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The cover art features a dark blue background with a glowing globe on the left side, showing continents in a lighter blue. To the right, there are vertical lines of binary code (0s and 1s) that appear to be receding into the distance, creating a sense of depth. Several bright, multi-pointed starburst effects are scattered across the scene, particularly near the binary code and the globe.

International Handbook of
E-learning, Volume 2
Implementation and Case Studies

Edited by Mohamed Ally and Badrul H. Khan

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E-learning Implementation at an Open University

The Case of Universitas Terbuka (The Indonesia Open University)

Dewi Padmo and Sri Harijati

Introduction

In many countries, information and communication technology (ICT) has become an integral part of the learning delivery system. The Indonesia Open University (Universitas Terbuka, or UT) is a distance learning institution and realizes that ICT plays an important role in the administration, management, and delivery of learning. The services of UT cover all of the Indonesia provinces as well as some overseas countries. With such a large coverage area, utilization of ICT at UT has become very important. This chapter will share UT's experience in utilizing ICT, specifically e-learning, as one of the academic services it provides faculty and students.

Research suggests that educational institutions that seek to implement ICT as a learning innovation should pay attention to the answers they receive to questions such as how, what, and why (Mahdizadeh, Biemans, & Mulder, 2008). Furthermore, Mahdizadeh et al. (2008) mentioned that when universities promote ICT use, they should understand teachers' and learners' attitude toward it. Therefore, when utilizing ICT to implement e-learning, teachers' and students' e-readiness should be considered. Bowles (2004) defined e-readiness as an organization's readiness to use e-learning in many aspects. Bowles (2004) also stated that an organization's readiness to take advantage of e-learning should be declared before the organization introduces e-learning. For UT, concerns related to the wide use of ICT include the limited ICT infrastructure in Indonesia as well as IT literacy and the readiness of human resources (including faculty and students).

Context and Challenges

One of the main reasons for using ICT at UT is the geographical aspect. Indonesia is one of the largest archipelago countries with a population of over 240 million, the fourth most populous country in the world. The country is mostly water (81%) with about 17,508 islands divided into 33 provinces, 497 districts, and some 69,065 villages (per January 2009; Ministry of Home Affairs, 2012). Indonesia has five major islands: Java, Sumatra, Kalimantan, Sulawesi, and Papua. Java is the most populous island, and more than half of the population of Indonesia (65%) lives



on that island. Although the majority of Indonesians are Moslem, Indonesia consists of various ethnic, linguistic, and religious groups. With such a large and diverse population, ICT would seem to be the perfect solution to connect all people in the country. Unfortunately, ICT access in Indonesia is still limited and mostly concentrated in big cities.

Public access to ICT requires an infrastructure, a regulatory framework, and financing. Among the three, infrastructure plays the key role for widening access. Public access to ICT can be viewed from rates of Internet penetration—that is, the percentage of Internet users within a region in comparison to its population. Despite the fact that 57% of the world population lives in Asia, Internet penetration in Asia is only about 27.5%, while the world average is at 34.3%. Specifically for Indonesia, although Indonesia is within the top five Internet users in Asia, its penetration rate is only 22.1% (as of June 2012) and even lower if we look at the penetration of Internet subscribers (1.9%). It appears that China has the highest number of people who actively use the Internet, followed by India and Japan. Within ASEAN countries, Singapore seems to have the highest penetration (75%), followed by Malaysia (60.7%). These data indicate that the ICT infrastructure in Asia, and particularly in Indonesia, is still very limited, hindering wide access of the public to the Internet and thus to the ample open educational resources available in the network (Internet World Stats, 2012).

It is interesting to note that the growth of Internet users in Indonesia is probably mostly the result of the high mobile phone penetration, which is very high (110%), with the number of subscribers passing 260 million by early 2012, up by almost 200 million from just five years earlier (Evans, 2012). The wide use of mobile devices has also made Indonesia one of three countries with the highest number of Facebook users at almost 48 million (Internet World Stats, 2012).

The Internet access challenge was also revealed by a web accessibility survey conducted by PANdora Network in 13 of Asia's countries (Baggaley et al., 2007). The survey found that the time taken to access web pages between major Asian cities (browser loading times) was up to four times slower than commonly prescribed as acceptable, and pages frequently failed to load. At surveyed institutions, all web hits went through over 20 intermediate web servers before reaching their target, or failing to reach their destinations altogether. By comparison, access or hits by Canadian users may only go through six hops to reach a destination site. The survey revealed that Asian web hits are commonly routed through countries such as the US and Russia. Thus, improved local web routes are needed to address this problem.

Gradually, the Indonesian government is also building the Internet infrastructure in the outermost, farthest, and left-behind regions, through the Ministry of Communication and its Internet Service Plans Circumference (PLIK) and Mobile Internet Service Plans Circumference (MPLIK) programs. With these initiatives, especially with the District Internet Car Service Center at all districts in Indonesia, by 2014 the number of Internet users in Indonesia has reached 153 million, which is 61.2% of the population (Noor II, 2014). The development of mobile technology seems to have compensated for the lack of physical ICT infrastructure by providing people access to the Internet. In fact, this has given rise to the huge potential market for the use of mobile devices in Indonesia. Data show that the penetration rate of the mobile phone (number) in Indonesia has reached over 110%.

Universitas Terbuka at a Glance

Universitas Terbuka (UT) is a state university and the only university in Indonesia that is entirely based on a distance education system. It was established in 1984 and was designed to be a flexible and inexpensive university, focusing on serving people who do not have the opportunity to attend conventional, face-to-face higher education institutions for various reasons, including lack

of funding, living in isolated and rural areas, and working full time. With distance education, it is expected that UT will increase access to higher education and at the same time promote equity of quality higher education to all citizens of Indonesia.

There are three policies in place to widen access to and ensure equity in higher education. The first policy governs operation on a nation-wide basis. The operational system is managed by a head office (HO) in Jakarta and 37 regional offices (ROs) located throughout the country. The ROs are responsible for carrying out the daily operational activities, including student registration, face-to-face tutorials, some administrative counseling, and examinations. Thus, ROs are an important part of UT's system of organization and management.

The second policy governs access, equity, and the selection of technology. UT is designed to be a flexible and affordable university. The challenge for UT has been to provide quality instruction that is accessible to all students with different characteristics, levels of economy, access to ICT, as well as learning habits. It is based on the findings of many studies combined with the availability and accessibility of different kinds of technologies to different students. Some UT students have limited access to technology and limited proficiency in the use of computer and Internet technologies. Other UT students do not have access to a computer and the Internet, and are computer illiterate. Currently, UT is using print media as the basis for the design and delivery of its multimedia learning packages, and a range of learning support services assists the design and delivery of the learning materials.

UT distance learner students are expected to study independently using the provided course materials. Students, as needed, may take advantage of the various learning support services available to them. The learning support services include tutorials (face to face and online), nonprint (offline) and online supplementary learning materials, dry laboratory, online test exercises, digital library, e-bookstore, and online examination. In short, the design of the instructional system is that of a "supermarket" and provides a place for students to take advantage of different learning support services according to their circumstances.

The third policy governs and accommodates the different needs of students by offering various study programs. UT offers more than 1,000 courses within 33 study programs under four faculties and one school: the Faculty of Economics, the Faculty of Social and Political Sciences, the Faculty of Mathematics and Natural Science, the Faculty of Teacher Training and Educational Sciences, and the Graduate School. The Faculty of Teacher Training and Educational Sciences offers only in-service training programs for practicing primary and secondary school teachers. Starting in 1990, when UT was appointed by the Indonesian government to upgrade primary teacher qualification, the study program of Primary School Teacher Trainings (for classroom teachers) is the biggest program, with a total student body of almost 468,000 students in 2012.

As a result, UT has been able to reach many students in Indonesia who would otherwise not have access to higher education. This outcome is reflected in the large number of students and the spread of their age groups, study programs, and locations. In total, UT has a student body of 585,700 active students. Table 19.1 shows the number of students by faculty in the second semester of 2012.

With regard to student characteristics, UT's students are mostly working adults (92%) and female (67%). While some studies suggest that female students are underrepresented in higher education, this is not currently the case at UT. UT has a higher number of female students than male students. Another important piece of data is the range of students with regard to age. Studies have shown that distance education can serve the education needs of people who have passed "traditional" school age.

Table 19.2 shows that UT successfully caters to older students and that 80% of UT's students are above the typical age of the average university student (i.e., over 24 years old). The

Table 19.1 The Number of Students (2012.2)

| Faculty | No. of Students | % |
|------------------|-----------------|-------|
| Teacher Training | 467,969 | 79.90 |
| Science | 4,696 | 0.80 |
| Social Science | 87,289 | 14.90 |
| Economics | 23,834 | 4.07 |
| Graduate School | 1,912 | 0.33 |
| Total | 585,700 | 100 |

Table 19.2 Students' Profile by Age (2012.2)

| Age | No. of Students | % |
|-------|-----------------|-------|
| = <24 | 114,730 | 19.59 |
| 25-29 | 153,801 | 26.26 |
| 30-34 | 102,400 | 17.48 |
| 35-39 | 57,108 | 9.75 |
| 40-44 | 63,720 | 10.88 |
| = >45 | 93,941 | 16.04 |
| Total | 585,700 | 100 |

Table 19.3 Students' Profile by Location (2012.2)

| Location | No. of Students | % |
|---------------|-----------------|------|
| Sumatra | 167,588 | 28.6 |
| Java | 225,938 | 38.6 |
| Kalimantan | 59,621 | 10.2 |
| Nusa Tenggara | 42,546 | 7.2 |
| Sulawesi | 73,328 | 12.5 |
| Moluccas | 8,829 | 1.5 |
| Papua | 6,536 | 1.1 |
| Abroad | 1,314 | 0.2 |
| Total | 585,700 | 100 |

older student is someone who, for whatever reason, did not previously have the opportunity to attend higher education. This may be due to the student's economic and/or geographical situation. Many students and alumni state that UT provides a second chance for individuals to obtain a university degree without having to leave work, home, or their town.

Another example of how UT addresses equity in higher education is by the representation of students throughout the country. Table 19.3 shows that UT students come from all islands (small islands are combined with the closest big island). Although 38% of students live in Java, UT has students in all subdistricts and inhabited islands in Indonesia. This is significant and has been acknowledged by the government as well as people around the country. Throughout Indonesia, you can easily meet a UT student or someone that has a UT student in his or her family or neighborhood.

The History of Universitas Terbuka's Online Learning Services

An open university, UT has relied on technology since its beginning. However, the use of technology for learning purposes only began in 1996 when UT decided to develop an ICT-based learning support service, utilizing the Internet that came to Indonesia in mid-1995. Through its Media Research Center (a center that was in charge of research and development related to the use of media and ICT), UT initiated a pilot project for online tutorials in the form of mailing-list-based tutorials. The tutorial was delivered using a mailing list for a group of students in a certain course that was administered by tutor. This trial served in order to identify the readiness of tutors, students, and technical support in managing online tutorials. The mailing-list-based tutorials were used for almost 4 years (1996–2000). At the end of 2000, the total number of courses provided with mailing-list-based tutorials was around 80 courses.

In 2000, a web-based Learning Management System (LMS) became available and the term *e-learning* became popular among Indonesians. UT then moved its online tutorial services into an open-source LMS platform called Manhattan Virtual Classroom (MVC). Using MVC, the number of tutorial courses also increased. By 2003, 201 courses were accompanied by online tutorials. Although MVC was better than a mailing-list-based tutorial, it was not completely satisfactory. It was not compatible with the existing student record system (SRS) of the university. This incompatibility caused difficulty in identifying and verifying participants enrolled in online tutorials. There were many participants who were not registered as UT's students. In addition, students' performance in tutorials (assignment scores) could not easily be integrated into their examination scores. At the time, many new open source LMS became available. Based on a technical evaluation of several LMSs, in 2005 MVC was replaced by a better and user-friendlier LMS called Moodle. With Moodle, only registered students can participate in UT's online tutorials, and any scores given by the tutors can be automatically integrated with students' examination scores. Scores are processed in the Examination Center and stored in the SRS. Moodle continues to be used with many modifications and additions that better suit the growing features of UT's online learning services. The number of courses accompanied by online tutorials has also increased. Starting in 2013, online tutorials will be provided for all courses (around 1,000).

It is important to note, however, that because of some students' limited access to the Internet, participation in online tutorials is not mandatory except for students in the graduate school. In graduate programs, online tutorials are designed at the same time as the face-to-face tutorials. To encourage students to participate in online tutorials, UT has a policy that students who participate in online tutorial will get a participation score that contributes to their final grade. In 2002, the participation score percentage of contribution to the online tutorial final grade (including tutorial assignments) was set at 15% of the final grade. In 2005, the participation score contributed 50% of the final grade. For the graduate school, students' participation in online tutorials is compulsory, and it contributes 60% of the final grade. To further development of online learning at the graduate level, in 2012 UT started two programs, a Master of Management and a Master of Public Administration, that are completely online or e-learning.

In 2002, UT began to provide students with web-based supplementary learning materials for its courses. The web-based supplementary learning materials (known as web-supplements) were designed to provide students with current and up-to-date content to enrich the learning materials (most of which are print). About 120 courses were provided web-supplements by 2009 (Padmo, Mutiara, & Kurniati, 2009); and by 2012 no less than 752 courses were web-supplements. These supplements are now called open coursewares because they are open for public access. Open coursewares are UT's contribution to the global movement to provide open

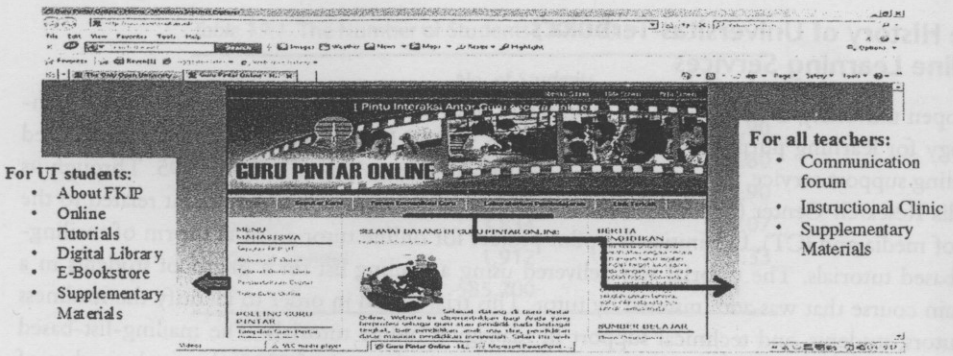


Figure 19.1 Guru Pintar Online Portal

Reprinted with permission from Guru Pintar Online.

educational resources (OER). In addition to the OER repository, for the past four years, UT has been developing and uploading video-based materials to its Internet TV portal and a comprehensive Digital Library. This library includes a Virtual Reading Room that contains full-text digitized print materials. All of the online learning support services are accessible through the UT Online Learning Center portal (www.student.ut.ac.id).

Teacher education is UT's biggest program, and UT has a dedicated portal for teachers. This portal, Guru Pintar Online (<http://gurupintar.ut.ac.id>), serves teachers in Indonesia and aims to facilitate continuous learning of teachers. The portal contains a forum where teachers can interact with each other, an instructional teaching clinic where teachers can learn from other teachers through video-based real cases, as well as numerous materials developed by both UT and other linked resources. The cover page of the Guru Pintar Online portal is shown in Figure 19.1.

Design and Management of Online Tutorials as E-learning

As previously mentioned, the form of e-learning at UT is currently dominated by the application of online tutorials for each course as part of the learning process. Online tutorials are designed as one of many learning support services provided to students that are directly associated with the courses they take within a semester. Within UT's system, students are allowed to take a maximum of 10 courses per semester; and students may also take zero courses without any notification nor penalty. When a student wants to take part in an online tutorial, the student activates his or her online account using the student number and specified password. Once the account is activated, the student can log in to the student's personal tutorial online web page that shows the student's list of registered courses. As mentioned earlier, the online tutorial is delivered using Moodle. Each course has its own virtual tutorial class facilitated by a team of tutors (although some courses may only have one tutor).

The implementation of online tutorial requires a preparation process that includes tutor recruitment and training, development of tutorial materials, as well as monitoring and evaluation. The preparation and management of the online tutorial service is the responsibility of each faculty (e.g., vice dean for student affairs) and is set up each semester to maintain a specific ratio of tutors and students. For undergraduate programs, the ratio of tutor and students in each online tutorial class is a maximum of 1:100, but for graduate programs the ratio is 1:60. The main reason there are

such high ratios is that a number of students do not actively participate in the online tutorial. Many students are silent participants and do not participate except to submit assignments. In some cases, there are non-starters, which means a student has registered but they fail to participate or do not submit assignments. Finally, high ratios are appropriate because the online tutorials are designed as asynchronous tutorials. This is different from face-to-face tutorials which are designed to maintain the ratio of one tutor for every 20 students in each tutorial class.

Tutor recruitment is based on tutor competencies. As prescribed in the university quality assurance standards, tutors must hold at least a master's degree in a relevant subject. Most tutors are UT's own academic staff, but others may come from other universities. As the number of online classes increases, more online tutors are hired from other universities on a contract basis. New tutors must complete a training program before they begin a teaching assignment. Most external prospective tutors are nominated by the regional offices, which have direct contact with various local face-to-face universities, and are appointed by the deans. Tutor training is organized by the Center for Instructional Activities, which is also responsible for the accreditation of all UT's tutors.

Tutor training aims to equip tutors with various knowledge and skills, including the concept of online tutorials (and also face-to-face tutorials, in some cases), pedagogy of online teaching and learning, technical operation/navigation of the Moodle application, and development of online tutorial materials using standardized format. More importantly, as online tutorial is a new method for most tutors, training also educates tutors about the difference between face-to-face teaching and online teaching, including online tutorials. Teaching online not only requires tutors to provide learning materials and experiences through an online medium, it also requires tutors to consider the art, strategies, and approaches most suitable for the online classroom. According to Mishra and Koehler (in Ward & Benson, 2010), an online tutor should be able to demonstrate both technological pedagogy and content knowledge. This means an online tutor must be able to integrate teaching substance (content) with using online tutorial applications.

According to UT's policy, the online tutorial should provide at least eight initiation materials covering different topics to trigger discussions. An online tutorial for one semester is broken down into eight tutorial "sessions," each of which spans for a one week discussion period. This means that for each discussion topic, the online tutor provides an opportunity for the student to interact with the tutor and other students for one week at a minimum (Belawati, 2013). Tutors are also required to give assignments, and the three highest assignment scores obtained by students would contribute to students' final grades (combined with the scores of their final examination).

Another important component in the implementation of the online tutorial is the development process of online tutorial materials. Respective faculties develop online tutorial materials using a standardized format. The contracted online tutors are asked to use the standardized online tutorial materials, so that the academic quality of the tutorial can be maintained throughout all tutorial classes (some courses have more than one online tutorial class facilitated by different tutors). Every year online tutorial materials are reviewed and revised in order to keep the material updated. This process aims to ensure the quality of the online tutorial material. The standardized format of online tutorial material includes the following: the concept map of the course, the design and matrix of activities for each of the eight tutorial "sessions," eight initiation materials, enrichment material from open educational resources (OER), and three assignments. The standardized online tutorial material becomes a reference for each tutor in conducting the online tutorial so that the tutorial activities will be in line with the learning objectives. The online tutorial is basically available to help students study the print materials, which are the main source of learning.

As mentioned previously, some courses may have more than one online tutorial and may involve more than one tutor for the same course. Successful implementation of tutorials is supported through technical and mechanical activities, and by nontechnical activities such as communication

and coordination among tutors. This is where the course manager and online tutorial manager play important roles. The responsibilities of the course manager for online tutorials are as follows:

- ensure the technical readiness of the online tutorial system/application,
- assign students and tutors to tutorial classes,
- ensure that all tutors are keeping the tutorial running smoothly in accordance with the schedule,
- ensure the quality and quantity of the tutorial materials, ensure that all tutors have developed and uploaded the discussion materials on time,
- ensure that tutors are keeping the discussion alive and are responding to students' questions and/or comments,
- communicate technical problems with the technical support team at the university's computer center, and
- anticipate problems that might arise during the online tutorial process.

In addition, the online tutorial manager reminds online tutors to motivate students to participate in online discussion. Coordination between tutors and online tutorial managers is necessary to obtain feedback and suggestions from the tutors. In short, the online tutorial manager provides quality control for the entire online tutorial process.

Student Participation in Online Tutorials

As mentioned earlier, the number of courses complemented with online tutorials continues to increase (Table 19.4). Table 19.4 shows that student participation rates in online tutorials are also increasing. The increase in participation within the past five years has been significant, about

Table 19.4 Student per Course Participation in Online Tutorial

| Program | Number of Students per Course in Semester | | | | | | | |
|--|---|--------|--------|--------|--------|---------|---------|---------|
| | 2007.1 | 2007.2 | 2010.1 | 2010.2 | 2011.1 | 2011.2 | 2012.1 | 2012.2 |
| Master of Fishery Management | 52 | — | 64 | 55 | 64 | 80 | 254 | 232 |
| Master of Public Administration | 876 | 25 | 349 | 893 | 349 | 1,824 | 1,724 | 1,925 |
| Master of Management | 370 | — | 346 | 903 | 346 | 1,743 | 1,806 | 2,044 |
| Master of Mathematics Education ¹ | — | — | — | — | — | 616 | 819 | 815 |
| Faculty of Mathematics and Natural Sciences | 785 | 999 | 1,772 | 2,734 | 2,304 | 4,100 | 4,288 | 51,320 |
| Faculty of Economics | 8,670 | 9,970 | 15,740 | 20,870 | 22,191 | 37,844 | 41,179 | 5,843 |
| Faculty of Social Sciences | 10,088 | 12,851 | 24,825 | 32,798 | 35,876 | 57,922 | 62,657 | 82,589 |
| Faculty of Education | 1,948 | 1,906 | 5,887 | 6,818 | 6,089 | 10,635 | 14,244 | 29,399 |
| TOTAL | 22,789 | 25,751 | 48,983 | 65,071 | 67,219 | 114,764 | 126,971 | 174,167 |

¹ The Master of Mathematics Education program opened Semester 2 in 2011.

a 664% increase, starting from about 22,789 students per course in Semester 1 of 2007 to 174,167 students per course in Semester 2 of 2012. The increasing participation rates may seem high, but they are still comparatively low compared to the total number of UT student-course registrations. In Semester 2 of 2012, the total number of registrations was more than two million students per course (assumption each student registered four to five courses each semester).

It is assumed that low participation is the result of various aspects, especially those related to the lack of access to Internet and the student's lack of study habits when using the Internet.

Closing Remarks

The implementation of e-learning at UT through online tutorials continues to increase, both in number of courses and number of students who participate in online tutorials. However, implementation of online tutorials faces hurdles, such as a limited ICT infrastructure, that has lowered the availability and accessibility of the Internet. While Internet access in Indonesia is a problem the government continues to improve the accessibility of the Internet in the outermost regions, territories, and the furthest behind regions. There is an increasing number of Internet users in Indonesia, from 2 million in 2000 to 55 million (22.1%) of the population in 2012.

Computer illiteracy is an obstacle for students if they wish to participate in online tutorials. Many students are not able to operate a computer or utilize the online tutorial application. Inability to operate a computer affects the student's confidence and comfort level with participation in online tutorials. Efforts are underway to reduce the barriers faced by students in participating in online tutorials. UT has taken several steps, including the provision of a computer laboratory in every regional office, hotspots in all UT's premises, technical training to operate the computer as well as to navigate within the Moodle LMS, and of course providing students with "online tutorial guidance" that is distributed in print and also uploaded to the UT online learning website.

Tutors still face technical problems in operating the online tutorial applications (Moodle). In some instances, it was found that some tutors are reluctant to use the various features in Moodle. As a result, the tutorials do not provide an enriched learning experience to the optimum allowed by the application. Tutors' lack of online teaching skills (the strategies and arts of online pedagogy) seems to be the most common problem. Some studies suggest that this constraint will be less of a problem as tutors' experience increases. Another issue concerns tutors' lack of discipline in organizing online tutorials in accordance with the tutorial schedule. Several tutors were late in uploading the discussion materials, were unable to respond to questions promptly, and some were unable to provide positive reinforcement to students. Nevertheless, with regular and consistent reminders from the course managers, the problems with tutors have gradually decreased. It is expected that tutor maturity will improve the implementation and quality of online tutorials.

In conclusion, the e-learning implementation experience of UT suggests that

- adopters of e-learning should pay attention to students' characteristics and also evaluate the ICT infrastructure available in order that the e-learning can be implemented effectively,
- e-learning implementation requires tutor and student preparation in order to acquire the skills and knowledge needed for successful e-learning, and
- the management of e-learning goes beyond a focus on technical requirements. There are management aspects that are non-technical (such as, coordination between tutors and course managers), may be manual, and require individual approaches to solve problems and successfully implement and manage e-learning.

References

- Baggaley, J., & Batpurev, B. (2007). Technical evaluation report 60—The world-wide inaccessible web part 1: Browsing. *The International Review of Research in Open and Distance Learning*, 8(2). Retrieved from <http://www.irrodl.org/index.php/irrodl/article/view/438/917>
- Belawati, T. (2013, February 4–6). *Universitas Terbuka, Indonesia: Meeting the diverse needs of the Indonesia distance learners*. Presentation material for the 2013 Summit of the Open and Distance Learning Australian Association (ODDLAA).
- Bowles, M. (2004). *Relearning to e-learn: Strategies for electronic learning and knowledge*. Melbourne, Australia: Melbourne University Press.
- Evans, P. (2012). *Indonesia—Telecoms, mobile, broadband and forecasts*. Retrieved from <http://www.budde.com.au/Research/Asia-Mobile-Broadband-and-Digital-Economy-Overview.html?r=51>
- Ministry of Home Affairs, Geography of Indonesia. (2012). Retrieved from <http://www.indonesia.go.id/en/ministries/ministers/ministry-of-home-affairs/1652-profile/170-kementerian-dalam-negeri-.html>
- Internet World Stats. (2012). <http://www.internetworldstats.com/>
- Mahdizadeh, H., Biemans, H., & Mulder, M. (2008). Determining factors of the use of e-learning environments by university teachers. *Computer & Education*, 51, 142–154.
- Noor II, A. R. (2014). 2014, Pengguna Internet di Indonesia tembus 153 juta. <http://inet.detik.com/read/2011/10/05/073623/1737117/328/2014>
- Padmo, D., Mutiara, D., & Kurniati, S. (2009). Development of learning and supplementary materials. In A. Zuhairi & E. Nugraheni (Eds.), *Universitas Terbuka: A journey towards a leading open and distance education institution 1984–2008* (pp. 37–56). Jakarta, Indonesia: Universitas Terbuka.
- Ward, C. L., & Benson, S.N.K. (2010). *Developing new schemas for online teaching and learning: TPACK*. Retrieved from http://jolt.merlot.org/vol6no2/ward_0610.htm