Open Educational Practices among Research Scholars in Education

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Abstract

The current education system focuses the online related teaching-learning methods. In particular, all the learners want to free, open, accessible, and legal educational resources. The open educational resources fulfill all the related academic problems to the learners. The study's main objective is to determine the level of usage of open educational resources and determine the level of performance in education among the state universities of Tamilnadu research scholars. A sample of 300 research scholars from 22 state universities in Tamilnadu state is selected randomly for the study. The study conduct between 17/10/2020 to 26/12/2020 by using a survey method. Data were analyzed using percentage analysis and t-test. Findings reveal that 30% of the state university research scholars have a high level of open educational resources usage, and 24 % have a high level of education performance. Results also imply a significant difference in the utilization of open educational resources among male and female state universities research scholars. There is no significant difference in education performance among male and female state universities research scholars concerning gender. The COVID-19 epidemic and paralysis have questioned the education of migrant workers and their children. Open educational resources are a sustainable education system in the future, even in a virus outbreak, storm, flood, world war, etc.

Keywords: Open Educational Resources; Open Educational Practices; Research Scholars; Creative Common

1. Introduction

'Open Educational Resources' designed to facilitate learning and teaching for free[1], [2]and easy use[3]–[5] by all people with Creative Common license[6], [7]. OER is an open license material that everyone can use for learning[6], [8], [9]. Creative Common (CC) license is also a profitless organization system that can issue free licenses[9]–[11]. It is permitted to the learners in the 5R activities [12](see Fig. 1):

Fig. 1. 5R's of Open educational Resources

Retain is called Prepare and reserve copies of the content. Reuse called to use the content frequently anywhere, anytime, anyplace. Redistribute is called Change the content and can be visible in all languages. A remix is called Link the content in all resources, and Revise called Exchange the merged content with other users.[9], [12], [13].

Retain is called Prepare and reserve copies of the content. Reuse is called as again and again use the online resources anywhere, anytime, anyplace. Redistribute is called Change the content and can visible in all languages. The remix called to link the content in all Open Educational Resources (OER) is educational practice and research materials on any medium, digital or otherwise, that reside in the public domain. An open license allows access, use, adaptation, and redistribution without cost by others with no or limited restrictions used to support education to freely access, reuse, modify, and share[16], [17]. These guidelines summarize the key issues and suggest integrating open educational resources into higher education[18], [19]. The purpose is to encourage governments and institutions to invest in systematic production, adaptation, and use of open educational resources and bring it into the mainstream of higher education to improve curricula and teaching quality and reduce costs[20]. Given the potential of OER to improve higher education systems, UNESCO[21]–[23] and the Commonwealth of Learning have developed these Guidelines[6], [24], [25], , after extensive consultation with stakeholders in all regions of the world, to support governments, educational institutions/provider's superiors, academic staff, student bodies, and guarantee/accreditation bodies and quality recognition. Open Educational Resources are composed of educational content, tools, implementation resources, and external links[26]. Indian free educational resources is a generic denominator that includes courses, programs curricula, didactic modules, student guides, textbooks, research articles, videos, podcasts, assessment tools, interactive materials (such as simulations), databases data, software, and applications)[19]. All the free educational material design for use in educational practices[27]–[31].

The university grants commission was categorized as some universities are under the state universities of Tamil Nadu in India. Presently, 22 universities list under the state university of Tamil Nadu in India. In the state universities of Tamil Nadu, approximately 12,000 research scholars in the current academic year. The Tamilnadu state universities are Alagappa University, Anna University, Annamalai University, Bharathidasan University, Madaras University, Madurai Kamraj University, Manonmaniam Sundarnar University, Mother Teresa Women's University, Periyar University, Tamil Nadu Fisheries University, Tamil Nadu Music and Fine Arts University, Tamil Nadu Open University, Tamil Nadu Teacher Education University, Tamil University, Tamilnadu Agricultural University, Tamilnadu Dr. Ambedkar Law University, Tamilnadu Dr. M.G.R.Medical University, Tamilnadu National Law University, Tamilnadu Physical Education and Sports University, Tamilnadu Veterinary & Animal Sciences University and Thiruvalluvar University.

2. Significance of the Study:

Open educational resources are very much influencing the lifestyle of the people. People are using the books and other materials like Radio, TV, computers, and the Internet to develop their lifestyle[32]. It impacts the lives of both young and old. The rise of open educational resources has created a new cultural force where educational functions rival those of the school. It becomes a necessity in almost all fields of life, including education, family, and recreation. In modern society, open educational resources are very much impacting the adolescent[33]. The present-day children are living in an altogether different world than that of their parents. There is a big gap separating the previous generation from the present living conditions. Open educational resources have emerged as prominent and influential components of modern society. The development of open educational resources and education is interwoven in so many ways that one's discussion is incomplete without reference to the other. Education, in the curriculum, provides certain values that are not provided by any other subjects. All the school subjects are taught because they provide liberal education; they are part of the equipment and preparation for life, which we expect the school to give to its pupils to play their part in the community as intellectual citizens.

3. Objectives of the Study

1) To determine the level of usage of open educational resources among state universities of Tamilnadu research scholars.
2) To find out the level of performance in education of state universities of Tamilnadu research scholars.
3) To find out the significant difference, if any, in the usage of open educational resources concerning gender
4) To find out the significant difference, if any, in performance in education concerning gender.
5) To find out the significant relationship between open educational resources and performance in Tamilnadu research scholars' state universities.

4. Null Hypotheses

H0:1 There is no significant difference between male and female state universities of Tamilnadu research scholars concerning the usage of open educational resources.
H0:2 There is no significant difference between male and female state universities of Tamilnadu research scholars concerning education performance.
H0:3 There is no significant relationship between usage of open educational resources and performa-

nce in Tamilnadu research scholars' state universities.

5. Review of Related Literature

The researchers follow the new literature review model and take the 2017-2021 period published research and review articles for this related literature study.
Table 1. Related Literature Review (2017-2021).

| Author & Year | Aim/ Objective | Methodology | | Result/ Findings & Future Research |
		Sample Size/ Objective	Design/ Tools	
Singh & Chauhan, 2017	This study explores teacher educators' awareness towards MOOCs on conceptual understanding, usability, digital resources needs, open educational practice, and policy.	This survey sample size is 156 teacher educators.	This research was design with an awareness scale with the descriptive analysis used for this study.	Studies show that teacher educators have to select MOOCs' adequate knowledge and provide teacher educators with the facilities to develop and incorporate MOOCs into their everyday practice[34].
Joshith, 2020	This research paper examines awareness of Open Educational Resources and MOOC programme for Secondary level Teachers.	The study has undertaken 300 secondary education level teachers—the experimental study undertaken 30 samples for each control group and experimental group.	The study adopted both survey and experimental methods. The investigators conducted a Pre-test and post-test. They analysed with percentage, t-test, and effect size analysis..	The study showed that the population of high school teachers still has no understanding of OERs and MOOCs. It also has been demonstrated to promote teacher professional growth through proper exposure to open educational resources[35].
Nipa & Kermanshachi, 2020	The primary objective is clustering the utilisation	A sample size of 19 aspects of students & industry	One classroom participated with the internet based virtual OER	The research findings will encourage educational institutions to utilize avail-

	of OER resources for engineering and non-engineering students.			able funding resources to invest and install OER content. 78% of learners used mobile devices such as computers and electronic notebooks to share content. The second-largest system used to access the course documents has been identifying as smartphones (11 percentage usage). l9 percentage of learners chose a personal desktop computer to practice for academic studies. Only a few learners used the lesson plans' written materials[36].
Santiago & Ray, 2020	The objective of this paper is to describe programs that support OER publishing in academic libraries. Insights, opportunities, and challenges are concerning the broader open education movement.	Case study: the University of Houston and the University of Washington.	This paper provides two case studies describing the development of OER publishing programs at large, public research universities –Each program takes an Author DIY approach to publishing support and is in the early years of supporting OER adoption and creation.	They illuminate challenges and opportunities for librarians supporting OER initiatives, including adapting existing OER publishing models, navigating institutional culture, moving OER programs beyond affordability, and sustaining and scale OER programs with shifting institutional support[37].
Luo et al., 2020	The purpose of this review is to explore strategies for OER adoption that promote efficient and practical design.	This survey was collecting from 51 accessible educational materials and research made in nations all around continents.	This extensive review of studies looks at the evidential phenomena that are prominent in today's world study.	This research identified that accessibility, stability, and recreating. There are enormous challenges that prevent OER from undermining modern textbook designs;there are no significant

				different types of learning performance when educators introduce OER. The introduction of OER as teaching methods is complicated but can successfully promote successful learning when adequately implemented[38].
X. Zhang et al., 2020	This study presents a systematic review based on published papers related to OER and OEP for learning accessibility, significantly disabled students.	Systematically reviewed 31 papers.	This study presents a systematic review based on published 31 research papers. Based on the review of the 31 identified studies, 1616 papers conducted assessments to evaluate the accessibility of OER.	Nine countries have led research about OER and OEP for accessible learning to disabled students. Ecuador had 11 papers, Spain, with six articles, UK-4, Greece-3, Ireland-2, Turkey, Uruguay, Tunisia, Italy-1[39].
Todorinova & Wilkinson, 2020	The survey collected faculty's perceptions about the award program, experiences with OER, and interest in open textbook authoring.	This survey assessed the experiences of 56 faculty who received. OAT awards in a textbook affordability program at Rutgers University.	The survey questions directly asked about the course materials used in redesigned OAT courses, the financial incentive award offered, and the new course materials' impact on students. It is demographic questions.	Responses suggest that the program is well received and that funds are adequate for adopting new course materials. However, they also indicate that even participating faculty varies significantly in their knowledge and use of OER and their interest in authoring open textbooks[40].
Schellinger & Coghill, 2020	This article will examine the use of OERs to help reduce the cost of attendance for medical and nursing school.	Review based on published papers.	Review based on published papers	Librarians can be agents of change. Top-level administrators, including chancellors, presidents, provosts, vice-chancellors, and deans, can also help facilitate change. Librarians

				dshould look outside of their buildings to find partnerships wherever they can to bring OER to their respective institutions[41]
Lee, 2020	Who opens online distance education, to whom, and for what?	The above search, conducted in August 2019, returned 137 items, and 29 papers were selected.	The search was conducted based on the title, abstract, and keywords of articles, using the following search terms: "open education, "university," higher education," online education," online learning," distance education," distance learning." It analyzed the selected papers using a grounded theory approach.	The results show that despite the growing importance of the social mission to make Education for All among diverse actors, a clear understanding of the actual process of OEP in real-life higher education settings and clarity on how those actors serve disadvantaged learners are lacking[42].
Pitt et al., 2020	It was supporting open educational practices through free textbooks. It focussed on awareness of available educational resources.	Survey research with United Kingdom educators. Over 4000 UK educators were invited via email to participate during September 2018.	The survey was divided into two sections and comprised 25 questions. The first part of the study focuses on demographic questions—the second half of the study focussed on textbook use and rationale.	The findings indicate strategies for supporting pedagogical innovation and student access through the mainstream adoption of open textbooks[43].
Wang et al., 2021	The current study aims to increase knowledge of factors influencing Digital Educational Resourc-	The sample size is 709 rural teachers. The participants were teachers in primary and secondary scho-	A sampling method to collect data with an online survey. Data analysis: exploratory factor analyses (EFA) using IBM SPSS 25	The study found that both internal motivation and external motivation significantly influenced attitudes and sharing behaviour within or outside sch-

	es-sharing behaviour among rural school teachers.	ols in rural areas in southwest China.	and dispositional variables, confirmatory factor analyses (CFA) using Mplus 8.3. And then using Cronbach's alpha method.	ool. However, internal motivation positively influences, whereas external stimulation negatively impacted both perspective and sharing behaviour. Future research should focus on teachers' sharing behaviour on different online sharing platforms[16].
Zou et al., 2021	This study examines the relationship between social presence and learners' prestige in a MOOC learner network.	The sample size is 456 students registered in Data Visualization for Storytelling and Discovery in Journalism, a professional development MOOC designed and managed by a large research university in the Southern United States.	This MOOC consists of four modules. There are learning materials in each module, such as readings, instructional videos, quizzes, and a discussion forum. Students were encouraged to participate in the forum by the end of each module to discuss specific questions regarding the module's topic and reflect on the concepts and techniques they have learned.	The findings will inform MOOC learners how to strategically present themselves in the discussion forums to increase peer interaction possibilities and achieve productive learning outcomes. Further studies are needed to investigate the impact of social presence using datasets from MOOCs of other topics to test our findings' reliability and validity[44].

According to this related literature review, the researcher finds the current research gap is open educational practices. Particularly, open educational practices for research scholars are a minimum number of articles only available (see Table 1). Then the researcher chooses the current research gap as "usage and performance of open educational resources among research scholars from the state universities of Tamilnadu research scholars in education."

6. Methodology

The target group was a research scholar in the state universities of Tamil Nadu. State Universities of Tamil Nadu research scholars selected with the random sampling technic. University grant commission was categorized as some universities are under the state universities of Tamil Nadu in India. Presently, 22 universities are under the state universities of Tamil Nadu in India. In the state universities of Tamil Nadu, approximately 12,000 research scholars in the current academic year. As used random sampling technic and choose 300 research scholars in education were randomly selected from the st-

ate universities of Tamil Nadu to complete a printed survey between 17/10/2020 to 26/12/2020. Simultaneously, the survey conducts through the website, so any student interested could also meet the same questionnaire's online version. Hence, the final number of completion included both printed hard copy and soft copy surveys. The investigator and Guide develop the tool for using open educational resources and performance in education scales.

7. Analysis of Data

Table 2. Level of usage of open educational resources of state universities of Tamilnadu research scholars.

Low		Moderate		High	
N	%	N	%	N	%
115	38.3	95	31.7	90	30

Table 2 shows that 30 % of the students have a high level of open educational resource usage.

Table 3. Level of performance in education of state universities of Tamilnadu research scholars.

Low		Moderate		High	
N	%	N	%	N	%
122	40.7	106	35.3	72	24

Table 3 shows that 24 % of the students have a high-level performance in education.

Hypothesis (H0): 1

There is no significant difference between male and female state universities of Tamilnadu research scholars regarding the usage of open educational resources.

Table 4. The Significant difference between male and female state universities of Tamilnadu research scholars in their usage of open educational resources.

Gender	N	Mean	SD	t-value
Male	127	68.191	9.5642	3.9696
Female	173	62.904	12.602	

Table 4, the calculated t-value of 3.969, is greater than the table value at 0.05 level. Hence, there is a significant difference between male and female research scholars in using open educational resources.

Hypothesis (H0): 2

There is no significant difference between male and female state universities of Tamilnadu research scholars regarding the performance in education.

Table 5. The significant difference between male and female state universities of Tamilnadu research scholars in their performance in education.

Gender	N	Mean	SD	t-value
Male	127	57.501	14.565	2.5556
Female	173	52.703	17.103	

Table 5.the calculated t-value of 2.555 is greater than the table value at the 0.05 level. Hence, there is a significant difference between male and female state universities of Tamilnadu research scholars in their educational performance..

Hypothesis (H0): 3

There is no significant relationship between usage of open educational resources and performance in education among state universities of Tamilnadu research scholars.

Table 6. The significant relationship between usage of open educational resources and performance in education among state universities of Tamilnadu research scholars.

Variables	Calculated r- Value
Usage of open educational resources	0.0381
Performance in education	

Table 6.The calculated r-value is less than the table value; there is no significant relationship between usage of open educational resources and performance in education of state universities of Tamilnadu research scholars.

8. Findings and Implementing Areas of Open Educational Resources (OER)

There is a significant difference between male and female state universities of Tamilnadu research scholars in their open educational resources. There is a significant difference between male and female research scholars in their performance in education. There is no significant relationship between open educational resources and performance in education among state universities of Tamil-nadu research scholars.

OEP is spread worldwide as practices in the research field for supporting researchers. It has enormous use in the research field in terms of reuse, copy-right use, etc. In India, OER and OEP are not introduced so much in the educational area, but they will spread in our country for the next ten years. As OER product or use, we had MOOC, NPTEL courses in recent time as free education [45]–[48]. In India's future, OER is going to widespread as a free education tool as it is. OER and OEP have an indirect effect on GDP in terms of free human resources and educational tools. In pandemic situations (like lock-down due to COVID-19) [49]–[51], OER is useful among learners because, in this time, without coming to the institution, learners can learn from their remote location. Open educational practices also help the researcher, academician, teacher for the research activity purpose in this pandemic situation. OER and OEP are implemented in the human resource sector to develop the educational goal [52]–[55]. OER provides free resources to the education field and readers like open-source resources for learning, and it has wider use in the education field. This COVID-19 virus infection is having the most significant impact nationwide. Significantly more than 91 percent of students have lost their fundamental rights to education due to the closure of many educational institutions [49]–[51], [56]–[59].

There are many lessons that human society has learned during this time. We know the importance of distance education and the importance of open education resources that provide the essential resources. Therefore, we compelling to make the most significant change in the education system of the future. People are in great fear because this corona virus [45], [60], [61] can kill elderly children and the sick. Parents, in particular, are having trouble sending their children to school. Therefore all educational institutions need to improve technology, open educational resources, and infrastructure. Even in such a situation where the disease spread is rare, students continue to receive their learning process with free educational resources. And this "OER" is the standard solution for any disasters (virus outbreak, world war, flood, rain, recession, famine, storm, etc.) that affect students' education. Education should be free, and OER mainly supports as well as promote that thought..

9. Conclusion and Recommendations

Over the past few years, OER has grown exponentially to meet its needs. This development is an essential need of the twenty-first century. In the improvement of education quality, OER brings to make the education digitalized with modern-day technology. In the present time, OER is widely using in institutions for upgrading the era of the pen-notebook period to the digital study era in the context of making the availability of education cum resources anytime, anywhere, to any person. Education should be free, and OER mainly supports as well as promote that thought. OER is helping to adapt to study in all situations. The COVID-19 epidemic and paralysis have questioned the education of migrant workers and their children. Open educational resources (OER) and open educational practices (OEP) are a sustainable and easy education system in the future, even in a virus outbreak, storm, flood, and world war. These free and readily available open education resources give students confidence and freedom of learning. Research scholars must be encouraged to do mini projects on the influence of open educational resources in day-to-day life. Research supervisors should encourage and direct to using the open educational resources to enhance the research scholar's education performance.

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Competing interests

The authors have no conflict of interest to declare.

Contributions

Each author contributed evenly to this paper. All authors read and approved the final manuscript.

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Availability of Data and Materials

The datasets generated and analyzed during the current study are not publicly available due to privacy reasons but are available from the corresponding author on reasonable request.

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