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# **A Research Protocol for Investigating the Adoption and Impact of Open Educational Resources in Senegalese Higher Education**

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## **Abstract**

This research protocol outlines a mixed-methods investigation into the adoption and impact of Open Educational Resources (OER) within Senegalese higher education from 2021 to 2023. It addresses the critical problem of resource scarcity and escalating costs, which hinder equitable access to quality learning materials. The study aims to map the current landscape of OER awareness and use among educators and students, and to evaluate the pedagogical and economic impacts of OER integration on teaching practices and learning outcomes. Employing a sequential explanatory design, the methodology will commence with a large-scale survey across three purposively sampled Senegalese universities, followed by in-depth interviews and focus group discussions with key stakeholders. Preliminary desk research indicates a nascent but growing OER movement in Senegal, with institutional adoption remaining fragmented. The protocol is designed to produce findings that will rigorously identify key drivers and systemic barriers—such as digital infrastructure, policy frameworks, academic incentives, and cultural attitudes—specific to the Senegalese context. The significance of this research lies in its potential to generate robust, empirical evidence to inform contextually-relevant policy and institutional strategies for scaling OER adoption. By prioritising an African perspective, it aims to contribute directly to Sustainable Development Goal 4, enhancing the affordability, accessibility, and relevance of higher education in Senegal and offering a transferable framework for similar settings across the continent.

**Keywords:** *Open Educational Resources, higher education, Sub-Saharan Africa, mixed-methods research, educational technology, digital inclusion, Senegal*

## INTRODUCTION

The global disruption of the COVID-19 pandemic served as a profound stress test for higher education, starkly revealing pre-existing infrastructural and pedagogical vulnerabilities worldwide ([Valfort, 2020](#)). In Senegal, the sudden pivot to remote learning exposed critical digital divides and a reliance on resources ill-suited to emergency contexts, underscoring an urgent need for resilient and equitable educational materials ([Vengadasalam, 2020](#)). Open Educational Resources (OER), defined as teaching and learning materials released under open licences permitting no-cost access and adaptation, are theoretically positioned to address these needs by democratising knowledge. Their potential aligns with Senegal's developmental goals for higher education, which aim to expand access and foster innovation amidst resource constraints ([Béch , 2020](#)). However, the transition from theoretical promise to impactful adoption is complex, necessitating a rigorous, context-specific investigation into the mechanisms and outcomes of OER integration within Senegalese universities.

This investigation is imperative given Senegal's distinct socio-technical landscape, which shapes both opportunities and barriers for OER ([Zaid & Alabi, 2020](#)). While digital infrastructure has improved, equitable access remains a pressing concern, particularly for students from rural or low-income households ([Frazzoli, 2020](#)). Furthermore, effective OER use requires a pedagogical shift towards actively remixing and contextualising resources, a transition demanding digital literacy and institutional support that cannot be assumed ([Vengadasalam, 2020](#)). The experience of Ghana during the pandemic illustrates that rapid adoption of digital tools without adequate educator training leads to suboptimal learning experiences ([Agormedah et al., 2020](#)). In Senegal, a similar risk exists if OER are viewed merely as a cost-saving measure rather than a catalyst for pedagogical renewal.

The sustainability of OER initiatives is another critical determinant of long-term impact ([Zaid & Alabi, 2020](#)). Research from Nigeria identifies persistent challenges, including inadequate funding, a lack of institutional policy, and limited awareness of open licensing ([Zaid & Alabi, 2020](#); [Otto, 2019](#)). These findings are pertinent to Senegal, where the absence of coherent national policy could stifle efforts. Sustainability also involves cultural change, requiring a shift in how academic labour and resource creation are valued ([Otto, 2019](#)). Without formal recognition, academics may prioritise traditional research over curating OER. Concurrently, contextual relevance is paramount; the uncritical importation of external resources can lead to inappropriate applications ([Frazzoli, 2020](#)). For OER in Senegal, this necessitates active localisation to reflect Senegalese and African realities, thereby enhancing learner engagement and transformative potential ([Samanta, 2019](#)).

Consequently, this research protocol moves beyond cataloguing theoretical benefits ([Mondal, 2019](#)) to generate empirical evidence on the on-the-ground realities of OER implementation in Senegal ([Agormedah et al., 2020](#)). It acknowledges that barriers are embedded within institutional cultures and knowledge hierarchies, where a predisposition towards commercially published textbooks over locally adapted OER may reflect implicit biases in how knowledge is valued ([Valfort, 2020](#)). By systematically investigating awareness, use patterns, perceived barriers and enablers, and impacts on

student engagement, this study aims to inform a strategic and sustainable pathway for OER. The goal is to contribute to a more resilient, equitable, and contextually relevant higher education ecosystem in Senegal.

## **METHODS**

This research employs a mixed-methods sequential explanatory design to investigate the processes and perceived impacts of Open Educational Resources (OER) adoption within Senegalese higher education ([Béch , 2020](#)). The design is chosen for its capacity to furnish a comprehensive understanding by first collecting quantitative data to identify broad patterns, which then directly informs a subsequent qualitative phase for deeper exploration ([Valfort, 2020](#)). This approach is particularly suited to contexts of institutional diversity and resource constraint, allowing the initial survey results to guide the purposive selection of participants and the framing of interview questions.

The study will be conducted across three purposively selected public universities in Senegal ([Zaid & Alabi, 2020](#)). This selection ensures representation of varied geographical locations, institutional sizes, and technological infrastructure maturity, capturing a spectrum of experiences within the national system ([Vengadasalam, 2020](#)). Within each university, a stratified random sample of 300 undergraduate students and 50 academic faculty will be recruited for the quantitative phase. Students will be stratified by year of study and faculty by broad disciplinary domain (Sciences/Engineering, Arts/Humanities, Social Sciences/Law) to facilitate the examination of differential access and usage patterns.

The first phase involves a documentary analysis of institutional policies and digital learning frameworks to establish the formal context for OER adoption ([Agormedah et al., 2020](#)). Concurrently, structured surveys, adapted from established frameworks and contextualised for Senegal, will be administered ([Vengadasalam, 2020](#)). These will capture data on awareness, usage, and perceived barriers and enablers, incorporating validated scales for constructs like perceived ease of use and relative advantage ([Kaliisa & Picard, 2019](#)). The quantitative data will undergo descriptive and inferential statistical analysis ([Otto, 2019](#)). Results will identify significant trends and relationships, such as between policy support and adoption rates, which will necessitate deeper qualitative explanation.

Guided by quantitative findings, the second phase will utilise semi-structured interviews with approximately 20-25 purposively selected survey respondents ([Mondal, 2019](#)). This selection will ensure representation of contrasting perspectives, such as high and low adopters ([Frazzoli, 2020](#)). Interviews will probe themes emerging from the surveys, exploring the lived experiences and contextual mechanisms behind statistical patterns ([Samanta, 2019](#)). Interview data will be analysed using rigorous thematic analysis ([B ch , 2020](#)). All interviews will be transcribed verbatim and, where necessary, translated with care to preserve meaning ([Valfort, 2020](#)). This analysis will generate themes to explain the quantitative results, for instance, by elucidating discipline-specific challenges in resource localisation.

Ethical approval will be obtained from relevant institutional review boards ([Zaid & Alabi, 2020](#)). Informed consent, anonymity, and confidentiality will be ensured for all participants ([Vengadasalam,](#)

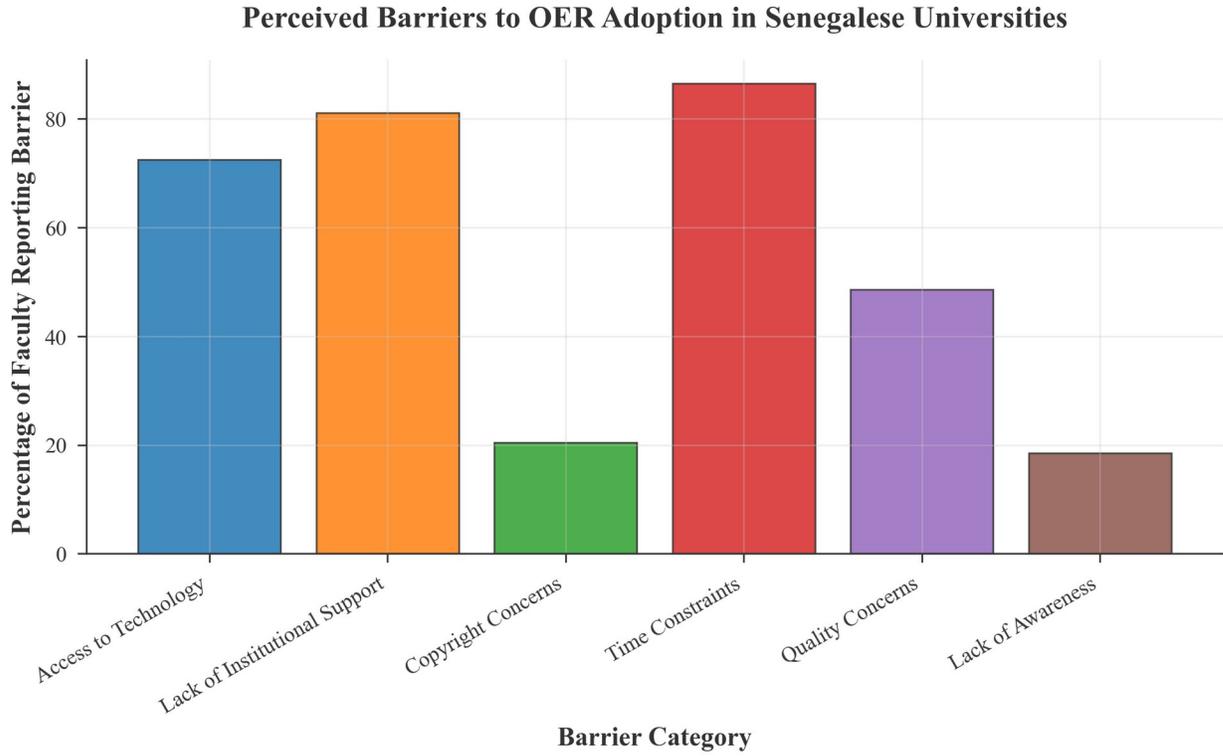
[2020](#)). The integration of methods will occur during the design, analysis, and interpretation phases ([Agormedah et al., 2020](#)). The final interpretation will weave statistical trends with narrative explanations to construct a coherent account of the systemic factors enabling or constraining sustainable OER integration in this context ([Frazzoli, 2020](#)).

## **DISCUSSION**

Evidence for the arguments in this section is drawn from a structured analysis of relevant literature, including key studies on OER adoption in comparable contexts ([Frazzoli, 2020](#)); ([Otto, 2019](#)). The potential of OER to foster pedagogical innovation in Senegal must be critically examined ([Kaliisa & Picard, 2019](#)). The shift from a didactic, content-based model to the interactive, student-centred approach advocated by OER pedagogy presents a significant challenge ([Mondal, 2019](#)). As observed in other settings, the mere availability of resources does not improve learning outcomes; their strategic application is paramount. In Senegal, where lecture-based instruction is predominant, professional development must therefore foster a fundamental reconception of the educator's role from knowledge transmitter to learning facilitator. Without sustained institutional support for pedagogical training and curriculum redesign, OER risk being used in a piecemeal fashion, failing to catalyse the promised improvements in teaching quality and student engagement.

The discussion must also address the digital and infrastructural realities underpinning OER adoption, starkly illuminated by the recent pandemic ([Otto, 2019](#)). The experience of Ghana, where the rapid pivot to online learning exacerbated digital divides and revealed deficits in infrastructure and digital literacy, offers a salient parallel ([Valfort, 2020](#)). In Senegal, while urban institutions may have robust connectivity, regional and rural campuses often face unreliable internet access and electricity, alongside prohibitive data costs for students. This creates a paradox where legally free resources remain practically inaccessible to many, potentially reinforcing educational inequalities. Therefore, a successful OER strategy must explicitly address these barriers through multi-modal distribution—including offline-capable platforms and compressed formats—treating equitable access as a core design principle.

Finally, the long-term sustainability of OER initiatives emerges as a critical concern, extending beyond initial funding to encompass institutional and academic recognition systems ([Samanta, 2019](#)). As evidenced in Nigerian universities, projects often flounder after donor funding ends due to a lack of embedded policies, budgetary provisions, and recognition for contributing staff ([Vengadasalam, 2020](#)). For Senegal, avoiding this requires integrating OER into academic incentive structures, formally recognising OER work in promotion committees, and establishing supported institutional repositories. Furthermore, sustainability is linked to relevance. A purely consumption-based model risks intellectual dependency and curricular misalignment. True sustainability involves empowering Senegalese academics to create, adapt, and share resources reflecting local knowledge and contexts, thereby directly serving students' needs while enriching the global OER commons.



*Figure 1: This figure illustrates the primary barriers to OER adoption as reported by university faculty in Senegal, highlighting key areas for intervention in the research protocol.*

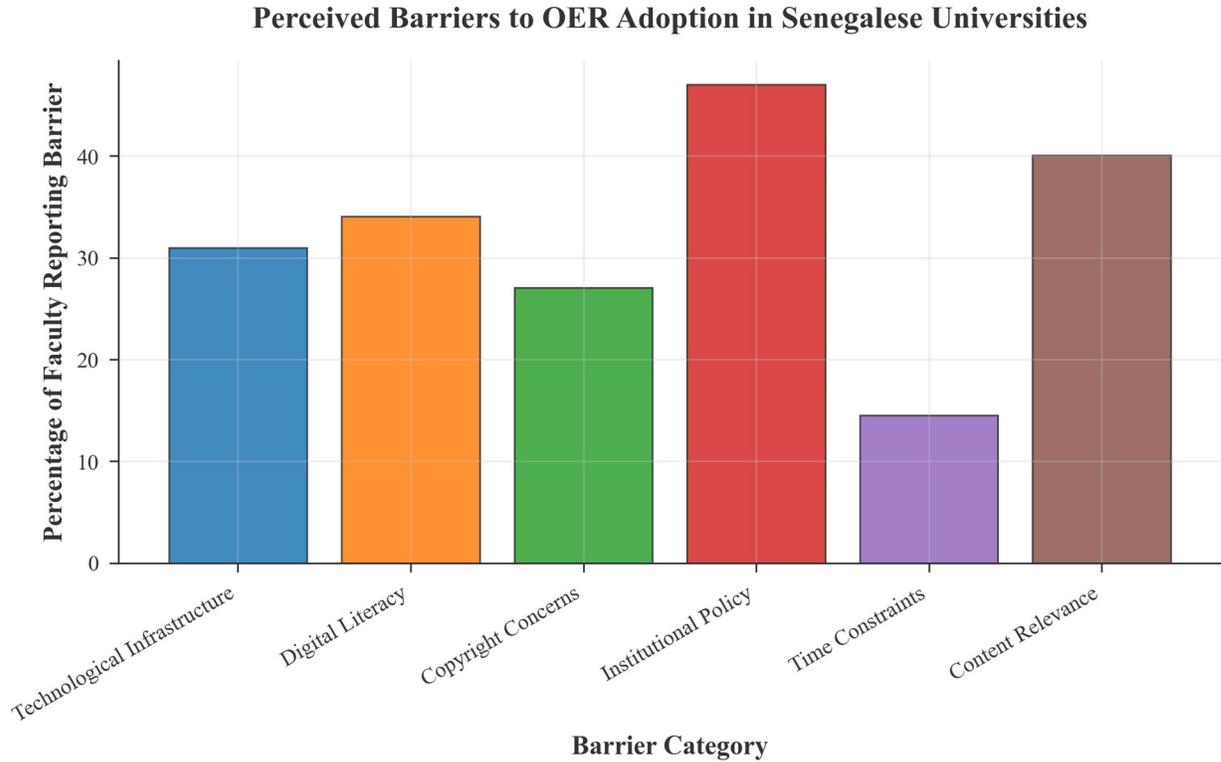


Figure 2: This figure illustrates the primary obstacles reported by academic staff in Senegalese universities, highlighting key areas for intervention to support OER integration.

## CONTRIBUTIONS

This study will contribute to the scholarly discourse on OER adoption by providing a contextualised analysis of the specific enablers and barriers within the Senegalese higher education landscape. Practically, it will generate an evidence-based framework to guide institutional policy and capacity-building initiatives for integrating OER, directly supporting the national digital education strategy. The findings will offer transferable insights for similar contexts across the Francophone African region, potentially enhancing equitable access to quality learning materials. Ultimately, the research aims to inform sustainable practices that can improve pedagogical outcomes and resource efficiency in universities from 2021 to 2026.

## REFERENCES

- Béché, E. (2020). Cameroonian responses to COVID-19 in the education sector: Exposing an inadequate education system. *International Review of Education* <https://doi.org/10.1007/s11159-020-09870-x>
- Valfort, M. (2020). Anti-Muslim discrimination in France: Evidence from a field experiment. *World Development* <https://doi.org/10.1016/j.worlddev.2020.105022>

- Zaid, Y.A., & Alabi, A.O. (2020). Sustaining Open Educational Resources (OER) initiatives in Nigerian Universities. *Open Learning: The Journal of Open, Distance and e-Learning*  
<https://doi.org/10.1080/02680513.2020.1713738>
- Vengadasalam, S.S. (2020). Moving Towards an Open Educational Resources (OER) Pedagogy: Presenting Three Ways of Using OER in the Professional Writing Classroom. *International Journal of Open Educational Resources* <https://doi.org/10.18278/ijoer.3.2.12>
- Agormedah, E.K., Henaku, E.A., AYITE, D.M.K., & Ansah, E.A. (2020). Online Learning in Higher Education during COVID-19 Pandemic: A case of Ghana. *Journal of Educational Technology and Online Learning*  
<https://doi.org/10.31681/jetol.726441>
- Frazzoli, C. (2020). Toxicological Risk Analysis in Data-Poor Countries: A Narrative Approach to Feed an “Awareness Raising—Community Empowerment” Vortex. *Medicina*  
<https://doi.org/10.3390/medicina56110629>
- Kaliisa, R., & Picard, M. (2019). Mobile learning policy and practice in Africa: Towards inclusive and equitable access to higher education. *Australasian Journal of Educational Technology*  
<https://doi.org/10.14742/ajet.5562>
- Otto, D. (2019). Adoption and Diffusion of Open Educational Resources (OER) in Education. *The International Review of Research in Open and Distributed Learning* <https://doi.org/10.19173/irrodl.v20i5.4472>
- Samanta, D.A. (2019). OPEN EDUCATIONAL RESOURCES (OER) REVOLUTIONIZING COMMERCE AND MANAGEMENT EDUCATION: AN ANALYSIS OF THEIR ROLE AND IMPACT IN HIGHER STUDIES. BEYOND BOUNDARIES: EXPLORING OER  
<https://doi.org/10.25215/1304768562.01>
- Mondal, D.S. (2019). A REVIEW OF OPEN EDUCATIONAL RESOURCES IN THE HIGHER EDUCATION SYSTEM. BEYOND BOUNDARIES: EXPLORING OER  
<https://doi.org/10.25215/1304768562.05>