

# EFFECTIVENESS OF E-LEARNING IN HIGHER EDUCATION – A CASE STUDY IN DONG NAI PROVINCE

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## Abstract

E-learning has many exceptional advantages in teaching and training, and it has been applied in many universities and colleges in Dong Nai with a variety of scopes and levels; especially at a time with the motto "learning everywhere at any time", Dong Nai province sees this as a good opportunity to accelerate digital transformation in education. Simultaneously, underlining that online teaching is not only a temporary solution during epidemic seasons, but also an important way to improve educational quality. The research is carried out to examine the realities of online training in higher education in order to satisfy the demands of society's need for high-quality human resources. In addition, lecturer questionnaire and student questionnaire design would be used to collect quantitative data to answer research questions through the employment of questionnaire. The survey result showed that an average score of 4.03 to 4.19 with the "agree" level in student survey and another 4.19 to 4.29 in lecturer survey. It is indicated that the attitudes of students and lecturers on the survey items are very similar through two surveys. As a result, e-learning plays an important role in conveying the knowledge to all students at anytime and anywhere.

**Keywords:** Dong Nai, effectiveness, e-learning, higher education, online training

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## 1. Introduction

Technology has been an essential part of the teaching and learning environments lately. Pedagogical strategies have changed substantially and e-learning has gained the achievements with the increased usage of information technologies. In addition, Information Technology applications must provide students appropriate comments and assessments with their abilities as well as those specific instructions for using the technology in language learning. E-learning is becoming increasingly popular due to its flexibility and convenience for both students and lecturers. E-learning is a type of training that uses network connections to perform learning, access learning resources, and interact between students and lecturers, with the purpose of being "student-centered". Recent trends in e-learning are sparking a lively debate in educational circles. In many universities, undergraduate offerings make up 82% of the total online offerings. Therefore, project work has been described literally by Nguyen (2014) and Phan (2017) that many application software has been put up with high shareability, running independently of geographical location or operating system, creating favorable conditions for everyone to look for information and learn simply and conveniently, especially in the period of industrial revolution 4.0. In addition, Chen, Lambert and Guidry (2010) show a positive relationship between the use of the learning technology and student engagement with learning outcomes.

Furthermore, in 2023, the worldwide have a difficult year that impacts many aspects of life, including education after Covid time. Many schools have chosen e-learning to continue their students' learning in the complex growth of the covid pandemic in many countries. It is proved that with computer-mediated distance learning instruction is grounded, students receive high quality instruction (Cohen, 2003). In addition, Wulandari (2019) claims that web-based language learning activities are exploited and have a positive impact on learning by all participants. Particularly, many localities around the country, including Dong Nai, have successfully tried and widely implemented e-learning. With the advantages of infrastructure, awareness, and ability to use information technology, as well as the effectiveness of university online training in Dong Nai province, a number of achievements have been achieved: students' learning is not halted; travel costs are reduced; time and space for learning are saved; and students' self-study awareness is improved. The output quality of these online training programs, on the other hand, has not been highly evaluated. The predicament's cause is that the online training method is ineffective. In this essay, the author analyzes and evaluates the present state of online teaching and learning methods in the province. Then, in the era of the Industrial Revolution 4.0, Pham (2017) also confirms that solutions are presented to promote interaction and initiative in the teaching and learning process, as well as the quality of online training.

## **2. Research Methodology**

### ***2.1. Survey purpose***

The survey's aim is to gather information in order to objectively and specifically assess the present state of online training. As a result, the author will be able to suggest and recommend solutions to improve the quality of online training at institutions in Dong Nai province.

### ***2.2. Research site and sample***

The research is carried out on the current situation of online teaching at universities in Dong Nai province: (1) Lac Hong University; (2) Dong Nai University; (3) Dong Nai Technology University; (4) Eastern Technology University; (5) Forestry University – campus 2. It is conducted on the sample consisting of 500 votes for students studying at these universities, and 250 votes for lecturers.

### ***2.3. Methodology***

As part of this study, lecturer questionnaire and student questionnaire design would be used to enable the researcher collect quantitative data to answer research questions through the employment of the instrument consisting of questionnaires (Creswell, 2012).

Statistical approach is used to describe and process the survey results. The findings, judgments, and conclusions regarding the existing situation were used to propose solutions to improve the quality of online training at universities in Dong Nai province.

## **3. Results and Discussions**

### ***3.1. Current state of online training at universities in Dong Nai province***

To clarify the reality of online training at universities in Dong Nai province, the author has given questionnaires for lecturers and students surveyed in Dong Nai province.

The questionnaire consisted of 20 questions generally in close-response that asked lecturers and students' opinions. All of them were based on a Likert-scale to indicate whether they strongly agreed, agreed, uncertain, disagreed, or strongly disagreed, to find out the above situation.

TABLE 1. Students' opinions on online training methods

Questionnaire Item number	Indicators	Level					$\bar{X}$	Level
		5	4	3	2	1		
1	Detailed course outlines, textbooks/lectures/videos and course materials are provided on the E-learning system.	220	161	64	43	12	4.07	2
2	The content of the lecture is updated and relevant to practice, creating excitement for students; lecturers are trained in many techniques in online teaching.	56	65	60	109	210	2.30	6
3	The teaching-learning plan is implemented on time and according to the schedule.	221	201	43	23	12	4.19	1
4	Students are always supported and answered directly during class time and outside of school hours through forums, social networks, email.	170	187	71	29	43	3.82	3
5	Students can promote self-study and self-study ability.	180	120	59	71	70	3.54	4
6	The effectiveness of training with practical modules through E-learning is relatively high, students can practice skills through video tutorials of lecturers.	14	22	44	190	230	2.80	9
7	Students are tested and assessed on their understanding of the lesson weekly.	98	89	102	110	101	2.95	5
8	Lecturers can deploy active teaching methods towards students in the direction of competency approach.	18	34	4	170	230	2.88	8
9	Universities invest in modern technical facilities: computers, high-speed Internet, software for e-learning.	46	43	77	170	164	2.27	7
10	Students develop soft skills (communication, critical thinking, teamwork) when learning by e-learning method.	15	26	56	178	225	2.86	10

As shown in Table 1, the mean in the research ranges from 1.86 to 4.19. the mean scores for all mentioned statements are quite different which implicates that the participants had various ideas on online training methods as follows: usually a majority of students believe that the teaching-learning plan is implemented on time and according to the schedule ( $M=4.19$ ) and the detailed course outlines, textbooks/lectures/videos and course materials are provided on the E-learning system sufficiently and efficiently ( $M=4.07$ ). Meanwhile, students are always supported and answered directly during class time and outside of school hours through forums, social networks, email accounts for  $M=3.82$ . It is undeniable that online training promotes student self-study and self-study ability ( $M=3.54$ ).

In addition, with mean score of  $M=2.95$ , the respondents express that they are tested and assessed on their understanding of the lesson weekly.

Nonetheless, they also confirm that the content of the lecture is updated and relevant to practice, and it also creates excitement for them in their learning online; besides lecturers are trained in many techniques in online teaching with the mean score of  $M=2.30$ . Moreover, they agree that universities invest in modern technical facilities: computers, high-speed Internet, software for e-learning ( $M=2.27$ ).

Last but not least, the effectiveness of training with practical modules through e-learning is relatively high, as well as students can practice skills through video tutorials of lecturers ( $M=2.80$ ) so that they can develop soft skills (communication, critical thinking, teamwork) when learning by e-learning method ( $M=2.86$ ).

It was also asserted that the respondents express their positive attitudes towards online training methods as a beneficial way in learning. Many of them assume that the methods as well as techniques support them a lot in their learning, also help them develop some learning skills when learning by e-learning.

TABLE 2. Lecturers' opinions on online training methods

Questionnaire Item number	Indicators	Level					$\bar{X}$	Level
		5	4	3	2	1		
1	Detailed course outlines, textbooks/lectures/videos and course materials are provided on the e-learning system.	109	107	20	10	4	4.23	2
2	The lecture content is updated and relevant to practice, creating excitement for students; Lecturers are trained in many e-learning teaching techniques	23	28	33	66	100	2.23	6
3	The teaching-learning plan is implemented on time and according to the schedule	125	95	13	12	5	4.29	1
4	Students are always supported and answered directly during class time and outside of school hours through forums, social networks, email,	95	84	33	16	22	3.86	4
5	Students can promote self-study and self-study ability	112	100	20	10	8	4.19	3
6	The effectiveness of training with practical modules through e-learning is relatively high, students can practice skills through video tutorials of lecturers.	12	16	28	80	114	1.93	9
7	Students are tested and assessed on their understanding of the lesson weekly	37	45	63	45	60	2.82	5
8	Lecturers can deploy active teaching methods towards students in the direction of competency approach	11	15	28	91	105	1.94	8
9	Universities invest in modern technical facilities: computers, high-speed Internet, software for e-learning...	18	28	32	76	96	2.18	7
10	Students develop soft skills (communication, critical thinking, teamwork...) when learning by e-learning method.	10	9	32	84	115	1.86	10

The lecturers' perspectives are as follows, according to the survey findings in Table 2: (1) The group that answered "strongly agree" to survey questions had an average score of 4.19 to 4.29. (2) The group of survey questions with a level of "agree" has an average score of 3.86; (3) The group of survey questions with a level of "uncertain" has an average score of 3.86; (4) The group with

"disagree" survey questions has a rolling average score (from 2.20 to 2.82), with items of 2.7; (5) The group with "strongly disagree" survey questions has an average score ranging from 1.86 to 1.94, including questions of 6,8,10.

It is demonstrated through two surveys that the attitudes of students and lecturers on the survey items are very similar. Furthermore, at university, by means of discussions and exchanges with faculty leaders, lecturers, and students.

In addition, the researcher discovered that there are still several obstacles and limitations in the process of online teaching, which arise from both objective and subjective factors below:

*Firstly, lecturers' ability to teach online is still constrained in a variety of ways:*

(1) The application of information technology in teaching and the use of e-learning software is not proficient to lead to ineffective implementation; (2) According to Pham (2017) most lecturers are used to interacting with students directly, but now they just teach and give online lectures on the Internet. When delivering the lesson in a virtual class, many lecturers will be confused or unsure; (3) Lecturers that teach online must have good knowledge and practical expertise to answer the queries (including questions outside of the curriculum content). In fact, the survey found that many lecturers have professional understanding of the areas they are responsible for, but are not wide or erudite enough to navigate and lead students' thinking; (4) Lecturers have not really adhered to a number of online teaching principles including establishing an atmosphere that stimulates interaction between lecturers and students, creating classroom activities, and providing positive and timely feedback to each student, constantly alerting the deadlines of tasks to students in order to enable students actively finish assignments; (5) Lecturers' capacity to communicate and empathize is still limited, due to the fact that communication is mostly through the "keyboard and screen," making it difficult for lecturers to comprehend students' thoughts and feelings. To achieve high efficiency in online teaching, lecturers must be those who are persevering and the ability to understand students' thoughts and feelings when communicating with them.

*Secondly, it is derived from the student's own self-awareness.*

Through the implementation of online training at universities in Dong Nai province, it has been shown that many students do not have the habit of online learning; however, they want to learn in real class where they used to be, and the self-study spirit is not high as well, due to the influence of traditional passive learning, students' psychology must have lecturers' presence.

One of the biggest reasons why students fail to complete an online course is a lack of desire. In traditional classrooms, for example, there are several variables that inspire students to reach learning goals, such as face-to-face connection with lecturers, peer-to-peer activities, and rigid timetables, all of which are used to keep students on track. There are relatively few external elements that inspire students to perform better in an e-learning environment. As a result, students who lack motivation and time management skills will find it challenging to meet deadlines in online sessions. Furthermore, many poor students, particularly in rural areas, lack access to computers with Internet connections for e-learning; the abundance of information on the Internet causes students' parents to be worried when their children go online to study. (Dwivedi et al., 2019)

*Thirdly, there are limitations in terms of facilities, Information Technology infrastructure, and fiber optic transmission lines.*

Building a school website and e-learning websites is relatively expensive; for example, at Dong Nai Technology University, purchasing a website account to build learning resources with "Canvas" costs 20 USD/1 user/1 year, which is extremely wasteful if not fully exploiting the website's capabilities. There is also some other free software such as Zoom meeting, Microsoft team, Cisco wetbet, Hangouts meet... When the amount of simultaneous accesses at the same time overloads the network's equipment causing a weak network. As a result, the contact between lecturers and students was disrupted.

*Fourthly, one of the obstacles of e-learning is the limit of studying and communicating with friends while online in Dong Nai province.*

A key drawback of online training is that lecturers and students will have limited chance to interact directly with others. Lecturers will lose their interest and passion when only making video lectures without two-way interaction, especially for practical courses, project-based courses following active teaching methods. Also, this will be a big disadvantage if students have questions they wish to discuss and seek advice from their lecturers. Furthermore, students can only learn online working skill and how to operate on the Internet through e-learning. Other skills, including communication and creative thinking, are similarly challenging to include into the curriculum. (Chen et al., 2010)

*Fifthly, assessment of learning outcomes is an important component of quality assurance in higher education.*

Cohen (2003) considers that modern training trend often attaches the assessment of students' learning outcomes in learners directly, shown in diversified implementation of assessment ways in the teaching process such as question and answer (Q&A), essay, objective test, role play, group discussions, project-based learning, students self-assess each other, seminars, etc,... However, with online training, students can cheat on assessments more readily since they take the examinations in their own setting and on their own computers. Because students are not directly observed during the exam, cheating detection is more difficult in online assessments than in traditional testing ways. In addition, without a proper identity verification system, students taking part in the online assessments may let another conducting the exam instead of themselves, resulting in completely cheating test results. Consequently, the output quality of students has not been accurately and objectively assessed.

### ***3.2. Proposing solutions to increase the efficacy of online training in higher education in Dong Nai province***

The results in the research showed that the positive attitudes of both lecturers and students even though online training is still new to them in Dong Nai province. Through the answers to the questionnaire, the researcher found that there are some obstacles which are addressed; so these proposing solutions would be suggested as following.

*Firstly, opening skill training courses for lecturers to increase their online teaching skills.*

Teaching online is also a method that requires lecturers to have knowledge, skills, and the ability to utilize a variety of tools and methodologies. The more various methods are, the more attractive learners are; "imagining that a teacher lectures online and interact with students constantly for tens of minutes in a situation of network instability, it is highly possible that students would open the computer, do something and leave it on," says one expert. Therefore, lecturers should be trained in how to prepare appropriate lectures, as well as how to suggest and make questions in order to encourage students to engage in self-study and build an interest in learning. Through this procedure, lecturers will increase their teaching capacity. This is a challenging issue that will take time to solve, and lecturers will need to be trained in how to use the approaches effectively. Therefore, school leaders should make efforts with policies to encourage lecturers to innovate and increase their qualification.

It is vital to change from lecturer to commentator (or in other words, from lecturer, presenter to commentator and debater). Because the lecturer is responsible for not only conveying knowledge content to the students in accordance with the program and plan in order to achieve the goal of knowledge and capacity for the students, but also the process of interacting with the students in order to solve the problem and respond to inquiries. The reciprocal interaction allows students to be more open in their comments on learning situations, the teacher-student gap is lessened, but the respect for lecturers. Students confidently become commentators, and lecturers too. The process of "backward interaction" with the lecturers on the assignments and practice in a timely way strengthens the commentator role of the lecturers. This is a characteristic of higher education as well. As a result, compared to conventional training, the role of lecturers in university training in the form of e-learning has altered.

*Secondly, instructing students on how to self-study, learn, and exchange information online.*

Universities should embrace online education, which includes management, administration, operations, and teaching. The school website should be a welcoming place to officials, lecturers, and students. Simultaneously, it offers self-study methods, and online exchange for students. This is a necessary skill that is taught at universities and vocational schools. For e-learning, students must be self-motivated and have time management skills to be extremely effective in their learning.

In order to engage students to participate in online classes, the interaction between students and lecturers, as well as between students and students, should be strengthened so that students may exchange ideas, make new friends, and learn more communication experiences. This keeps students from feeling alone, which can contribute to a variety of health issues like increased stress, worry, and negative thinking.

*Thirdly, investing in facilities and equipment for teaching online with the slogan "Investment in education is investment in development".*

This is seen as a cost-effective strategy. Because it will alleviate concerns about management difficulties and keep costs to a minimum. Lecturers will, in reality, use their laptops to organize their classes. Although this equipment includes required features such as a microphone for recording, a speaker, a notepad, and file sharing; however, it is limited in terms of exchange and interaction.

Therefore, extra external support equipment such as microphones to aid the sound conveyed to students be louder and clearer, or adding a second camera to give lecturers more teaching space are required to make the classroom comparable to a typical classroom. Students may see the lecturer better without the face only. The camera should be set opposite the lecturer, around 2-3 meters away (a bracket can be added) so that the view is the best and most balanced to give students the impression that the lecturer is lecturing directly with them. Loudspeaker allows lecturers to hear their students' interactions more clearly; as well as connecting, organizing online classrooms, controlling students, and organizing tests software; high-speed, reliable internet access; encourage schools to invest in more dedicated displays so that lessons may be delivered more quickly and lively. Lecturers can connect with students by projecting lecture files on the screen, customizing big and tiny zoom so that students can see clearly and pay attention to the essential points that the teacher has emphasized, and so on. Students will have a better time in class since it will be more adaptable and higher quality.

*Fourthly, attracting and motivating students throughout the learning process.*

Creating an attractive and exciting learning environment for students with academic regulations will be the motivation to help students participate in the classes completely. This task must be conducted in accordance with specified instruction progress.

(1) *Before beginning the course:* It is necessary to create curiosity and interest in participating in discovery of students. Identifying the target learners, learning requirements, and desire to gain abilities to suit the work are all aspects that should be considered. Besides that, commitment to the content, the training method and course quality, as well as publicizing teaching content is a strategy to demonstrate the course quality. Students will no longer be concerned about what they will be learning and practicing. Analysis of the course's values and the outcomes that will be reached after finishing the course, including what benefits students will get, what skills will be enhanced, and which professional skills will be improved to better serve the students' current job.

(2) *During the course, the training curriculum should focus attention on students:* Creating interactive activities in the course for students to give feedback on the course and participate in by making real-life situations, exercises, and other activities, so that students have more interaction with the lecture content and retain knowledge better. Furthermore, the lecture structure should be centered on visual and attractive to attract students and raise the attractiveness of the course by using more descriptive images and videos to increase understanding. Encourage communication between students with one another and with lecturers through establishing linked communication

environments in the classroom, such as using several online chat applications, engaging in forums, social networks, and groups... To make learning more successful, students should share ideas, feedback, and comments. The division of relevant information for each lesson helps students in grasping and remembering the main content longer, avoiding overload. Small-scale learning makes processing information faster and easier than large and complicated information. Students will be more motivated to study and finish the course as a result.

(3) *After finishing the course*: Maintaining interest throughout the learning process for students, especially the course is over. Students will be more motivated to study if they are rewarded for their achievements. Besides that, summarizing the results and students' progress during the course, as well as reinforcing the most important points of the course are extremely necessary because many students often forget the lesson contents quickly after finishing it. Therefore, the more specific and direct this summary is, the more effective it is.

*Fifthly, building the learning management system's integrated assessment and testing modules with the learner's competence approach.*

To achieve high efficiency, there must be review-oriented modules for students, feedback modules for students' assessment results, and modules that need to be connected to the electronic transcript system to keep general learning outcomes, student evaluation and self-test results as well.

Examining and evaluating students' learning outcomes should be oriented towards a competence approach focusing on the following contents: (1) Changing from mainly assessing learning outcomes at the end of the course or in the course (summary assessment) for the purpose of ranking and classifying to using regular assessment forms, periodical evaluation after each lesson topic and chapter for the purpose of providing feedback and adjusting the teaching process (process assessment); (2) Changing from mainly assessing knowledge and skills to evaluating students' abilities. That is, changing the focus of evaluation mainly from memorization, comprehension, and so on, and toward measuring the ability to apply and solve practical issues, with a particular emphasis on higher-order thinking abilities such as creative thinking; (3) Increasing the use of information technology in testing and evaluation, such as using software to evaluate the instrument's measuring qualities (reliability, difficulty, discriminant, and validity) and using statistical models into processing, analyzing, and interpreting assessment results (Do, 2019).

Based on the above orientations, assessing the learning outcomes of subjects and educational activities of students should be done as follows: (1) It is based on the standards of knowledge and skills (following the competency approach) for each subject; educational activities for each subject, each class; basic requirements to be met in terms of knowledge, skills, and attitudes (following the competency approach). (2) It is important to combine between regular assessment and periodical assessment, between lecturers' assessment and students' self-assessment. (3) It is necessary to use a combination of different forms and methods of examination and assessment to properly assess the capacity of students.

Last but not least, it is also required to organize seminars and meetings between university training institutes to increase the quality of online training. In order to implement this plan, universities in the province need to have meetings to discuss problems on teaching methods, how to create video lectures, evaluation methods, and other aspects of the e-learning system. Furthermore, to increase training quality in Dong Nai Province in particular, it is necessary to connect with those, which are universities in Ho Chi Minh City - high-quality human resource training centers of the country, thereby exchanging experiences and sharing online learning resources.

#### **4. Conclusion**

The research results have indicated that online training could be enhanced effectively. It was proven by the high support of the lecturers and students from the collected data above.



In the context of international integration, online training will be an excellent teaching and learning technique for Dong Nai province in terms of developing high-quality human resources. E-learning has contributed to significant changes in education, ranging from time and distance constraints to a more active knowledge transfer process among participants. It is important for each business and individual to be aware of this transition and to equip themselves with the necessary information and abilities to embrace the modern world's development. However, there are still many challenges ahead that will require universities, lecturers, and students to work together to turn obstacles into opportunities in order to create a modern learning environment in the future.

*For lecturers:* The findings have opened the effective way of online teaching. Moreover, the research results provided the lecturers with the insightful perspective on this issue. Additionally, lecturers should spend more time learning and researching the beneficial features so that they can exploit successfully in their teaching process and apply them in their working.

*For students:* The findings results showed that online training is suitable for the students at present and in the future as well. Especially, students should be more active to learn more quickly in order to adapt to the development nowadays.

*For further research:* This study has just revealed a small part of the results in this field. Therefore, the researcher hopes that further studies are recommended to investigate the influence of online training on students' learning development in order to better acknowledge and know how to apply online training in education.

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