



Open Educational Resources in Teacher Education: Awareness and Barriers among Teacher Educators and Student-Teachers in Koraput, Odisha

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Abstract

Open Educational Resources (OER) are widely promoted as a route to affordable and equitable teacher education, yet little is known about how they are received in rural and tribal districts of India. This study examined the level of awareness of OER, and the challenges to their use, among teacher educators and student-teachers in four teacher-training institutions in Koraput district, Odisha. A descriptive survey with concurrent quantitative and qualitative strands was conducted with 25 teacher educators and 80 student-teachers recruited through convenience sampling. Awareness was measured with two researcher-developed, 17-item, five-point Likert scales; challenges were explored through open-ended questionnaires analysed by content analysis. Mean awareness scores were 66.72 (SD = 2.92) for teacher educators and 65.46 (SD = 6.97) for student-teachers, about 77–79% of the maximum possible score, and most respondents fell in the moderate band (68% and 65%). Teacher educators most often reported the time and effort needed to adapt OER (70%), lack of training and institutional support (60%), and doubts about quality (55%). Student-teachers most often reported doubts about the legitimacy of free materials (50%), difficulty navigating digital platforms (40%), gaps in regional-language and accessible content (35%), and limited devices or connectivity (30%). General awareness appears to have run ahead of the practical, institutional and infrastructural conditions needed for use. Implications for training, curated regional-language OER and institutional policy are discussed.

Keywords: open educational resources; teacher education; awareness; barriers to adoption; digital divide; Odisha; India

1. Introduction

Open Educational Resources (OER) are teaching, learning and research materials, in any medium, that sit in the public domain or are released under open licences permitting free access, reuse, adaptation and redistribution (UNESCO, 2019; Hilton et al., 2010). Since the early 2000s the OER movement has been presented as a way of lowering the cost of learning materials and widening participation (Atkins et al., 2007). The 2019 UNESCO Recommendation on OER set out a global framework built on capacity building, supportive policy, equitable access, sustainability and international cooperation, explicitly tied to the Sustainable Development Goals (Ossiannilsson et al., 2023; UNESCO, 2019).

The evidence on uptake is less encouraging than the rhetoric. Baas et al. (2019) found that teachers in higher education mostly share resources informally within personal networks and that broader OER adoption remains limited. Teacher educators in India report doubts about the authenticity and quality of open materials (Paleeri, 2018), and Indian faculty surveys point to limited understanding of licensing, shortage of time, and weak funding and incentives (Mishra & Singh, 2017). Systematic reviews show that the constraints differ by region: sporadic adoption and infrastructural, cultural and linguistic obstacles in Africa (Tlili et al., 2022), limited evidence on learning impact in China (Tlili et al., 2019), and problems of funding, ownership and licensing in the United States (McGowan, 2020).

India has built a substantial supply side for open content, including the National Mission on Education through ICT (NMEICT), e-GyanKosh, the Consortium for Educational Communication, the National Digital Library of India and the SWAYAM platform, and the National Education Policy 2020 calls for technology and open content to be used to transform teaching and learning (Ministry of Education, 2020). The demand side is less well understood. Digital infrastructure and teachers' digital competence remain uneven (Rawal, 2024), and awareness studies in teacher-training institutes are few (e.g., Saxena & Singh, 2023).

Teacher-training institutions deserve particular attention because they are where future teachers form their habits of sourcing and evaluating materials, and where teacher educators model them. This matters most in under-resourced settings. Koraput, a rural, tribal-dominated district of southern Odisha with considerable geographical and socio-economic disadvantage, hosts a District Institute of Education and Training (DIET), two universities and a college of teacher education, yet we identified no empirical study of OER in any of them. Existing work on OER awareness and use concentrates on urban or well-resourced institutions, usually studies faculty or students but not both in the same institutions, and tends to measure awareness rather than the practical conditions that determine whether resources are actually used.

This study addresses those gaps. It asks two research questions: RQ1, what is the level of awareness of OER among teacher educators and student-teachers in the teacher-training institutions of Koraput district? RQ2, what challenges do the two groups face in accessing and using OER?

2. Review of Related Literature

2.1 OER in teacher education and higher education

Studies in teacher and university education generally report favourable perceptions of OER. Kasumu and Udak (2023), using a descriptive survey of university students, concluded that OER can be reached anywhere and at any time and can help alumni stay connected to their institution for lifelong learning. Llanda (2023), using a concurrent nested mixed-methods design with 93 faculty members at a private school in Cagayan de Oro, Philippines, concluded that OER had contributed substantially to faculty teaching needs and examined how faculty characteristics related to the extent of use. Torres et al. (2017) showed in a Brazilian university that OER production through collaborative co-creation, supported by social media and regular group meetings, was workable and valued by participants. Together these studies suggest that OER are welcomed when access, guidance and collaboration are in place.

2.2 Barriers to adoption

Barriers recur across contexts and cluster into three groups. The first is quality and trust: educators doubt the rigour of freely available material (Paleeri, 2018; Mishra & Singh, 2017). The second is institutional: limited time, little funding or incentive, weak policy and limited understanding of copyright and open licensing (McGowan, 2020; Mishra & Singh, 2017). The third is infrastructural and linguistic: unequal access to devices, connectivity and digital skills (Rawal, 2024), compounded by cultural and linguistic diversity (Tlili et al., 2022).

2.3 Research gap

Three gaps follow. First, little is known about OER in rural and tribal districts, where infrastructure and digital literacy differ sharply from the urban settings that dominate the literature. Second, faculty and student perspectives are usually studied separately, so the two cannot be compared within the same institutional ecology. Third, most studies stop at awareness or access; the conditions of practical use, such as ease of navigation, relevance, language and institutional support, are less examined. The present study responds to all three.

3. Method

3.1 Design

The study was a cross-sectional descriptive survey with a concurrent mixed-methods structure: a quantitative strand (awareness scales) and a qualitative strand (open-ended questionnaires) were administered together, analysed separately and brought together at the interpretation stage. The design is exploratory and descriptive: it suits the aim of characterising the current state of awareness and perceived challenges in a defined set of institutions, rather than testing hypotheses or estimating population parameters.

3.2 Setting, participants and sampling

The population comprised all teacher educators and student-teachers in the four teacher-training institutions of Koraput district: District Institute of Education and Training (DIET), Koraput; Vikram Dev University, Jeypore; Central University of Odisha, Koraput; and the DAV College of Teacher Education, Koraput. All four institutions were included. Within them, participants were recruited through convenience sampling, a non-probability technique in which respondents are selected because they are accessible and willing to take part at the time of data collection (Etikan et al., 2016). The final sample comprised 25 teacher educators and 80 student-teachers (Table 1). To prevent any one institution from dominating the student data, a quota of 20 student-teachers was recruited from each institution; the number of teacher educators (5 to 7 per institution) reflected how many were available and willing to respond.

Convenience sampling was adopted for three reasons. First, the study is an exploratory descriptive survey whose purpose is to characterise awareness and perceived barriers in a specific local setting, not to estimate population values, so statistical generalisation was not the aim. Second, the institutions are geographically dispersed and faculty timetables and student schedules limited access, so drawing a random sample of named individuals and securing their participation was not practical; including those who were present and willing was the feasible route to a complete, usable data set. Third, recruiting all four institutions with an equal student quota gives each institution comparable weight and covers the district's entire teacher-training provision. The trade-off is that the results describe these respondents and cannot be extended statistically to all teacher educators or student-teachers in the district; this is taken up in the limitations.

Table 1: Distribution of the Sample by Institution

Institution	Teacher educators	Student-teachers
District Institute of Education and Training (DIET), Koraput	5	20
Vikram Dev University, Jeypore	7	20
Central University of Odisha, Koraput	6	20
DAV College of Teacher Education, Koraput	7	20
Total	25	80

Note. Participants were recruited by convenience sampling; student-teachers were recruited with a quota of 20 per institution.

3.3 Instruments

Four instruments, all developed by the researcher for this study, were used (Table 2). The two awareness scales, one for teacher educators and one for student-teachers, each contain 17 five-point Likert items (strongly disagree to strongly agree), giving possible scores of 17 to 85. The teacher-educator scale covers conceptual awareness, usage and integration, institutional support and attitudinal beliefs; the student scale covers understanding and awareness, usage and experience, support and guidance, and perceived value and attitude. Each group also completed a 10-item open-ended questionnaire (yes/no prompts with a request to elaborate) on access and support, perceived barriers, motivation and collaboration, and suggestions for improvement.

Table 2: Structure of the Research Instruments

Instrument	Items	Dimensions (number of items)
Faculty awareness scale	17	Conceptual awareness (5); usage and integration (5); institutional support (3); attitudinal beliefs (4)
Student awareness scale	17	Understanding and awareness (4); usage and experience (5); support and guidance (4); perceived value and attitude (4)

Instrument	Items	Dimensions (number of items)
Faculty questionnaire (open-ended)	10	Awareness and familiarity (1); institutional and technical support (2); perceived barriers (3); motivators and collaboration (2); prospects and suggestions (2)
Student questionnaire (open-ended)	10	Access and availability (2); usability and digital navigation (2); quality and credibility (1); benefits and learning engagement (3); challenges and suggestions (2)

Note. Awareness scales were scored 1–5 per item (range 17–85).

3.4 Procedure and ethics

Permission was obtained from the head of each institution. The researcher administered the instruments in person; where this was not feasible, digital versions were sent by e-mail or online platforms. Participants were told the purpose of the study, participation was voluntary, informed consent was obtained and responses were kept confidential.

3.5 Data analysis

Scale scores were summarised with the mean, median, mode, standard deviation, range and skewness. Respondents were then placed in low, moderate and high awareness bands using the sample mean $\pm$ 1 SD; these bands are therefore relative to each sample, not absolute standards. Open-ended responses were analysed by qualitative content analysis, in which recurring themes were identified and the percentage of respondents mentioning each theme was reported. Because respondents could raise more than one theme, percentages do not sum to 100.

4. Results

4.1 Level of awareness (RQ1)

Both groups scored in the upper-middle part of the scale (Table 3). Teacher educators averaged 66.72 (SD = 2.92), and student-teachers 65.46 (SD = 6.97). Expressed against the maximum score of 85, these means are 78.5% and 77.0%, or about 3.9 and 3.85 per item, close to “agree” on the five-point scale. The medians and modes sit next to the means and skewness is small and negative in both groups, indicating near-symmetric distributions with a slightly longer tail towards lower scores. Student scores were considerably more dispersed than those of teacher educators, whose responses were unusually homogeneous.

Table 3: Descriptive Statistics of Awareness Scores

Statistic	Teacher educators (n = 25)	Student-teachers (n = 80)
Mean	66.72	65.46
Median	67	65.5
Mode	66	66
Standard deviation	2.92	6.97
Observed range	57–71	49–81
Skewness	–0.23	–0.017
Mean as % of maximum (85)	78.5	77.0
Mean per item (1–5)	3.92	3.85

Note. Percent of maximum and per-item means were calculated from the reported mean scores, assuming 17 items scored 1–5.

Using the mean $\pm$ 1 SD rule, about two-thirds of each group fell in the moderate band (Table 4): 68% of teacher educators and 65% of student-teachers. High awareness characterised 24% of teacher educators and 16.25% of student-teachers, and low awareness 8% and 18.75% respectively. The student group therefore contained a larger low-awareness segment, consistent with its wider spread of scores.

Table 4: Classification of Awareness Levels

Level	Teacher educator cut-off	f (%)	Student cut-off	f (%)
Low	< 63.80	2 (8.0)	< 58.49	15 (18.75)
Moderate	63.80–69.64	17 (68.0)	58.49–72.43	52 (65.0)
High	> 69.64	6 (24.0)	> 72.43	13 (16.25)
Total		25 (100)		80 (100)

Note. Cut-offs are mean $\pm$ 1 SD of each group.

4.2 Challenges in accessing and using OER (RQ2)

Content analysis of the open-ended responses identified four areas of difficulty for each group (Tables 5 and 6). For teacher educators, the most frequently cited challenge was the time and effort needed to adapt OER to the curriculum (70%), followed by lack of awareness, training and institutional support (60%), concerns about quality and credibility (55%) and technical barriers such as incompatible file formats, platform restrictions and difficulty integrating OER with learning management systems (45%).

Table 5: Challenges Reported by Teacher Educators

Challenge area	%	Specific issues
Time and effort for adaptation	70	Need to customise content, lack of incentives, extensive modification effort
Lack of awareness, training and support	60	Limited knowledge of OER, no training programmes, insufficient institutional support
Quality and credibility	55	Scepticism about reliability, absence of standardised peer review, perceived lower academic value
Technical barriers	45	Incompatible file formats, platform restrictions, LMS integration difficulties

Note. Respondents could report more than one challenge; percentages therefore exceed 100 in total.

Student-teachers most often questioned the legitimacy of free materials (50%), believing them to be of lower value than paid textbooks. Forty per cent reported difficulty navigating digital platforms, 35% cited the absence of regional-language content and of accessibility features for learners with disabilities, and 30% reported unreliable internet access or lack of devices.

Table 6: Challenges Reported by Student-Teachers

Challenge area	%	Specific issues
Perceived legitimacy of free resources	50	Belief that free materials lack value compared with paid resources
Limited digital literacy	40	Difficulty navigating digital platforms efficiently
Language and accessibility	35	Lack of regional-language support; insufficient accessibility features for students with disabilities
Limited digital access	30	Unreliable internet access, lack of devices

Note. Respondents could report more than one challenge; percentages therefore exceed 100 in total.

5. Discussion

5.1 Awareness without confident practice

Both groups reported awareness well above the scale midpoint, and the level was similar for teacher educators and student-teachers. The finding is encouraging, since it indicates that OER are not unknown in Koraput's teacher-training institutions. It should not be over-read, however. The low, moderate and high bands are defined relative to each sample, so a mostly "moderate" distribution is close to what the method produces whatever the true level, and the scales rely on self-report. The more informative result is the contrast between this reasonably high awareness and the challenges reported: 60% of teacher educators still cited lack of awareness, training and institutional support, and half of the students doubted that free materials are as valuable as paid ones. Awareness of the concept therefore seems not to have translated into the skills, institutional backing and trust needed for routine use. This is a plausible reading rather than a tested one, because the study did not measure actual use, and it fits the broader picture of limited and informal OER uptake reported by Baas et al. (2019).

5.2 Teacher educators: time, support and trust

The most common faculty barrier, the time and effort needed to adapt materials, matches Indian faculty reports of insufficient time and the lack of funding, incentives and institutional support for OER work (Mishra & Singh, 2017) and the weak institutional structures documented elsewhere (McGowan, 2020). Adaptation is the step at which OER differ from conventional resources and where their promise of customisation is realised, so a workload that does not recognise it is a structural obstacle. The collaborative co-creation model described by Torres et al. (2017) points to one remedy: shared development spreads the effort and builds quality through peer input. The 55% who questioned quality echo the scepticism of teacher educators reported by Paleeri (2018) and the mild quality reservations of Indian faculty in Mishra and Singh (2017). Respondents linked the concern to the absence of standardised peer review, which suggests that curation, rather than persuasion, is what would address it.

5.3 Student-teachers: trust, skills, language and access

Half of the students equated "free" with "inferior". We did not test why, but it may reflect a heuristic that price signals quality, and it parallels the faculty quality concern, so that both groups appear to lack ways of judging openly licensed material. The 40% who found platforms hard to navigate and the 30% limited by connectivity or devices are consistent with the unevenness of digital infrastructure and competence across India (Rawal, 2024) and are likely to be sharper in a rural, tribal district. Language is the barrier most specific to context: 35% pointed to a lack of regional-language and accessible content, in line with the cultural and linguistic diversity identified as an obstacle to OER in Africa (Tlili et al., 2022). Because most widely available OER are in English, regional-language adaptation may be as important to equity as access itself.

5.4 Implications

For institutions and teacher educators:

- Offer regular training on finding, evaluating, licensing, adapting and attributing OER, and build digital-literacy modules into the programme for student-teachers.
- Embed OER in the teacher-education curriculum and in assignments so that use is structured rather than optional.
- Recognise adaptation and creation of OER in workload and incentives, and support collaborative development across the four institutions.
- Provide shared devices, reliable connectivity and access points, and support for file-format and learning-management-system integration.

For policy and platform providers:

- Curate and quality-assure OER collections, including through visible review, so that trust does not depend on individual judgement.
- Fund regional-language (for example Odia) OER aligned with local curricula, and apply universal-design principles so that resources work for learners with disabilities.
- Align district-level action with the national supply of open content (for example SWAYAM and the National Digital Library of India) and the capacity-building and equity aims of the UNESCO (2019) Recommendation and National Education Policy 2020.

5.5 Limitations

The findings must be read with several limits in mind. Participants were recruited by convenience sampling, so the sample is non-probabilistic and may over-represent respondents who were more accessible, more willing to respond or more at ease with digital resources; the findings cannot be generalised statistically. The sample is also small, particularly for teacher educators ($n = 25$), and covers a single district. All data are self-reported. The scales were developed by the researcher and no reliability or validity evidence is reported here; this should be added or the scales treated as exploratory. Awareness bands are sample-referenced rather than criterion-referenced. Theme percentages come from content analysis for which the coding procedure and inter-coder agreement are not reported, and some of the faculty percentages cannot correspond to whole numbers of 25 respondents, so the denominators should be confirmed. Instruments were administered partly in person and partly online, which may have introduced mode effects. Finally, the study measured awareness and perceived barriers; it did not measure actual OER use or usability directly, and no inferential tests were run.

5.6 Directions for future research

Future work could extend the design to other districts and states to identify regional disparities; evaluate training interventions for teacher educators and student-teachers using pre-post or longitudinal designs; examine actual use and usability with task-based or usage-log measures; explore perceptions of OER quality and credibility in more depth, including how trust is formed; and study the barriers to OER creation and sharing by faculty, especially in regional languages and inclusive education contexts.

6. Conclusion

Teacher educators and student-teachers in Koraput district report moderate-to-good awareness of OER, but the conditions for effective use are not yet in place. Teacher educators are held back mainly by the time adaptation takes, limited training and support, and doubts about quality; student-teachers by distrust of free materials, limited digital skills, scarce regional-language and accessible content, and uneven access to devices and connectivity. Closing the gap between awareness and practice will take coordinated action on training, workload and incentives, curation of trustworthy regional-language resources and basic digital infrastructure. Because the study is a small, single-district descriptive survey, these conclusions are best treated as grounded hypotheses for larger and more rigorous investigation.

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