POST-COVID-19 STUDENT ENGAGEMENT AND LEARNING OUTCOMES IN OPEN AND DISTANCE EDUCATION: A COMPARATIVE ANALYSIS ACROSS DIVERSE SOCIOECONOMIC CONTEXTS

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Abstract

In the aftermath of the COVID-19 pandemic, student engagement and learning outcomes have emerged as critical metrics for evaluating the effectiveness of Open and Distance Education (ODE). This study examins an integrative theoretical analysis of engagement patterns and academic outcomes across diverse socioeconomic contexts in the post-pandemic era. Drawing on literature from multiple global case studies and theoretical frameworks, the research explores how key variables including digital access, family and community support, pedagogical strategies, and institutional adaptability influence learner motivation, participation, retention, and performance in ODE settings. The study reviewed reveal persistent disparities in student engagement and academic success, particularly among learners in low-income or digitally underserved environments. Nonetheless, evidence points to promising practices such as culturally responsive teaching, peer collaboration, mobile-supported learning, and personalized feedback as effective strategies for inclusive engagement. The study emphasizes the need for ODE policies and practices that are context-sensitive, equity-driven, and informed by cross-regional insights to ensure meaningful participation and academic achievement for all learners in the evolving digital education landscape.

Keywords: Student Engagement, Open and Distance Education (ODE), Post-COVID Learning, Socioeconomic Disparities, Inclusive Digital Pedagogy

Introduction

The COVID-19 pandemic, which emerged in late 2019 and escalated in 2020, catalysed a rapid and unprecedented transformation in global education systems, significantly impacting the delivery, engagement, and outcomes of learning across all levels. In particular, Open and Distance Larning (ODL), which had historically functions and as alternative to conventional education, were propelled to the forefront of mainstream education as institutions scrambled to adapt to social distancing mandates and institutional closures (Crawford et al., 2020). This sudden shift unveiled not only the potentials of remote learning technologies but also a host of complex pedagogical, technological, and socio-economic challenges, especially in lower-resource contexts (Alkhnbashi et al., 2024; Devkota, 2021). Consequently, the post-pandemic era has witnessed an urgent need to critically assess how educational institutions have

navigated these challenges, particularly in ensuring meaningful student engagement and sustaining learning outcomes in ODL environments.

The aftermath of the COVID-19 pandemic has laid bare the fragile underpinnings of many educational systems, especially in the context of equity, digital infrastructure, pedagogical adaptability, and learner well-being. One of the most pressing challenges has been the digital divide, which continues to marginalize students from socioeconomically disadvantaged backgrounds, thereby exacerbating existing inequalities in access to quality education (Devkota, 2021). Furthermore, Convectional Educational Institutions faced hurdles in reorienting their teaching models, often lacking adequate infrastructure and training to implement effective online and distance learning strategies (Bolgova et al., 2021). While many educational institutions globally succeeded in launching digital platforms rapidly, they struggled with sustaining student motivation, ensuring academic integrity, and promoting interactive, student-centred learning (Aristovnik et al., 2020). In this context, resilience and adaptability became key institutional values, as educators and learners navigated an uncertain educational terrain (Kuntz, 2020).

Student engagement which is often defined as the degree of attention, curiosity, and involvement that students exhibit in their learning process, has emerged as a critical success factor in post-pandemic ODL environments. Asynchronous and technology-mediated instruction can easily lead to learner isolation, reduced motivation, and disengagement, particularly when pedagogical designs fail to account for the diverse needs of learners (Chung et al., 2020). Research has consistently shown that student interaction, autonomy, and engagement are key predictors of satisfaction and learning outcomes in distance education settings (Muzammil et al., 2020; Rahman et al., 2022). Moreover, innovations such as augmented reality, virtual classrooms, and mobile learning platforms have shown promise in enhancing the interactivity and immersive quality of ODL, thereby supporting deeper engagement and knowledge retention (Eldokhny & Drwish, 2021; Basak et al., 2018).

It is also critical to recognize that student engagement in ODL is not monolithic as it is shaped by cultural, institutional, and socioeconomic contexts that influence students' access to digital tools, their learning preferences, and their attitudes toward technology-mediated learning (Mathew & Chung, 2021; Law et al., 2025). For instance, while some students report increased flexibility and autonomy in ODL, others express frustration due to inadequate feedback, limited peer interaction, and increased self-regulatory demands (Munir & Zaheer, 2021). These differential experiences have significant implications for educational equity and call for a more nuanced understanding of how engagement strategies function across diverse contexts. In response to the foregoing challenges and opportunities, this study seeks to investigate post-covid-19 student engagement and learning outcomes in open and distance education. Specifically, the research aims to identify how contextual factors such as digital access, institutional support, pedagogical practices, and learner motivation interact to influence the effectiveness of ODL in various regions. By drawing on empirical data and cross-contextual case studies, the study seeks to uncover patterns of resilience, adaptability, and disparity in the post-pandemic educational landscape.

Additionally, the study will examine socioeconomic disparities access to and effectiveness of ODL,

Literature Review

Student engagement is a multifaceted construct widely recognized as a critical determinant of learning success in both traditional and distance education contexts. It encompasses various dimensions that reflect how students interact with their learning environment, peers, and academic content. Scholars generally categorize student engagement into three interrelated dimensions: behavioural, cognitive, and emotional engagement (Tang & Hew, 2022; Naibert et al., 2022). Understanding these dimensions is essential for designing pedagogical strategies that foster meaningful learning experiences, particularly in ODL environments where physical separation can challenge sustained learners participation.

Behavioural Engagement

Behavioural engagement refers to the observable actions of students in relation to their learning, such as attending classes, participating in discussions, completing assignments, and following classroom norms and rules (Tang & Hew, 2022). It is the most visible form of engagement and often serves as a proxy indicator for overall student involvement. In the context of online learning or mobile-mediated platforms, behavioural engagement can be tracked through indicators like frequency of login, participation in chat forums, submission of assessments, and responsiveness in virtual classrooms.

Tang and Hew (2022), in a quasi-experimental study on the effects of Mobile Instant Messaging (MIM) tools on student engagement, found that behavioural engagement increased significantly when students participated in structured learning activities through instant messaging applications. These tools facilitated continuous interaction, reminders, and low-stakes formative engagement, thus encouraging consistent participation. Similarly, Naibert et al. (2022) highlighted that specific activities in general chemistry classes (such as laboratory exercises and group discussions) elicited higher levels of behavioural engagement, suggesting that task design plays a pivotal role in sustaining student involvement.

Emotional Engagement

Emotional engagement pertains to students' affective responses to learning, including feelings of interest, enjoyment, boredom, anxiety, and belonging. It influences how students relate to their peers, instructors, and learning content, and is closely linked to motivation and satisfaction with the educational experience (Tang & Hew, 2022). Positive emotional engagement is a predictor of persistence and resilience in learning, especially in ODL contexts where emotional disconnection is a common challenge. The reported that students using mobile instant messaging expressed greater emotional connectedness to their peers and instructors, leading to increased enjoyment and decreased isolation. The informal nature of mobile interactions appeared to humanize the learning experience, helping students feel more supported and less anxious. Likewise, Naibert et al. (2022) found that emotionally engaging classroom activities (particularly those involving peer collaboration and instructor feedback) helped foster a sense of belonging and enjoyment, which in turn enhanced student motivation and overall course satisfaction.

Retention in ODL

Retention refers to the continued enrolment and persistence of students in an academic programme until completion. In traditional learning environments, high retention rates are often associated with student engagement, institutional support, and academic preparedness. In ODL settings, however, retention becomes more complex due to physical distance, limited face-to-face interactions, and the self-regulated nature of learning.

Eldokhny and Drwish (2021) established that student support services, technological usability, and social connectedness as crucial determinants of retention in ODL. For instance, Eldokhny and Drwish (2021) emphasized that the incorporation of interactive technologies such as augmented reality in online courses helped increase learner motivation and reduce dropout rates by making the learning experience more immersive and engaging. Similarly, Rahman et al. (2022) found that self-efficacy and learner instructor interaction had a significant influence on retention, as students who felt confident and supported were more likely to persist. Furthermore, institutional support mechanisms, such as timely feedback, accessible tutors, and academic advising have been positively linked to higher student retention in distance learning environments.

Studies on academic performance in ODL is generally assessed through students' grades, assessment scores, and mastery of course content. It is influenced by various factors, including student engagement, technological competence, and course design. Unlike in conventional classrooms where physical presence and direct instruction play a significant role, Academic performance in ODL often relies on a learner's ability to self-direct, utilize digital tools, and manage time effectively. Muzammil et al (2020) examined student satisfaction and performance in an online university and reported that both peer interaction and student engagement significantly contributed to better academic results. In addition, Tang and Hew (2022), found hat mobile instant messaging platforms can boost cognitive and behavioural engagement, ultimately improving academic performance.

On the other hand, students from lower socioeconomic backgrounds or with limited digital literacy may struggle to perform due to lack of access or technological barriers ODL institutions (Devkota, 2021). Additionally, performance in ODL may be influenced by work-life balance, especially for adult learners juggling academic and personal responsibilities. Rahim, et.al (2020), though focused on the workplace, highlighted how family and supervisor support can mitigate stress and enhance well-being insights that are relevant for ODL learners managing multiple roles.

Studies on learners Satisfaction is a subjective measure of how well a learning experience meets student expectations and needs. It encompasses perceptions of course content quality, instructional methods, technological infrastructure, and interpersonal relationships within the virtual environment. Rahman et al. (2022) found that interaction and self-efficacy were significant predictors of student satisfaction in online distance learning. Students who had frequent, meaningful interactions with instructors and peers reported higher satisfaction levels. Similarly, Naibert et al. (2022) observed that emotionally and cognitively engaging activities fostered a greater sense of satisfaction, as learners felt both challenged and supported. In addition, Law et.al (2025) concluded that student motivation and attitudes towards ODL significantly influenced their satisfaction, particularly in Malaysian universities adapting to post-COVID educational realities.

Furthermore, the structure and responsiveness of the ODL platform itself play a central role. As noted by Mathew and Chung (2021), flexible learning schedules, timely instructor feedback, and availability of course resources are essential to student satisfaction. Inadequacies in any of these areas can lead to feelings of frustration, disconnection, and dissatisfaction, factors that can ultimately impact retention and performance as well.

Conceptualizing Socioeconomic Disparities in Education

Socioeconomic disparities in education refer to the unequal distribution of educational opportunities and outcomes among individuals from different socioeconomic backgrounds. These disparities manifest in areas such as school enrolment, retention, academic performance, digital access, and post-secondary opportunities. Factors such as poverty, parental illiteracy, housing instability, and limited access to learning materials disproportionately affect students from low-income families, placing them at a systemic disadvantage compared to their more privileged peers (Devkota, 2021).

Socioeconomic status (SES) is a strong predictor of academic performance and long-term educational outcomes. Students from lower SES backgrounds often face cumulative disadvantages that hinder their cognitive, emotional, and behavioural engagement in school. Additionally, the emotional burden of economic hardship can negatively impact concentration, motivation, and resilience, further widening the achievement gap (Mathew & Chung, 2021). Furthermore, disparities in parental education and involvement have been shown to affect students' academic success. Children of educated parents are more likely to receive academic guidance and motivation at home, while those whose parents lack formal education may not benefit from such support, especially in self-directed ODL contexts. These factors collectively contribute to lower completion rates and underachievement among economically disadvantaged learners.

Theoretical Framework

The Engagement Theory, introduced by Kearsley and Shneiderman (1998) presents a pedagogical framework emphasizing active, meaningful student involvement especially in technology-supported learning environments. Central to the theory are the components summarized by the acronym RELATE–CREATE–DONATE. These encourage students to engage in collaborative group work (Relate), participate in creative, purposeful tasks (Create), and produce work with real-world value or audience (Donate). This approach supports intrinsic motivation and deeper learning, particularly when enhanced by digital tools such as multimedia, interactive platforms, and online collaboration.

The theory is especially applicable to Open and Distance Learning (ODL) in the post-COVID-19 era, where physical separation and digital dependence can lead to disengagement. Applying Relate in ODL involves fostering peer collaboration through digital platforms like forums and messaging apps, which is especially critical for learners from disadvantaged backgrounds who may lack other support systems. The Create aspect can be implemented through meaningful, task-based assignments that promote higher-order thinking and emotional investment. These tasks help bridge resource gaps by enabling creativity within accessible digital environments.

Finally, the Donate principle aligns with efforts to make ODL socially relevant and purposeful (such as through community-focused projects or service-learning assignments. When learners perceive that their work has real-world impact, it enhances motivation, satisfaction, and retention) essential outcome student's engagement, particularly in lower-resource contexts. Overall, Engagement Theory provides a valuable lens for understanding and improving student engagement and outcomes in post-pandemic ODL, particularly when tailored to the diverse needs of learners across socioeconomic settings.

METHODOLOGY

This study adopted a theoretical research design grounded in an integrative literature review approach to investigate post-COVID-19 student engagement and learning outcomes in Open and Distance Learning across varied socioeconomic contexts. The methodology was well-suited for the study's aim: to synthesize existing research, identify conceptual trends, and develop a theoretical framework explaining how dimensions of student's engagement, behavioural, cognitive, and emotional relate to key learning outcomes such as academic performance, satisfaction, and retention in ODL environments following the pandemic. This approach prioritized conceptual depth over empirical generalization, allowing for a broader understanding of how educational inequalities shape ODL experiences globally.

The integrative literature review, as outlined by Torraco (2005), supports the synthesis of diverse types of research both empirical and theoretical to generate new insights into complex educational phenomena. This method was ideal for exploring the multifaceted nature of student engagement and outcomes within ODL systems, particularly as they relate to socio-economic disparities exacerbated by COVID-19. Following Torraco's guidelines, the study systematically selected peer-reviewed articles, conceptual papers, and relevant case studies published between 2020 and 2025. Literature was sourced from academic databases such as JSTOR, Scopus, ERIC, and Google Scholar, with inclusion criteria focused on post-pandemic education, digital learning environments, and equity in higher education. The review process led to the identification of key themes and gaps in existing research, forming the basis for a conceptual model.

To structure the development of this model, the study employed Jabareen's (2009) framework for conceptual research, which involves constructing a network of interrelated concepts to explain a phenomenon. The combination of Torraco's integrative method and Jabareen's framework development enabled the study to go beyond isolated findings and produce a synthesized, theoretically informed understanding of ODL in the post-COVID landscape. Ultimately, this methodology provided the analytical rigor and interdisciplinary flexibility needed to inform institutional strategies and policy recommendations for inclusive and equitable distance education.

Engagement Patterns: High vs. Low Engagement by Socioeconomic Status (SES)

Student engagement is a critical predictor of learning outcomes and has been shown to vary significantly across socioeconomic groups. Research demonstrates that high-engagement patterns characterized by active participation, consistent effort, emotional investment, and cognitive involvement are more prevalent among students from higher SES backgrounds, while low-engagement patterns marked by passivity, disinterest, and disengagement are disproportionately observed among lower SES learners (Schnitzler, et al 2020). These patterns are not only reflective of individual motivation but are shaped by access to resources, home learning environments, and support systems.

Schnitzler et al. (2020), in their analysis of engagement profiles, found that even minimal engagement was preferable to complete disengagement, but students with consistently high levels of engagement exhibited stronger academic self-concept and higher achievement. Notably, high SES students are more likely to benefit from stimulating learning environments, access to technology, and supportive parental involvement, all of which promote and sustain engagement.

In contrast, students from lower SES backgrounds often face structural and contextual barriers that limit their engagement. These include digital poverty, lack of parental academic support, unstable home environments, and competing responsibilities (e.g., part-time work or caregiving), all of which can hinder consistent participation in learning activities. Deng, Benckendorff, and Gannaway (2020), in their study on MOOCs, revealed that learners with lower SES and less prior academic success were more likely to exhibit irregular engagement patterns, leading to higher dropout rates and lower completion rates. They emphasized that learner characteristics, teaching context, and external support systems must be considered to improve engagement equity in online and distance learning settings.

Factors Influencing Outcomes: Connectivity, Pedagogy, and Family Support

Several interrelated factors influence learning outcomes in ODL, especially for students from disadvantaged socioeconomic backgrounds. These include internet connectivity, pedagogical practices, and family support systems, each of which plays a crucial role in shaping outcomes:

Connectivity and Digital Access

Digital connectivity is foundational to participation in ODL environments. Without stable and affordable internet access, students are unable to access course materials, engage in virtual discussions, or complete assignments on time. Devkota (2021) emphasized how digital exclusion reinforced inequalities during the COVID-19 pandemic, particularly in rural and low-income settings. Students from higher SES groups are more likely to have personal devices, uninterrupted internet, and private study spaces, facilitating continuous and effective engagement. Conversely, low connectivity results in disrupted learning, leading to frustration, reduced motivation, and ultimately, poorer learning outcomes.

Pedagogy and Instructional Design

Pedagogical strategies that are interactive, student-centred, and responsive to learners' needs are positively associated with engagement and learning outcomes. As Lan, Sam, Keo, and Rouet (2024) explain in their conceptual framework for higher education in Battambang, learning outcomes are significantly influenced by the alignment of instructional approaches with students' cognitive readiness and environmental constraints. Instructors who adopt flexible methods—such as asynchronous learning, formative feedback, and mobile-supported learning—can accommodate students with variable access and help bridge SES-related engagement gaps. Furthermore, Tang and Hew (2022) showed that the use of mobile instant messaging tools improved student behavioral and emotional engagement, particularly when teaching was designed to encourage collaboration and social presence.

Family and Social Support

Family support has a direct impact on students' ability to persist and succeed in ODL. Rahim, Osman, and Arumugam (2020) emphasized that in both educational and professional contexts, support from family members helps buffer the stress of multitasking and enhances well-being. For students in lower SES households, however, family support may be limited by parents' educational background, economic pressures, or the absence of a conducive home learning environment. Akinyemi et al. (2022) further underscore how socioeconomic vulnerability in Nigerian urban slums extends to limited access to information and poor intergenerational support, which are crucial for educational continuity.

Case Comparisons: Institutional Responses in Diverse Settings

The COVID-19 pandemic forced higher education institutions globally to adopt Open and Distance Learning (ODL), prompting diverse institutional responses shaped by infrastructure,

policy, and socioeconomic context. In high-income countries with strong digital capacity, institutions swiftly transitioned to online platforms, integrated advanced tools like learning management systems and virtual simulations, and emphasized student engagement through collaborative and interactive pedagogies. These well-resourced environments saw relatively high levels of behavioral and emotional engagement and positive learning outcomes (Crawford et al., 2020; Tang & Hew, 2022; Deng et al., 2020).

Middle-income countries such as Malaysia displayed a mixed response—innovative yet constrained by limited resources. Institutions implemented accessible tools like Google Classroom and Zoom and adopted flexible teaching schedules to accommodate students' needs. However, engagement and satisfaction varied, often tied to students' socioeconomic backgrounds and digital readiness. While urban students adapted more easily, those from rural or low-income areas struggled with poor connectivity and limited support, revealing persistent educational inequalities (Mathew & Chung, 2021; Law et al., 2025).

In low-income regions like Sub-Saharan Africa and South Asia, ODL efforts were severely hindered by infrastructure deficits. Poor internet access, limited device availability, and minimal faculty training led to low engagement, high dropout rates, and unequal access to learning (Devkota, 2021; Akinyemi et al., 2022). Despite these barriers, some institutions turned to low-tech alternatives such as radio, printed materials, and SMS-based learning to maintain educational continuity (Yoshikawa et al., 2020). Overall, the study highlights that institutional agility, contextual responsiveness, and investment in inclusive infrastructure are crucial for ensuring equitable ODL experiences (Lan et al., 2024).

Effective Strategies for Inclusive Engagement in Open and Distance Learning (ODL)

Inclusive engagement in Open and Distance Learning (ODL) has become a critical focus in the post-COVID-19 educational landscape, especially for ensuring equitable access and participation among marginalized learners. Effective engagement must be tailored to the diverse cognitive, socioeconomic, physical, and geographic realities of students. Key strategies include personalized learning environments that provide targeted support for individual needs, such as multimodal content and timely interventions, particularly for students with cognitive or technological challenges (Schalock et al., 2021). Early identification of at-risk learners and the use of assistive technologies also play a vital role in maintaining participation and motivation.

Another essential pillar of inclusive engagement lies in the application of Universal Design for Learning (UDL) and accessibility principles. Learning platforms should be inherently accessible through features like screen reader compatibility, closed captioning, and adaptable content formats. According to Labbé et al. (2020), engaging diverse learners starts with inclusive design that anticipates a wide range of needs rather than reacting to them post-hoc. This also involves inviting feedback from students with disabilities to ensure educational tools are relevant and user-friendly. In parallel, culturally responsive teaching practices are necessary to address socioeconomic and linguistic diversity. ODL programs can enhance relevance and engagement by using localized content, flexible deadlines, and communication styles that reflect learners' lived experiences (Devkota, 2021; Akinyemi et al., 2022).

Finally, building inclusive peer-supported learning structures and embedding engagement within institutional policy are crucial. Collaborative activities and digital peer networks reduce isolation, especially for students lacking strong home support (Rahim et al., 2022; Munir &

Zaheer, 2021). Institutional policies must go beyond technology provision, incorporating inclusive pedagogies, faculty training, and investment in accessibility services. As Labbé et al. (2020) highlight, knowledge mobilization sharing evidence-based strategies with educators and administrators ensures that inclusive engagement becomes a systemic and sustained practice within ODL environments.

Conclusion

This study critically examined student engagement and learning outcomes in post-COVID-19 Open and Distance Learning (ODL), examining how socioeconomic contexts shape access, participation, and academic achievement. Findings reveal that engagement whether behavioural, cognitive, or emotional remains a powerful determinant of retention, satisfaction, and performance. However, this engagement is unevenly distributed, as students from higher socioeconomic backgrounds benefit from stronger digital infrastructure, home support, and institutional responsiveness. In contrast, learners from low-income or underserved regions often experience marginalization due to digital exclusion, pedagogical rigidity, and limited psychosocial support.

The analysis underscores the urgent need to design ODL systems that are inclusive, equitable, and adaptable. Institutions with strong digital infrastructure have demonstrated that interactive technologies, personalized learning environments, and culturally responsive teaching can significantly enhance engagement and outcomes. Yet, for many students worldwide, access to such environments remains aspirational. The post-pandemic era presents an opportunity for governments, educational institutions, and NGOs to reimagine ODL frameworks through inclusive design, collaborative policy, and evidence-informed innovations that prioritize equity, access, and learner agency

Recommendations

Based on the findings of this study, several recommendations are proposed to strengthen the effectiveness and inclusiveness of Open and Distance Learning (ODL) across diverse contexts. First, ODL platforms and instructional materials should be intentionally designed with flexibility to accommodate a wide range of learner needs. This includes embedding accessibility features such as closed captions, screen-reader compatibility, and multiple content formats audio, video, and text alongside alternative assessment methods that cater to different learning preferences and abilities. Such flexibility ensures that learners with disabilities, limited bandwidth, or varied learning styles can participate meaningfully.

Secondly, expanding digital access is critical for equitable ODL delivery. Governments and educational institutions should work collaboratively with telecommunications providers to subsidize internet costs, provide affordable digital devices, and accelerate the rollout of nationwide broadband infrastructure, with particular attention to underserved rural and low-income communities. Improved connectivity must be complemented by data-driven institutional practices. The use of learning analytics to monitor student participation, performance, and engagement in real time would enable institutions to identify at-risk learners early and deploy targeted interventions such as tutoring, counselling, or peer mentorship.

Strengthening educator capacity is equally important. Continuous professional development should be prioritized in areas including culturally responsive teaching, digital pedagogies, online engagement strategies, and student mental-health support. With enhanced pedagogical competency, educators can deliver more inclusive and contextually relevant instruction.

Correspondingly, ODL programs should integrate local languages, examples, and cultural references so that learners from diverse socioeconomic and cultural backgrounds find the curriculum relatable. Flexibility in deadlines and participation modes should also be embedded to accommodate students facing contextual constraints such as unstable connectivity or competing responsibilities.

To further promote engagement, institutions should encourage the creation of online peer-learning groups, discussion forums, and mentoring networks. These social structures can mitigate feelings of isolation, particularly among learners with limited home support, and offer additional pathways for cognitive and emotional engagement. In regions where internet connectivity remains unreliable, institutions should adopt alternative delivery strategies such as radio broadcasts, SMS-based assignments, printed learning materials, and pre-loaded offline digital content to ensure instructional continuity.

Finally, systematic evaluation is essential for improving ODL implementation. Assessments should measure access, inclusiveness, learner satisfaction, and dropout patterns across different demographic and socioeconomic groups to guide evidence-based refinements. Universities and colleges should also formalize policies that protect and promote the participation of marginalized groups, including learners with disabilities, first-generation students, and those in geographically remote regions in ODL planning and delivery. To sustain long-term progress, governments, NGOs, and international partners should invest in research on inclusive engagement models, scalable digital innovations, and localized solutions that address persistent disparities in ODL access, participation, and outcomes.

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