

The quality of OER in a distance education institution: a study of students perspective

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Abstract

Universitas Terbuka (UT) is the only higher education institution in Indonesia that implements a distance and open learning system. The essence of distance learning is the separation between students and teachers, so that the learning process should be carried out independently by the students. The implementation of the system leads UT to provide a wide range of learning resources. UT OER is one of learning resources that can be utilized by anyone. This learning resource is open to public; anyone can access it without any limitations of place and time. One of OER materials that have been developed is OER of Operations Research course. This course is classified as difficult course because all of the topics are quantitative approach and students are required to have the competence to solve problems in business. The objective of the development Operations Research as OER is to help students learn it more easily, considering that operations research is a difficult course. The research was designed as an explanatory research which was aimed to analyze student's perception on operations research OER by analyzing the gap between students' perception and students' expectation toward the quality of the OER. Purposive sampling was chosen as sampling technique with the criterion that each respondent has passed operations research course. To get the data from respondents, questionnaires were sent to respondents via email. As many as 43 questionnaires were sent back and could be used for the next analysis. The questions were organized into 20 items which showed importance aspects of the OER that need to be assessed by students. Using paired t-test analysis, it was found that there were 4 items were not significant with p value > 0.05 at 95% confidence interval. Those items were animation, sound, instructional objectives, and test. This means that only for these items, there were no differences between students' perception and students' expectation or in other words, only for these items, expectations of the students on the quality of the OER program are fulfilled. This also means that there are some improvements needed for OER of research operations.

Key words

distance education, learning resource, OER, operations research

Introduction

Indonesia is a developing country located in Southeast Asia with an area of 1,919,440 square kilometers. As an archipelago country, Indonesia has approximately 17,508 islands with a total population of over 238 million people. As a developing country with the geographical conditions consists of thousands of islands, educational equity is still become a main problem to be solved. Good education institutions, from elementary school to higher education, only available in certain cities, especially in big cities. This causes most of the Indonesian people living in remote areas have little access to education, especially higher education. To overcome these problems, Universitas Terbuka (UT) was established as an institution of higher education in Indonesia that implements a distance and open learning system. Through this system, every Indonesia

people who have graduated from high school have the opportunity to pursue higher education despite the separation between teachers and students. The term distance implies that learning is not performed face-to-face, but makes use of media, whether printed media or non-printed (audio/video, computer/internet, radio and television broadcasts). Open means there is no limitation as to age, year of graduation, period of study, registration time, and frequency of examinations. The only limitation applied is that UT students must have graduated from high school.

The application of distance learning system also has its own problems, particularly in terms of encouraging students to be able to learn independently. This will demand higher effort from the students to be successful in their learning because they have to be self learners. To help the students, UT has developed a variety of learning materials, basically in the form of printed and non-printed materials. Printed materials are still the main learning resources, supplemented by additional learning resources in the form of non-printed material. These materials, of course, are designed as self learning materials that can be learned by the students with less help from other people, such as teachers. The materials provide students not only consist of the explanations of a subject but also instructional objectives, practices, summaries, and formative tests. One of learning resources that has developed by UT is UT Open Courseware by utilizing internet-based ICT. These open educational resources (OER) materials can be accessed by anyone, including students, anytime, and anywhere without requiring a password. The OER is a kind of the recent innovations that are especially relevant for achieving equitable access to quality education. OER are open content that is freely accessible worldwide from a common portal or gateway (Das, 2011).

One of the OER material developed by the UT is material for operations research course. As its name implies, operations research involves “research and operation”. Thus, operations research is applied to problems that concern how to conduct and coordinate the operations (i.e. the activities) within an organization (Hillier and Lieberman, 2005). Operations research is one of the main courses in department of management at Economics Faculty. After taking this course, students are expected to be able to solve various problems in business operations based on quantitative theory of operations research. As its name implies, operations research involves “research and operation”. Thus, operations research is applied to problems that concern how to conduct and coordinate the operations (i.e. the activities) within an organization (Hillier and Lieberman, 2005). Operations Research is a course that is classified as difficult course because all of the materials in the course are quantitative approach and that’s why UT developed a learning resource of operations research course. To make the materials better, an evaluation from the side of its users’ view is needed. It is important to understand students’ perception and expectation on the UT OER. Thus, the aim of this study is to figure out whether there are differences between student’s expectation and students’ perception on the quality of the OER of operations research.

Literature Review

The fundamental concept of distance education is: students and teachers are separated by distance and sometimes by time. This contrasts with conventional education, where students and teachers are met at a class room in the same time and place. Teachers

deliver subject matters to the group of learners, and these learners receive the subject matter directly from the teacher. What if some learners cannot attend in a classroom frequently to learn about knowledge? Distance education emerged in response to the need of providing access to those who would otherwise not be able to participate in face-to-face courses. It encompasses those programs that allow the learner and instructor to be physically apart during the learning process and maintain communication in a variety of ways (Keegan, 1986). It has evolved from correspondence schools to delivery mechanisms such as independent study, computer-based instruction, computer-assisted instruction, video courses, videoconferencing, Web-based instruction, and online learning. Technology has played a key role in changing the dynamics of each delivery option over the years, as well as the pedagogy behind distance education. Technology is responsible for distorting the concept of distance between learner and instructor, and enabling learners to access education at any time and from any place (Beldarrain, 2006). Higher education institutions around the world have been using the Internet and other digital technologies to develop and distribute teaching and learning for decades. Recently, Open Educational Resources (OER) have gained increased attention for their potential and promise to obviate demographic, economic, and geographic educational boundaries and to promote life-long learning and personalized learning. The rapid growth of OER provides new opportunities for teaching and learning, at the same time, they challenge established views about teaching and learning practices in higher education (Yuan, et al., 2008).

According to the definition given by UNESCO (2002), Open Educational Resources (OER) is defined as "technology-enabled, open provision of educational resources for consultation, use and adaptation by a community of users for non-commercial purposes". They are typically made freely available over the Web or the Internet. Their principal use is by teachers and educational institutions support course development, but they can also be used directly by students. OER include learning objects such as lecture material, references and readings, simulations, experiments and demonstrations, as well as syllabi, curricula and teachers' guides. Another definition of OER was given by Bissel (2009): OER is teaching, learning, and research resources that are in the public domain or have been released under an intellectual-property license that permits their free use or customization by others.

The emergence of OER in higher education in the 21st century is part of the much larger social movement towards 'opening up' what was previously 'closed' to all except a limited number of people who paid for access to or use of information and services (Williams, 2010). Wiley (2007) points out that the open educational resources movement is growing in the higher education environment. Around the world there are currently over 2500 open access courses available (opencourseswares) from over 200 universities. The emergence of utilization of OER in education, especially higher education, can't be separated from the benefits derived. Several benefits of OER such as OER can extend access of learning for everyone, including nontraditional groups of students and those from disadvantaged backgrounds, resulting in the widening of participation in higher education. OER also can be an efficient way of promoting lifelong learning, bridging the differences between informal and formal learning. Additionally, they can be an asset for expanding education in developing countries. In short, they offer a dramatically new approach to the sharing of knowledge which can

lead to economic success of individuals, communities, companies, and, ultimately, entire countries (McDowell, 2010).

In addition to issues regarding the benefits of OER for students, the quality of OER also become an important aspect for students. Assessing the quality of learning material in distance education is important because students have to learn autonomously. The quality of learning materials needs to be assessed by the students, including the quality of OER. Applying the consumer behavior theory in education, students are the consumers purchasing the service provided by education; therefore, students have the right to obtain the best quality education. Student's expectation of education quality, including the learning materials, must be high which means that the materials should be interesting and easy to be learned. Meanwhile, perception is a process of taking information of a stimulus from the environment and changes it into psychological appreciation. Perception also can be defined as experience of an object, event or relationship that is acquired by concluding information and interpret message. Consumer perception is become an important factor of a success or failure of a product on market, in this case, is the education itself.

Research Methods

This research is designed as an explanatory research which is aimed to analyze the gap between students' perception and students' expectation toward the quality of a Research Operations OER. Two pairs of questionnaires were designed to ask respondents' expectation and perception toward the quality of OER. The first pair of the questionnaires is about students' expectation of how the quality of OER should be and the second pair is about respondents' perception on the quality of Operations Research OER material. Probability sampling with simple random sampling was chosen as a sampling technique. The students who have passed Operations Research subject were selected as respondents. Questionnaires were sent to students via email, with purpose that students who have an active email can learn the OER material online easily. The questionnaires were designed by using five-option Likert scale to be able to use *paired t-test* in analysis. As many as 43 questionnaires were sent back and could be used for the next analysis.

Data analysis

Collected data were then analyzed to find the gaps between students' expectation and students' perception on the quality of Operation Research OER material and to identify which part of the material that need to be revised or completed. This analysis used *paired t-test* to compare average score of students' expectation and students' perception toward Operations Research OER. Therefore hypothesis in this research are:

H0: there is not any difference between average score of students' expectation and students' perception.

H1: there is any difference between average score of students' expectation and students' perception.

Result of the data analysis of the students' answers to 20 questions about their expectation and their perception, by using *paired t-test* can be seen on table 1.

Table 1. Mean Differences between Students' Expectation and Students' Perception

Measurements Item	Gap (expectation - perception)	Sig (2-tailed)
1. Menu layout is impressive	0.27907	0.003
2. Content is systematically structured	0.18605	0.019
3. Navigation directory is clear	0.44186	0.000
4. Access to link is easy.	0.62791	0.000
5. The use of language is effective.	0.27907	0.006
6. Message is easy to understand	0.32558	0.000
7. Text illustration is impressive	0.53488	0.000
8. Graphic illustration is impressive.	0.48837	0.000
9. Color combination is impressive.	0.23256	0.058
10. Animation is impressive.	0.06977	0.667
11. Sound is clear.	0.13953	0.183
12. Music illustration is good.	0.23256	0.040
13. Picture is clear.	0.18605	0.044
14. Content is in line with students' competencies stated in printed material	0.16279	0.128
15. Learning goal is clear.	0.55814	0.000
16. Content delivery is easy to understand.	0.62791	0.000
17. Content is correct.	0.69767	0.000
18. Exercise is included.	0.2093	0.005
19. Feedback is included	0.2093	0.048
20. Test is included.	0.02326	0.812

To count gap in each item on Table 1 is that the average score of students' expectation minus the average score of students' perception. Generally, gaps that have positive scores show that students' expectation of a OER material is higher than their perception on Operation Research OER program. With other words, Operation Research OER program is still can't meet students' expectation in every measured item. Statistically comparison between students' expectation and perception after using *paired t-test* shows that there is a significant difference for 16 items, with *p value* < 0, 05 at 95% *confidence interval*. The result of the analysis shows that, for the 16 items (item no. 1-9 12-13, and 15-20), H1 can be accepted or in other words, there is a significant difference between students' expectation and perception. Students evaluated that these 16 aspects of the OER are still below their expectations. The other 4 items, these are item no. 10, 11, 14, 20, do not show significant difference between students' expectation and perception, with *p value* > 0,05 at 95% confidence interval. This result shows that H0 can be accepted or in other words there is no significant difference between students' expectation and perception. This indicate that statistically what expected by students on the 4 aspects are in the line with their perception toward the quality of the OER program.

Conclusion and Limitation of the Research

This research is to analyze differences between students' expectation and perception toward Operation Research OER program. To measure students expectation and perception, 20 question items about students' expectation and 20 question items about

students' perception, have been identified. The analysis result shows that there are only 4 items that is in line with students' expectation, these are animation, (item 10th), sound (item 11th), content is in line with competencies needed (item 14th), and test is included (item 20th). This means that from 20 aspects that need to be measured in Operations Research OER, only 4 aspects that is really meet the students' expectation. There are so many aspects of the OER that need to be improved (menu layout, structured content, navigation, linkage, language, text illustrated, graphic illustration, color combination, music illustration, picture, learning goals, easy understood material, content is correct, exercise, and feedback).

Like other researches, this research has some limitations. One of the limitations is that the results can't be generalized, only to OER of Research Operations. The second limitation is that the use of questionnaire will allow students to learn CAI in different time, opportunity, and condition. It will be better if the research use experiment method, so that students answer can be collected in the same time. The third limitation is that the research is quantitative based research, it will be better if the research is completed with qualitative research. By qualitative research, researchers can have more in-depth information from students to explore about what kind of matter that can meet their expectations.

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