

# Literacy and benefits of OER concept for prospective vocational high school teachers

**Saripudin, A Djohar, D Rohendi and A G Abdullah**

Technological and Vocational Education Programs, Universitas Pendidikan Indonesia

saripudin@upi.edu

**Abstract.** OER has become a source of strength for the contribution of improving the quality of education system and openness. This study aims to explore student literacy and perception of OER concept in Lembaga Pendidikan Tenaga Kependidikan (LPTK)-based University of prospective SMK teachers, the survey was also conducted to examined the possibility for the development of a special OER model for electrical engineering education students in order to improve the quality and competence of prospective vocational high School Teachers graduates who are educating in LPTK. An online survey results were conducted on prospective vocational school teachers in one of the LPTKs, data collected through questionnaires obtained data that knowledge or understanding of students about OER is still low.

## 1. Introduction

Trends in the use of the Internet for distance education both in the level as a means of dissemination of learning resources and learning substance has evolved in various forms, from a conventional and rigid initially, has now become more modern and open, especially with the concept of sharing and collaboration. Although access to the material these days is very easy as we know in the global network there are so many of the world's campuses provide and organize OpenCourseWare which provides open-ended lecture material for almost all disciplines and every personal special learning needs as long as an internet network access is available may access to the required material, but most of the materials is protected by copyright that limits the freedom of the user in utilizing existing materials in accordance with their needs, this results in difficulties in the process of adoption of necessary materials [1].

The development of E-learning and Learning Objects (LO's) [2] along with the development of new technologies of ICT has encouraged efforts in providing equal access to education facilities especially in terms of providing quality learning material and reusable by everyone has encouraged a movement that demands openness and freedom of learning resource materials adoptions, the results are new concepts and technologies of open educational resources (OER) or open source learning. OER has become a source of strength for the contribution of quality improvement of education system [3] and openness.

OER, are open licensed documents and media useful for teaching, learning, education, assessment and research purposes. OERs are any type of educational materials that are in the public domain or introduced with an open publishing license [4][5]. The term open education resources (OER) was adopted by UNESCO for the first time in 2002 Forum on the Impact of Open Courseware for Higher Education in Developing Countries [6].



In Indonesia the Government clearly states the support of this open learning resource in article 79 paragraph 4 of Law Number 12 Year 2012 on Higher Education [7] is institutionally under the Ministry of Research, Technology and Higher Education for higher education. OER opens up new opportunities for the production and dissemination of knowledge, while promoting an adaptive learning environment, suitable for every individual need.[8]

The lack of availability and access to learning resource materials have an impact on the quality and competence of teachers, prospective teachers and students in SMK for it requires awareness of every stakeholder that the availability of quality learning resources is a necessity.

OER is a solution to help teachers, prospective teachers and students on the issue of the diversity of teaching materials and learning resources, because it can save costs and time in obtaining material quality learning resources, everyone involved in the process of education in SMK can be actively involved, materials can be modified, shared and reused according to their individual needs so that through the OER scheme the concept of education for everyone can be easily achieved.

Previous research on the use of OER by students in higher education shows that students have experience in utilizing OER materials for learning although there are still many challenges related to content, interface and environmental factors [9] [10]. However, Previous research has not yet conducted to examined of perceptions, understanding, and use of OER by prospective teachers in higher education based in LPTK. One possible reason could be that LPTK-based universities exist only in Indonesia so that by researchers considered too specific or less interesting to be studied.

This research is conducted to explore and enrich the research information about the extent to which the Prospective Vocational High School Teachers in LPTK to OER.

## **2. Method and data**

This research was conducted at Indonesia University of Education (UPI) one of LPTK campus where most of the graduates are projected to become a teacher in Vocational High School (SMK), this research also conducted from January to the end of March, 2018. The basic determination of why UPI is chosen is because UPI is one of the first LPTK-based universities in Indonesia and consistently graduates prospective educators with the number of alumni who became teachers in various vocational schools scattered in almost all parts of Indonesia.

This paper reports on the results of a survey to explore student literacy and perception of OER concept in LPTK-based University, the survey was also conducted to examined the possibility for the development of a special OER model for electrical engineering education students. The survey was completed as a part of a preliminary survey for a dissertation research project.

The project had some primary objectives:

- Identify how far the use of the internet as a medium for supporting tools in lecturing and learning in universities, especially in higher education based on LPTK,
- Identify students' knowledge of and perceptions, concepts Open Educational Resources (OER) and its benefits,
- Identify how much the interest of Electrical Engineering Education Students to OER and the beneficiaries in supporting the development of the scientific field concerned.

### *2.1. Evidence*

This study was conducted to examined the extent of student literacy on the concept and content of OER, the initial survey was conducted to find out the respondents literacy of Electrical Engineering Education Students of the academic year 2013, 2014,2015, 2016 and 2017 against Open Education Resources, especially OER in the field of electrical engineering science, the survey was conducted online using Google form, the sample size of this study was 103 respondents, the survey also conducted from January to April 2018.

**Table 1.** Some sample of the survey participants list.

No	Name	Student Register Number
1	Teguh Pratama Nugraha	1603747
2	Agustin Tia Suryani	1406409
3	Yanharruddin Zahri	1301376
4	Annisa Utami	1404245
5	Gina Safarina Miratunnisa	1400833
6	Wini Awalia	1406508
7	Yolita Anggria Rayisiwi	1405934
8	Arief Chandra Pamungkas	1607321
9	Rafie Ridwan	1505889
10	Adam S	1604109

## 2.2. Research instrument

An OER Literacy survey was developed consisting of 22 closed and one open-ended questions to be completed by all survey participants. Almost half of the questions assessed participant experience and opinion about OER. The instrument included items that assessed:

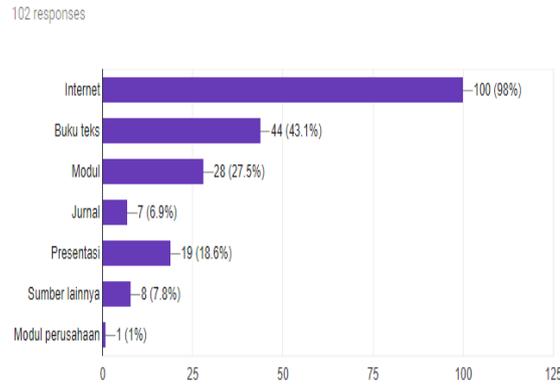
- Identity of the participants
- Reference resource they have in supporting the smoothness of the lectures in one semester included how they get, what kind of reference (hard copy or soft copy) and all the reference resources of the course in each semester.
- Current Knowledge about Intellectual Property Right, OER concept, and opinion, also an opinion of the specific OER material in the field of electrical engineering that already exists.
- Are the resources of the course referral purchased, how much did participant spend in a semester to get the source material for the lecture?
- Materials or subject that they should teach in the Field Experience Program (PPL), the source of the reference they are used in compiling the materials of the learning materials,
- Time and location for accessing the internet in a day, where did they location access the internet most often, what device to access the internet and purposes of generally access the internet.
- How often they access AOR materials for reference purposes to support learning.
- Shortcomings of existing OERs associated with the field of electrical engineering science.

## 3. Result and discussion

### 3.1. Reference resource they have in supporting the smoothness of the lectures in one semester

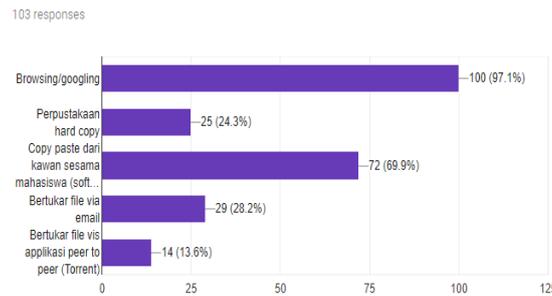
From the results of research survey almost all (100%) survey participants use the Internet as a support tool on the process and the creation of learning materials.

Related to the previous question from which reference source used in preparing the learning materials?



**Figure 1.** Internet as a medium for supporting tools in lecturing and learning in higher education based on LPTK.

Related Question No.1, How do you get the reference source of the course?

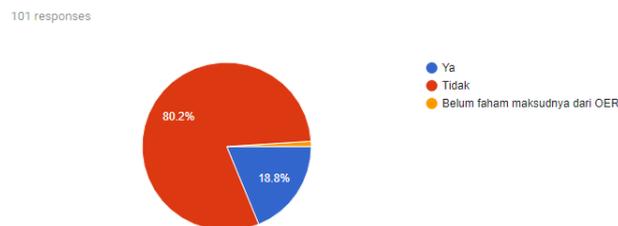


**Figure 2.** Reference resources for lectures.

3.2. Identify their knowledge and perceptions of OER technologies and concepts

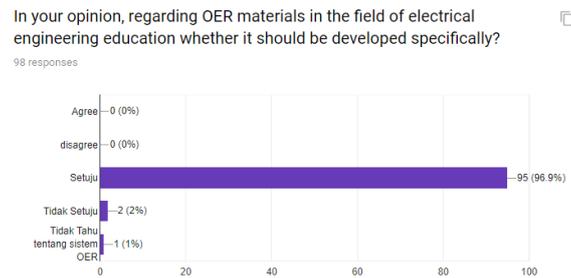
The majority of participants of the survey perceived themselves as having a low level of knowledge of OERs, eighty-point blank two percent (80,02%) considered themselves to be have low knowledge.

Do you know what is Open Education Resources (OER)?



**Figure 3.** Level of participant knowledge of OERs.

The interest of Electrical Engineering Education Students to OER and the beneficiaries in supporting the development of the scientific field concerned. Ninety-five percent of respondents agreed, if the OER material in the field of electrical engineering education developed specifically.



**Figure 4.** Participant opinion regarding OER materials development.

#### 4. Conclusion

In general, students have used the Internet as a tool in the learning process and the making of teaching materials but do not pay much attention to whether reference references of conventional and digital books that are referenced or used are protected by intellectual property rights. It needs a very intensive socialization effort related to the concept and benefits of OER in universities especially LPTK based universities.

The costs incurred by students for the procurement of lecture materials in general are not very large, this can happen because of several possibilities, such as low purchasing power or delegate sources of pirated learning. On the other hand, it is a potential for OER activists to be able to provide understanding to students of the benefits of OER utilization. From the results of this study can also be seen as a very big opportunity in developing the potential of students in the movement of openness to improve the quality of education through the provision of learning materials of quality and affordable for all levels of society. So, in the end the quality and equity of education can be achieved without going through the barriers of costs and means of learning.

#### References

- [1] Bissell A 2009 Permission granted: open licensing for educational resources *Open Learn. J. Open Distance Learn.* **24** 1 p 97–106
- [2] Arimoto M M, Barroca L and Barbosa E F 2016 AM-OER: An agile method for the development of open educational resources *Informatics Educ.* **15** 2 p 205–233
- [3] Zancanaro A, Todesco J L and Ramos F 2015 A bibliometric mapping of open educational resources *International Review of Research in Open and Distance Learning* **16** 1 p 1–23
- [4] Blis T and Smith M 2017 A brief history of open educational resources *Open Philos. Pract. that are revolutionizing Educ. Sci.* p 9–29
- [5] UNESCO and Commonwealth of Learning 2011 *Open Educational Resources (OER) in Higher Education* p 21
- [6] D'Antoni S 2009 Open Educational Resources: reviewing initiatives and issues *Open Learn. J. Open Distance Learn.* **24** 1 p 3–10
- [7] Undang-Undang Republik Indonesia Nomor 12 Tahun 2012 tentang *Pendidikan Tinggi* p 1–97
- [8] Arimoto M M and Barbosa E F 2012 A systematic review of methods for developing open educational resources *Proc. 20th Int. Conf. Comput. Educ. ICCE 2012* p 262–269
- [9] Hu E, Li Y, Li J and Huang W H 2015 Open educational resources (OER) usage and barriers: a study from Zhejiang University, China *Educ. Technol. Res. Dev.* **63** 6 p 957–974
- [10] Guo Y, Zhang M, Bonk C J and Li Y 2015 Chinese faculty members' Open Educational Resources (OER) usage status and the barriers to OER development and usage *Int. J. Emerg. Technol. Learn.* **10** 5 p 59–65