet has the potential to make the teaching and learning process more interesting and meaningful. Instructors can bring the use of the internet into the scope of learning wisdom with the available facilities. Even

though internet access is not yet widespread at school level, internet facilities are everywhere, such as at home, libraries, cafes, etc. The use of computers and the internet is believed to be able to help create an independent learning atmosphere that prioritizes three important elements, namely self-access, self-paced and self-directed so that it will produce citizens who are skilled, independent, creative, innovative and have noble character. Like many other things in the world, the internet, apart from offering benefits, has many negative impacts. The abundance of information available from various sources requires internet technology users to be careful in sorting it. Because of its free nature, it is easy for irresponsible parties to display misleading information, or even lead to crime and immorality. Not all information obtained from the internet is guaranteed to be accurate. Therefore, internet users in the education sector must be controlled and supervised so that they do not have a negative impact on the educational mission itself.

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