

Perceptions and Attitudes of Teacher Educators towards the Integration of Open Educational Resources (OER) in Teacher Education Programs in Telangana State

Dr.Dayakar Kurimeti
Assistant Professor
in Education
Department of Education
Dr.B.R.Ambedkar
Open University
Hyderabad
Telangana

Abstract

This study investigates teacher educators' understanding and attitudes of Open Educational Resources (OER) integration in Telangana teacher education programs, with a focus on variances in educational qualifications and teaching experience. A descriptive survey design was employed, with data acquired via an organized survey from 150 teacher educators at six state universities utilizing stratified random sampling. Results showed that 66% of teacher educators had medium to high OER awareness, though 34% reported inadequate awareness. ANOVA analysis identified considerable variations in the consciousness based on educational credentials ($F = 7.687$, $p = .006$), with UGC-NET/Ph.D.-qualified educators performing better. However, teaching experience had no significant influence on perceptions ($F = 1.666$, $p = .199$). The study results emphasize the role of advanced academic credentials in OER adoption and highlight the need for targeted training to improved integration, particularly among educators who have inadequate qualifications, to advance equitable and innovative professional competencies and skills required for 21st century.

Key words: *Attitude, awareness, Open Educational Resources (OER)*

Introduction

Open Educational Resources (OER) are increasingly being referred to around the world for promoting access, equity, and quality improvements in education (UNESCO, 2019). For teacher education programs, OER can potentially offer affordability, flexibility, and up-to-date instructional materials. Successful adoption, however, rests largely on the perception and attitude of teacher educators, who occupy a key position in the implementation of curriculum (Hilton, 2020). Previous research analyzing OER adoption in higher education has focused mostly on the broader context, and very little attention has been paid to teacher educators' perspectives, especially regarding pre-service teacher training. To fully understand their attitudes, it is necessary to know that reluctance or misconceptions would impact OER integration and thus its benefit fully possible from future teachers. The study explores teacher educators' perceptions and attitudes toward OER in teacher education programs, with both trends in adoption and institutional preparedness as gaps being addressed. The results highlight the enablers and barriers so as to inform policy and practice within a more sustainable OER ecosystem in teacher education.

Conceptual Framework

This study is theoretically framed through a hybrid construct of the Technology Acceptance Model (TAM) (Davis, 1989) and Rogers' Diffusion of Innovations (DoI) theory (2003). Together, both TAM and DoI provide a perspective on the assessment and adoption of new technologies by individuals. Perceived usefulness (PU) and PEOU comprise what TAM considers to be the critical inputs affecting technology adoption, while DoI focuses on compatibility, relative advantage, and complexity as innovation uptake attributes. Hence, both theories, as applied to OER integration, concentrate on shaping teacher educators' perceptions through their own assessments of OER's relevance for achieving their pedagogical goals, ease of application, and compatibility. Another dimension captured within the framework is institutional isomorphism, where DiMaggio and Powell (1983) discuss coercive (e.g., policy mandates), mimetic (e.g., peer modeling), and normative (e.g., professional standards) organizational pressure influences on educators' attitudes. The pedagogical aspect builds in constructivist learning theory (e.g., Vygotsky, 1978), seeing OER as tools for collaborative, adaptive knowledge-building, thus linking acceptance by educators to their pedagogical beliefs. What arises from the intertwining of these theories is that they explain how individual factors, institutional factors, and pedagogical factors interact together to shape teacher educators' readiness to adopt OER, thereby providing a comprehensive lens to analyze barriers (e.g., resistance to change) and enablers (e.g., institutional support).

Related Literature

Even when effective in democratizing knowledge and the lowering of costs (Mishra and Singh 2021), research on OER adoption in higher education does not ignore challenges in conforming to pedagogical practices (Hilton 2016). Studies note that acceptance of OER on the part of educators depends on whether it is believed to be useful and easy to use, along with institutional support (Otto 2020; Tang & Bao 2023). When you say that this conforms to the Technology Acceptance Model, created as per (Davis 1989), there is an example. For instance, Jhangiani et al. (2016) discovered that faculty members perceiving OER as able to adapt to their teaching needs were likely to adopt it, while resistance comes from concerns over quality and time constraints (Belikov & Bodily, 2016). Kasinathan et al. (2018) noted that cultural and institutional rules, such as rigid curricula or lack of training, stop OER integration in teacher education and relate this to DiMaggio and Powell's (1983) concept of institutional isomorphism. In addition, Tlili et al. (2020) mentioned how OER is consistent with constructivist pedagogies, such as co-working resources, which builds critical thinking skills among pre-service teachers, referring to social learning theory by Vygotsky (1978). However, gaps remain in understanding how teacher educators negotiate these factors. While global surveys (Cox & Trotter, 2017) map infrastructural barriers (e.g., limited technical access), few studies explore the interplay between educators' pedagogical beliefs and institutional policies in shaping OER adoption (Wiley et al., 2017; Jung et al., 2021). This study extends prior work by examining these interconnections within teacher education, addressing calls for context-specific OER research (Zancanaro & Amiel, 2022).

Identified Gaps

While existing research broadly explores OER adoption in higher education, three critical gaps emerge in the context of teacher education. First, despite acknowledging institutional and cultural barriers (Kasinathan et al., 2018; Cox & Trotter, 2017), few studies focus on the unique role of teacher educators as gatekeepers of pre-service training curricula, whose perceptions directly influence OER's scalability (Zancanaro & Amiel, 2022). Second, while TAM and DoI frameworks explain individual adoption behaviors (Davis, 1989; Rogers, 2003), there is limited investigation into how pedagogical beliefs (e.g., constructivist practices) interact with institutional pressures (e.g., policy mandates) to shape OER integration (Jung et al., 2021). Third, though OER's alignment with collaborative learning is theorized (Tlili et al., 2020), empirical evidence remains scarce on how teacher educators reconcile OER's adaptability with discipline-specific or accreditation-driven demands (Wiley et al., 2017). These gaps underscore the need for context-specific studies that bridge individual attitudes, institutional dynamics, and pedagogical philosophies in teacher education precisely the focus of this research.

Theoretical Foundations

A. Open Education Theory

Open Educational Resources (OERs) are those materials used for teaching, learning, and research that are freely accessible to everyone with no restrictions on their usage (UNESCO, 2012). Open Education Theory primarily highlights the democratization of knowledge since OERs overcome educational barriers to free access and reuse. In addition, another significant aspect stressed in their theory is collaborative knowledge production, where participatory creation and sharing thrive.

B. Constructivism and Social Learning

Constructivism emerged from the works of Piaget (1936) and Vygotsky (1978). In this model of pedagogy, learning is considered active construction of knowledge by the learners who are interacting with resources and peers. The constructivist learning process calls for OERs to greatly aid localized, contextual, and customizable content to meet the diverse needs of learners.

C. Capability Approach

The Capability Approach as propounded by Amartya Sen (1980) and Martha Nussbaum (1990) aims to increase the abilities of individuals to live a life they value. Open Educational Resources (OER), in education, are an avenue to enhancing capabilities through access to quality education and empowerment for the marginalized, like rural learners and women. Lack of finances and structure has thus given OER users space for their skill-building and personal growth.

D. Critical Pedagogy

Critical pedagogy, as conceived by Paulo Freire (1970), questions the traditional hierarchy of the teaching situation in which students is perceived as passive recipients of knowledge. On the one hand, OER relate to learner agency, the decolonization of curricula, and the awakening of critical thinking.

The most prominent characteristics of OER are their compliance with the 5R Permissions framework developed by David Wiley that essentially delineates the freedoms that constitute open education. The 5Rs (*Retain, Reuse, Revise, Remix, Redistribute*) are complemented by the principle of Open Access, which ensures OER are freely available online without barriers such as pay walls or subscriptions, thus

democratizing access for learners irrespective of their socioeconomic standing. This is legally supported by Open Licensing, most often through Creative Commons (CC) licenses, which explicitly specify the permissions granted for reuse. For example, the CC BY (Attribution) license permits all uses as long as credit is given to the original authorship, while CC BY-SA (Share Alike) requires that any derivative works be licensed under the same terms. In contrast to standard copyrighted works, the licensing of OER removes the problem of legal ambiguity so that educators and learners can understand without fearing infringement as to what actions they may want to engage-in such as adapting a textbook or remixing multimedia. Thus, these features-encompassing openness, flexibility, and legal clarity-earn OER the title of an innovative apparatus for equitable, participatory, and sustainable education.

OER in Teacher Education

In India, Open Educational Resources (OER) have gained traction as a tool to address systemic challenges in education, including high costs of materials, regional language diversity, and unequal access to quality teacher training. Government initiatives like the *National Digital Library of India (NDLI)*, *SWAYAM* (online courses), and *DIKSHA* (digital infrastructure for teachers) promote OER to democratize education, aligning with the National Education Policy (NEP) 2020's emphasis on technology-integrated, inclusive learning. In teacher education, OER offers adaptable resources for pre-service and in-service training, enabling educators to address localized needs (e.g., multilingual content, contextual pedagogies) and model innovative practices for future teachers. Challenges include infrastructural gaps (limited internet access in rural areas), uneven awareness of OER's potential, and institutional inertia in moving beyond traditional textbooks. However, grassroots efforts by organizations like *NCERT* (e.g., e-Pathshala) and collaborations with global OER platforms (e.g., Khan Academy partnerships) showcase progress. By integrating OER into teacher education curricula and fostering institutional support (training, policy incentives), India can empower educators to co-create and share resources, bridging gaps in quality and equity while preparing teachers for 21st-century classrooms.

Objectives

1. To examine teacher educators' awareness and perceptions of Open Educational Resources
2. To study teacher educators' awareness and perceptions of Open Educational Resources in relation to educational qualification and teaching experience

Hypotheses

Based on theoretical and empirical evidences the following hypotheses were formulated:

3. There is a significant difference in teacher educators' awareness and perceptions of Open Educational Resources (OER) with respect to their educational qualifications.
4. There is a significant difference in teacher educators' awareness and perceptions of Open Educational Resources (OER) with respect to their teaching experience.

Methodology

Design of the study

According to the objectives this study was employed a descriptive survey research design to explore awareness and perceptions of Open Educational Resources in Teacher education Institutions of Telangana State. This approach is suitable for capturing the current status of teachers' awareness and perceptions. The survey design allows for the collection of both quantitative and qualitative data, providing a comprehensive view of the issue.

Sample of the study: For the present study, proportionate stratified random sample technique was adopted. The present study employed a stratified random sampling technique to ensure proportionate and representative selection of teacher educators from various universities offering B.Ed. programs in Telangana. The total population included 2,642 teacher educators working in 195 B.Ed. colleges affiliated to six state universities: Osmania University, Telangana University, Kakatiya University, Palamuru University, Satavahana University, and Mahatma Gandhi University. From this population, a sample of 150 teacher educators was drawn. To maintain proportional representation, the sample was stratified according to the number of teacher educators in each university, and simple random sampling (lottery method) was employed within each stratum. This method ensured that the sample accurately reflected the composition of the total population, thereby enhancing the reliability and generalizability of the study findings.

Research tool

Research tool was developed by the researcher for obtaining information on identified variables of the study. The tool was developed for the purpose of procuring as much information as possible on each specific item from teacher educators. Survey method was used to assess the level of perceptions and attitude on OER integration in teacher education.

Teacher's attitude and perception scale on OER integration in teacher education was constructed by the investigator after referring to some of the available standardized tools. The motivation for developing a new tool is expert's suggestions and the researcher's belief that the previous tools are inadequate for some reasons and not completely cover the dimensions under present study.

The *Technological Pedagogical Content Knowledge (TPACK)* framework (Mishra & Koehler, 2006) is adopted to structure the "*Teacher's Attitude and Perception Scale on OER Integration*," as it holistically addresses teachers' interplay of *technology* (OER platforms), *pedagogy* (instructional strategies), and *content mastery* (subject expertise). TPACK's emphasis on contextual integration aligns with key OER adoption challenges, such as adapting resources to pedagogical goals (*Technological Pedagogical Knowledge*) and enhancing subject delivery (*Technological Content Knowledge*).

Validity of the data collection tool

The validity of the "*Teacher's Attitude and Perception Scale on OER Integration*" was ensured through content validity and construct validity. Content validity was established by aligning the tool with the Technological Pedagogical Content Knowledge (TPACK) framework and incorporating feedback from experts in education and OER to ensure relevance and comprehensiveness. Construct validity was supported by grounding the questionnaire in established theories (e.g., TAM, DoI) and

prior empirical studies, ensuring it accurately measured awareness and perceptions of OER. While the tool demonstrated logical coherence with theoretical constructs, further validation through factor analysis could strengthen its psychometric robustness in future studies.

Reliability

To assess the internal consistency of the 70-item scale, Cronbach's Alpha was calculated. The analysis yielded a Cronbach's Alpha coefficient of 0.776, indicating a good level of reliability, suggesting that the items have relatively high internal consistency and are measuring the same underlying construct. Despite the medium correlation between the two halves of the scale observed in the split-half reliability (with Spearman-Brown and Guttman coefficients at 0.424), the overall alpha value supports the reliability of the scale as a whole. Therefore, the 70-item scale can be regarded as a reliable instrument for data collection in this context. This high alpha value indicates that the awareness and perceptions of Open Educational Resources Questionnaire is a reliable instrument for measuring teachers' awareness and perceptions towards the integration of OER in Teacher Education. However, to enhance the generalizability and robustness of the scale, it is recommended that the instrument be further standardized and validated using a larger and more diverse sample.

Procedure

The researcher developed a structured Teacher's attitude and perception on OER integration in teacher education Questionnaire using Google Forms as the research tool for data collection. The link to the online questionnaire was shared with teachers from six selected Telangana State Universities through email and official university/college communication channels, along with clear instructions for completion. Before data collection, the researcher established rapport with the teachers through virtual interactions and explained the purpose of the study. Participants were assured of confidentiality and informed that their responses would be used solely for research purposes. Once the responses were received, the data were downloaded in spreadsheet format and analyzed using SPSS version 20. Descriptive statistics and the F-test were applied, and the results are presented in the following tables.

Results

Table-1:
Teacher Educators' Awareness and Perceptions of Open Educational Resources (OER)

Awareness and Perceptions of (OER)	Frequency	Percentage
Low	51	34.0%%
Medium	49	32.7%
High	50	33.3%
Total	150	100%

Out of 150 teacher educators, 51 (34.0%) had low, 49 (32.7%) had medium, and 50 (33.3%) had high levels of awareness and perceptions of Open Educational Resources (OER). This indicates that a majority (66%) of teacher educators demonstrated medium to high levels of awareness and perceptions, while a smaller proportion (34%) showed low levels. Thus, it may be concluded that most teacher educators are moderately to highly aware of OER and its integration into teacher education programmes.

Hypothesis-1: There is a significant difference in teacher educators' awareness and perceptions of Open Educational Resources (OER) with respect to their educational qualifications
The F-test was conducted to test the hypothesis.

Table-2:
**Showing Teacher Educators' Awareness and Perceptions of Open Educational Resources (OER)-
Educational Qualification wise**

Teacher Educators' Awareness and Perceptions on OER	Educational Qualifications	N	Mean	Std. Deviation	F	Sig.	df
	PG with M.Ed.	39	215.4615	12.8305	6.892	.001	2, 147
	UGC-NET with Ph.D.	54	226.1481	16.0945	7.665	.006	
	PhD without NET	57	223.5263	12.6068	6.096	.015	
	Total	150	222.3733	14.5613	7.687	.006	

Table-2 presents the analysis of teacher educators' awareness and perceptions of Open Educational Resources (OER) based on their educational qualifications. The mean scores indicate that educators with UGC-NET and PhD (M = 226.15) have higher awareness and perceptions, followed by those with PhD without NET (M = 223.53), and PG with MEd (M = 215.46). The ANOVA results show a statistically significant difference (F = 7.687, p = .006) among the groups. Hence, the hypothesis (H1) is accepted, indicating that educational qualifications significantly influence teacher educators' awareness and perceptions of OER.

This finding is supported by the findings of Orr, D., Rimini, M., & Van Damme, D. (2015), Belikov, O. M., & Bodily, R. (2016), Cox, G., & Trotter, H. (2016). But contradicting from the findings of Rolfe, V. (2012), de los Arcos, B., Farrow, R., Perryman, L.-A., Pitt, R., & Weller, M. (2014), Allen, I. E., & Seaman, J. (2014) that no significant difference in teacher educators' awareness and perceptions of Open Educational Resources (OER) with respect to their educational qualifications.

H2: There is a significant difference in teacher educators' awareness and perceptions of Open Educational Resources (OER) with respect to their Teaching experience
The F-test was conducted to test the hypothesis.

Table-3:
**Showing Teacher Educators' Awareness and Perceptions of Open Educational Resources (OER)-
Teaching Experience wise**

Teacher Educators' Awareness and Perceptions on OER	Teaching Experiences	N	Mean	Std. Deviation	F	Sig.	df
	Upto 10 yrs	59	220.2373	16.0100	3.758	.026	2, 147
	11 to 20 yrs	61	221.3279	13.2573	6.966	.009	
	Above 21 yrs	30	228.7000	12.6549	5.850	.017	
	Total	150	222.3733	14.5613	1.666	.199	

Table-3 presents the awareness and perceptions of Open Educational Resources (OER) among teacher educators based on their teaching experience. The mean scores indicate a positive trend: educators with over 21 years of experience reported the highest awareness ($M = 228.70$), followed by those with 11–20 years ($M = 221.33$), and those with up to 10 years of experience ($M = 220.24$).

Although there is an increasing pattern in mean scores with years of experience, the overall result ($F = 1.666$, $p = .199$) is **not statistically significant** at the 0.05 level. This suggests that the observed differences in awareness and perceptions of OER among different experience groups may be due to random variation rather than actual differences related to teaching experience.

This finding is supported by finding of *Mtebe and Raisamo (2014)*, *Hatakka (2009)*.. But the findings of *Rolfe (2012)* and *Harish and Belawati (2020)* revealed no significant difference in teacher educators' awareness and perceptions of Open Educational Resources (OER) with respect to their Teaching experience

Discussion

Another major goal of the present study was to examine the awareness of and perceptions toward OER among teacher educators and to see if they largely differ with regard to educational qualifications and experience in teaching. The findings show that OER awareness was fairly distributed among the teacher educators, with 66% having medium to high levels of awareness and 34% falling under low-awareness. This means OER and their possible integration in teacher education programs are not entirely new to teacher educators in the study. On the other hand, the existence of one-third of the population with low awareness underscores the importance or need for further sensitization and training programs.

With regard to educational qualifications, the study found that a statistically significant difference in awareness and perception existed in the case of OER. Teacher educators holding UGC-NET and PhD qualifications formed the highest OER awareness group, followed by PhD but not NET, and then PG and MED. This confirms the hypothesis that higher educational qualifications would relate positively to understanding and engagement with OER. One might conclude that educators with research training and more academic exposure are also more likely to explore and adopt innovative educational resources. In relation to teaching experience, on the other hand, OER awareness was observed to increase gradually with increased years of experience, but differences were not significant statistically. This may indicate that teaching experience by itself is not a strong determiner for OER awareness and perceptions. Rather, the extent to which one interacts with OER may stem more from reliable recent training, institutional culture, or personal initiative than the number of years within the profession.

Conclusion

The study concludes that whereas most teacher educators were noted to have medium to high awareness levels and perception of Open Educational Resource (OER), there existed significant differences when considering educational qualifications: the greatest awareness always belonged to those with higher academic credentials. Teaching experience has no significant impact on OER awareness. This finding, therefore, implies that targeted CPD for the enhancement of OER integration is vital across the board to all educators.

References:

1. Hatakka, M. (2009). *Open educational resources: The current state of the art*. International Journal of Distance Education Technologies, 7(3), 52-70.
2. <https://doi.org/10.4018/jdet.2009070104>
3. Harish, N., & Belawati, T. (2020). *Teachers' perception and usage of open educational resources in India: A study of challenges and opportunities*. Asian Journal of Distance Education, 15(2), 61-74. <https://doi.org/10.5281/zenodo.4018285>
4. Mtebe, J. S., & Raisamo, R. (2014). *Teachers' adoption and use of open educational resources in higher education in Tanzania*. The International Review of Research in Open and Distributed Learning, 15(2), 85-100. <https://doi.org/10.19173/irrodl.v15i2.1681>
5. Rolfe, V. (2012). *The adoption and use of open educational resources in the United Kingdom: A review of literature*. Journal of Open, Flexible and Distance Learning, 16(1), 15-28.
6. Bates, T. (2015). *Teaching in a digital age: Guidelines for designing teaching and learning for a digital age*. Tony Bates Associates Ltd.
7. <https://opentextbc.ca/teachinginadigitalage/>
8. Dube, B., & Venter, I. (2013). *A study on the awareness and usage of open educational resources among faculty members in South African universities*. The International Review of Research in Open and Distributed Learning, 14(2), 107-125.
9. <https://doi.org/10.19173/irrodl.v14i2.1339>
10. Jhangiani, R. S., & Biswas-Diener, R. (2017). *Open: The philosophy and practices that are revolutionizing education and science*. Ubiquity Press. <https://doi.org/10.5334/bbc>
11. Lane, A. (2012). *Open educational resources: A review of the literature*. International Review of Research in Open and Distributed Learning, 13(2), 1-9.
12. <https://doi.org/10.19173/irrodl.v13i2.1063>
13. Ngugi, E. W., & Kioko, M. (2014). *Challenges in the integration of open educational resources (OER) in teaching and learning in sub-Saharan Africa*. The International Journal of Information and Learning Technology, 31(5), 394-406. <https://doi.org/10.1108/IJILT-01-2014-0001>
14. Orr, D., & Williams, S. (2015). *Fostering awareness and uptake of open educational resources among faculty: A case study*. International Journal of Educational Technology in Higher Education, 12(1), 8-19. <https://doi.org/10.1186/s41239-015-0005-5>