BEYOND ACCESS: REDEFINING SUCCESS IN ODFEL THROUGH ENGAGEMENT AND IMPACT

Fasasi Adebayo Adebari, Ibraheem Adedotun Abdul, Amos Alade
Yaba College of Technology, Lagos, Nigeria.
adebayo.adebari@yabatech.edu.ng, Ibraheem.abdul@yabatech.edu.ng, amos.alade@yabatech.edu.ng

Abstract
The expansion of Online and Distance Flexible Education and Learning (ODFeL) has significantly improved access to education across diverse contexts. However, traditional success metrics, such as enrolment and completion rates, often fail to capture the quality and depth of learning outcomes. This study presents a mixed-methods investigation into how learner engagement, adaptive learning, and peer collaboration shape meaningful outcomes in ODFeL environments. Drawing on data from 244 students across three Nigerian institutions, this research explores the impact of personalized learning pathways, active learning strategies, and structured peer feedback on student motivation, knowledge retention, and the application of real-world skills. Findings reveal that adaptive systems and active engagement are strongly correlated with student satisfaction and mastery, while peer interaction reduces isolation and fosters deeper understanding. The study proposes a comprehensive, learner-centered framework for ODFeL evaluation and design, grounded in constructivist theory and aligned with SDG 4, that redefines success beyond access, toward transformational learning. Recommendations call for the adoption of adaptive technologies, authentic assessment, inclusive infrastructure, and faculty development to support a more equitable and impactful ODFeL ecosystem.

Keywords: ODFeL, Peer Collaboration, Learner Engagement, Active learning, Adaptive learning, Student-Centered Learning

Introduction

The emergence of the COVID-19 pandemic has made the global community understand and accept the importance of Online and Distance Flexible Education and Learning (ODFeL). ODFeL is a flexible teaching platform that makes education accessible to a wider populace. Despite the achievement of ODFeL in education, researchers have observed that the reported success fails to capture the students' engagement and knowledge preservation. Means et al., 2014; Wang, Hall, & Wang, 2021, in their assertion, opined that students of this mode of learning have limited opportunities for peer collaborations and active feedback. This made them feel isolated and disconnected from the authentic learning experience (Xie, Durrington, & Yen, 2011). Alammary (2022) reported that these challenges affect the academic performance and the learners' ability to apply acquired knowledge. With these facts, Bozkurt et al. (2020) reported the need for a redesign of ODFeL that will be engagement-driven, along with adaptive learning strategies and authentic model evaluation to promote deeper learning through collaboration and mastery, to replace the traditional access and completion framework.

Objectives of the study

1. To implement an ODFeL framework that will combine adaptive learning and active learning strategies.
2. To examine the influence of peer collaboration and assessment on students' critical thinking, knowledge retention, and real-world skills application within the ODFeL environment.
3. To evaluate the effectiveness of the proposed framework compared to traditional ODFeL.

Research Questions

The following core research questions guide this study:

1. How can adaptive learning pathways and active learning strategies be integrated to enhance student engagement and meaningful learning outcomes in ODFeL environments?
2. What role does peer collaboration and assessment play in improving knowledge retention, critical thinking, and real-world application among ODFeL students?
3. How effective is the proposed engagement-centered framework compared to traditional ODFeL evaluation models based on access and completion rates?

Methodology

This study proposes a comprehensive conceptual framework designed to enhance meaningful learning outcomes in ODFeL environments. The framework integrates three critical pillars identified as essential for fostering student engagement, promoting deep learning, and supporting authentic evaluation: adaptive learning pathways, active learning strategies, and peer collaboration and assessment.

Key Components of the Framework

a) Adaptive Learning Pathways

Adaptive learning technologies dynamically tailor educational content, pacing, and feedback based on individual learner profiles and progression (Pane, Steiner, Baird, & Hamilton, 2017). By personalizing instruction, adaptive systems reduce cognitive overload, support mastery learning, and provide timely interventions, thus enhancing student motivation and persistence.

b) Active Learning Strategies

Active learning approaches such as project-based learning, case studies, simulations, and problem-solving tasks require students to engage cognitively and practically with course materials (Freeman et al., 2014). These strategies promote critical thinking, deeper conceptual understanding, and the ability to transfer knowledge to real-world scenarios.

c) Peer Collaboration and Assessment

Peer collaboration fosters social learning, reduces isolation, and enhances critical discourse among learners (Garrison, Anderson, & Archer, 2000). Peer assessment, when well-structured, promotes evaluative judgment, reflective learning, and active participation, complementing instructor-led feedback mechanisms (Topping, 2009).

Current ODFeL models often address these strategies in isolation rather than through a cohesive, integrated approach. This study addresses a critical gap by proposing a holistic engagement-centered framework that aligns learning design, instructional delivery, and evaluation practices to maximize meaningful learning outcomes in flexible online environments.

By grounding this framework in established educational theories, such as constructivism, social learning theory, and formative assessment models, the study will contribute both theoretically and practically to the advancement of ODFeL pedagogies.

Table 1. Summary of the Conceptual Framework

Pillar	Purpose	Contribution to ODFeL
Adaptive Learning	Personalized pacing and support	Reduces frustration and supports mastery
Active Learning	Cognitive engagement through application	Promotes critical thinking and real-world skills
Peer Collaboration and Assessment	Social learning and reflective feedback	Enhances motivation, engagement, and deeper learning

To consolidate the theoretical underpinnings and structural components discussed, the proposed conceptual framework is visually represented in Figure 1, which illustrates the mixing of adaptive learning pathways, active learning strategies, and peer collaboration mechanisms. The objective is to enhance student engagement, supporting mastery learning, and promoting authentic evaluation within the ODFeL environments. The diagram below provides a general view of the interconnected processes that motivate meaningful learning outcomes in flexible online education settings.

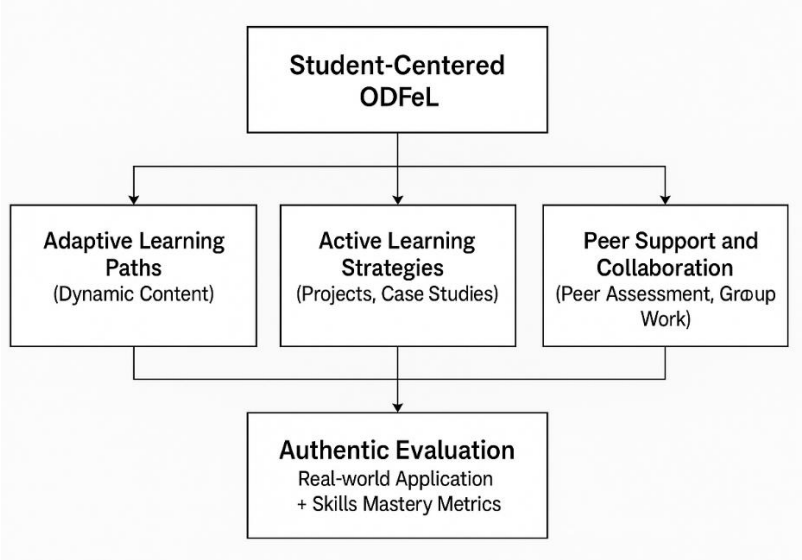

Figure 1. Framework for Evaluating and Improving ODFeL Outcomes

This framework utilizes adaptive learning pathways, active learning strategies, and peer collaboration to promote engagement, mastery, and authentic evaluation.

Results

This study utilizes a mixed-methods research approach to develop, implement, and evaluate the proposed framework for enhancing learning outcomes in ODFeL environments. The mixed-methods approach integrates quantitative and qualitative data collection and analysis, allowing for a comprehensive understanding of the relationship between adaptive learning pathways, active learning strategies, peer collaboration, and authentic learning outcomes. The quantitative phase captures measurable aspects such as engagement metrics, performance indicators, and peer evaluation scores through structured surveys and learning management system (LMS) analytics. The qualitative phase examines the students' experiences, perceptions of commitment, and the effectiveness of active and adaptive learning strategies through case studies, focus group discussions, and open-ended survey responses. The study population comprises of students who are enrolled in ODFeL programs across three selected higher education institutions that offer flexible and distance education. The schools are Yaba College of Technology, Federal Polytechnic, Ilaro, and Auchi Polytechnic, Auchi, all in Nigeria.

A total of 244 students participated in the survey, representing multiple institutions engaged in Online and Distance Flexible Education and Learning (ODFeL).

Demographic Profile of Respondents

Table 2 shows that the majority of respondents were from Yaba College of Technology (63%), with additional representation from Federal Polytechnic, Ilaro (24%) and Auchi Polytechnic, Auchi (13%), indicating strong participation across all three institutions, with Yaba College as the primary focus.

Table 2. Respondent distribution by Institution

Institution	Count	%
Yaba College of Technology	154	63%
Federal Polytechnic, Ilaro	58	24%
Auchi Polytechnic, Auchi	32	13%
Total	244	100%

Figure 2 shows that the majority of respondents are young adults aged 21–30, followed by those under 20. Very few participants are above 30, indicating a predominantly youthful respondent population.

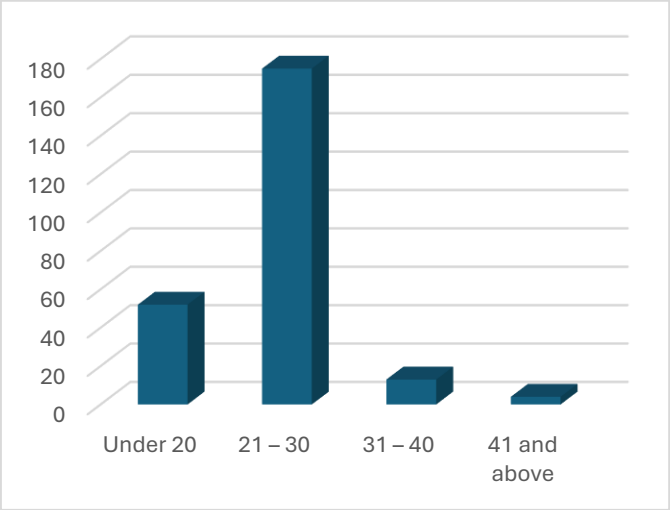

Figure 2. Age Distribution of Respondents in the Study

Figure 3 shows that most respondents (77%) are aged 21–30, indicating a predominantly youthful, student-age population, with the remaining 23% under 20.

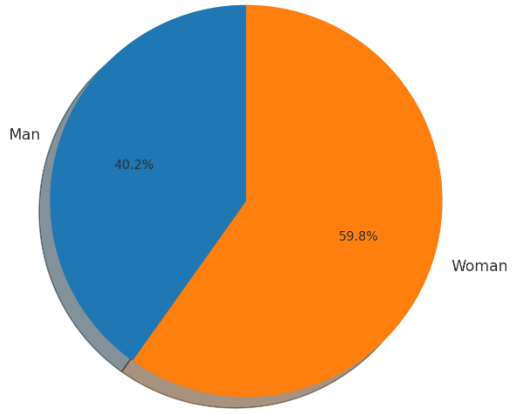

Figure 3. Demographic Profile of Respondents by Gender

Figure 3 shows the gender distribution of survey respondents. Women constitute the larger share at 146 respondents (≈60%), while men account for 98 respondents (≈40%). This female-majority participation suggests that women were more represented—or more responsive—in the ODFeL programmes surveyed.

Data analysis

Figure 4 shows that most respondents agreed the course materials aligned well with their learning pace and needs, indicating general satisfaction with the adaptability of the content.

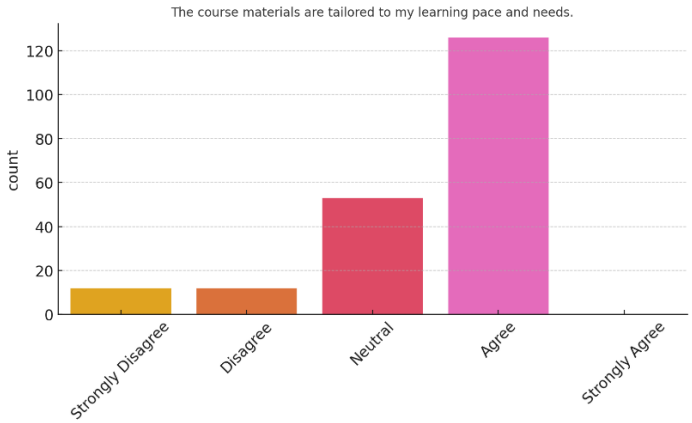

Figure 4. Respondents' Perception of the Alignment Between Course Materials and Their Learning Pace and Needs

Figure 5 shows that most respondents agreed the feedback they received was personalized to their progress, though few strongly agreed. While overall satisfaction is evident, the data suggests potential for enhancing the depth and impact of individualized feedback.

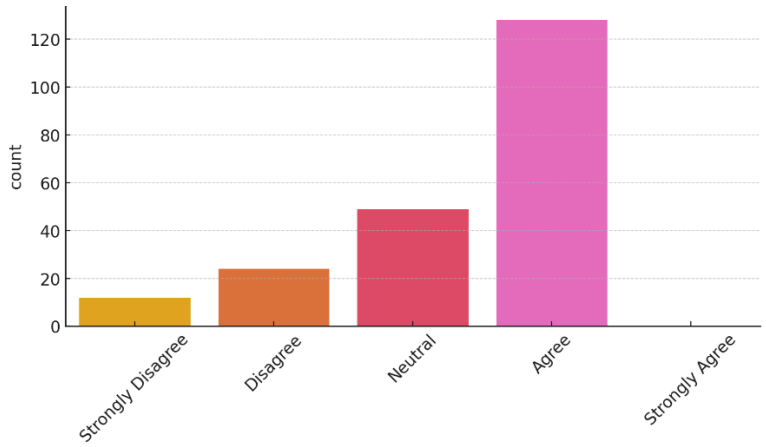

Figure 5. Respondents' Perception of the Personalization of Feedback Based on Their Progress and Understanding

Figure 6 indicates that most respondents perceive the learning path as flexible and responsive to their progress, though limited strong agreement suggests room for enhancing its adaptability to better meet individual learning needs.

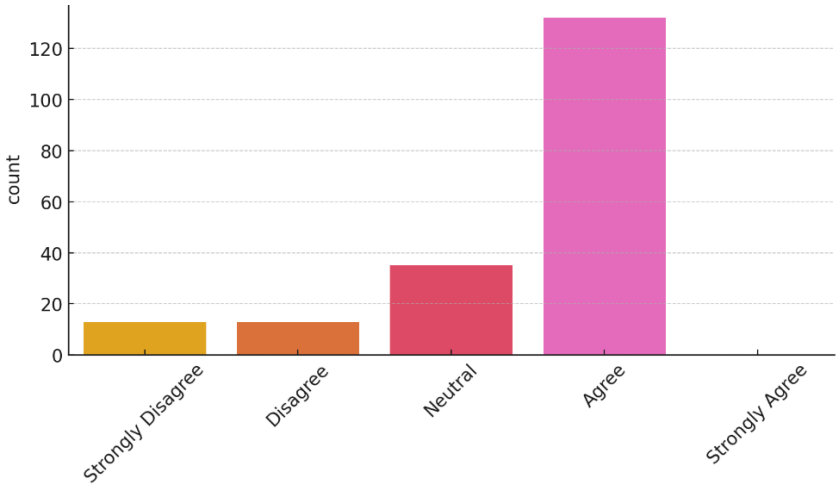

Figure 6. Respondents' Perception of the Flexibility and Adaptability of the Learning Path to Individual Progress

Figure 7 shows that most respondents agreed they engaged in real-world, application-based learning activities. However, the absence of strong agreement suggests a need to further enhance the integration of practical tasks into the learning experience.

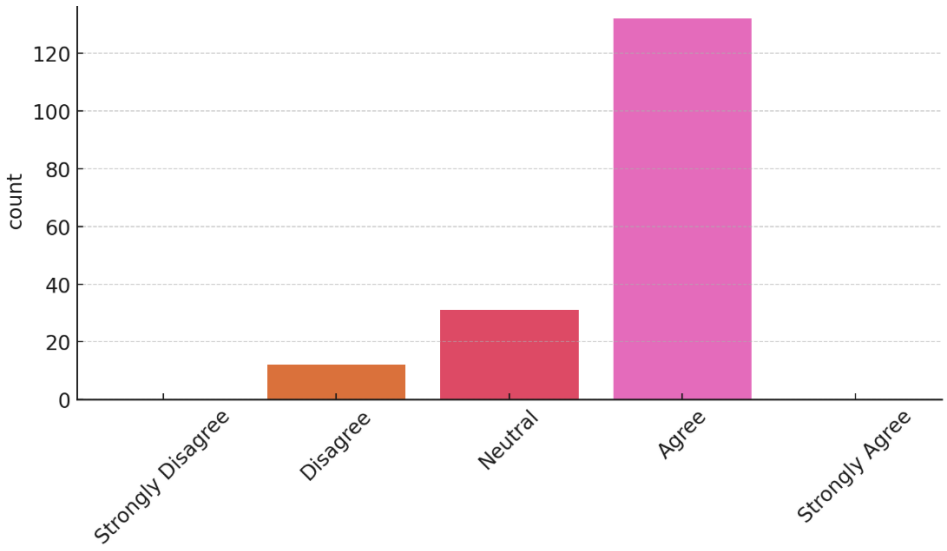

Figure 7. Respondents' Engagement in Activities that Involve Applying Knowledge to Real-World Problems

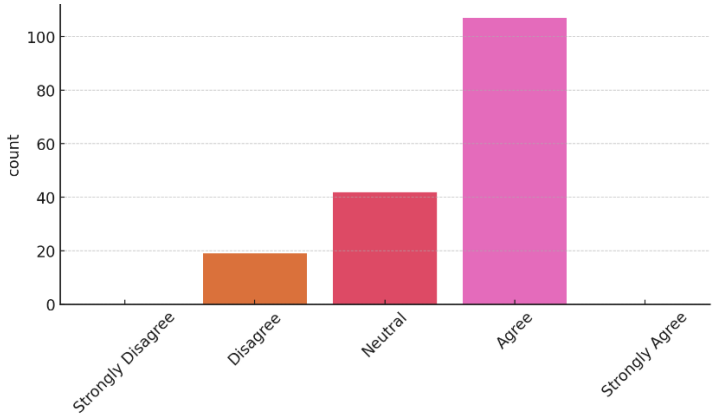

Figure 8. Respondents' Perception of Engagement and Motivation in Online Courses

Figure 8 shows that most respondents felt engaged and motivated in their online courses, indicating a generally positive learning experience. However, the lack of strong agreement suggests room for improvement through more interactive and learner-centered approaches.

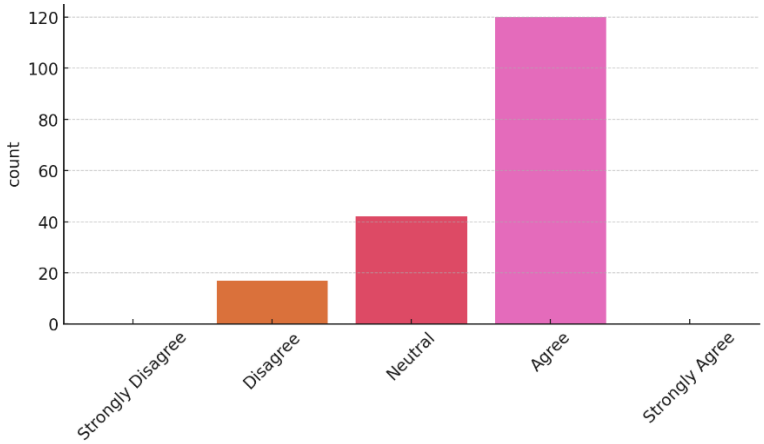

Figure 9. Respondents' Overall Evaluation of Their ODFeL Learning Experience

Figure 9 shows that most respondents had a positive perception of their ODFeL experience, with the majority agreeing it met or exceeded their expectations. While some remained neutral and a few disagreed, the overall feedback suggests general satisfaction, with room for improvement.

Thematic Analysis Overview and Theme Identification

A thematic analysis was conducted to examine the open-ended responses collected in the survey regarding learners' experiences with Online and Distance Flexible Education and Learning (ODFeL). Following Braun and Clarke's (2006) six-phase framework, the data were reviewed, coded, and categorized to identify key patterns and recurring insights across three domains: supportive learning experiences, challenges faced, and suggestions for improvement.

Responses were open-text entries from three questions:

1. Aspects that most supported learning
2. Challenges in adapting to ODFeL
3. Suggested improvements for enhanced engagement and outcomes

After multiple rounds of coding, the following core themes emerged:

A. Supportive Aspects of ODFeL

Theme 1: Flexibility and Self-Paced Learning
Many students appreciated the flexibility to learn at their own pace and on their own schedule.

"Studying at my own pace and schedule."
"The ability to study from anywhere."

Theme 2: LMS Access and Digital Materials
Access to the Learning Management System (LMS) and recorded content were cited as helpful.

"Reading from the LMS helped me improve."

Theme 3: Blended Physical Interaction
Some students highlighted physical classes as a key support component, despite being in ODFeL.

"The physical class supported my understanding."

B. Challenges in ODFeL Environments

Theme 4: Poor Course Structure and Communication Gaps
Participants reported unclear learning paths, lack of guidance, and poor content organization.

"ODFeL programs are not well organized."
"No proper explanation like physical classes."

Theme 5: Time Management and Motivation
Balancing ODFeL with personal responsibilities was frequently cited.

"Juggling studies with work and family is difficult."
"Self-motivation and discipline are hard to maintain."

Theme 6: Technical Difficulties and LMS Issues
Students encountered issues with internet access, LMS functionality, and online navigation.

"Technical issues and bad network sometimes affect learning."

C. Suggestions for Improvement

Theme 7: Enhanced Interactivity and Feedback
Students requested more interactive, real-time, or personalized feedback opportunities.

"They should improve interactive content."
"There should be more real-time response from lecturers."

Theme 8: Structured Scheduling and Support
Calls for better class schedules, instructor presence, and streamlined communication.

"Ensure the LMS is functional and stable."
"They should improve their teaching schedule and explanations."

Theme 9: Increase in Physical or Synchronous Sessions
Several respondents expressed the need for more blended or face-to-face engagement.
"We need more physical classes alongside online ones."

Themes from Open-Ended Survey Responses
The thematic analysis of open-ended responses provided rich insights into the experiences of students in ODFeL environments. This section presents a detailed exploration of each theme, contextualized with participant quotes to illustrate the qualitative dimensions of the study's findings.

Theme 1: Flexibility and Self-Paced Learning

One of the most cited benefits of ODFeL is the flexibility that it offered. Students consistently expressed appreciation for the ability to manage their schedules, learn at their own pace, and adapt study time to other responsibilities. This suppleness appeared especially important for students balancing school with work or family obligations.
"Studying at my own pace and schedule."
"The ability to study anywhere and anytime gives me control over my learning."
Such independence does not only empower but also aligned with the goals and objective of adaptive learning design, suggesting that learner-driven pacing contributes positively to engagement and retention.

Theme 2: Access to LMS and Learning Materials

Students identified the Learning Management System (LMS) as an important component of their learning experience. Most respondents opined that structured content, recorded lectures, and downloadable materials were instrumental in assisting them revisit topics, particularly when they struggled with preliminary comprehension.
"Reading from the LMS helped me improve."
"Having access to past lectures and notes online supported my study habits."
This finding reinforces the value of asynchronous content accessibility within ODFeL design.

Theme 3: Value of Physical Interaction in Blended ODFeL

Despite being part of a flexible learning model, several students highlighted the importance of limited face-to-face interactions. These physical sessions were seen as crucial for clarification and human connection.
"The physical class sessions helped me understand things better."
"Blending online with in-person lectures makes a big difference."
These insights suggest that hybrid learning models may offer a superior balance of flexibility and engagement.

Theme 4: Poor Course Structure and Communication Gaps

Some respondents reported that their ODFeL programs are deficient with clear structure or articulate delivery. This includes poor instructions from instructors, vague assignment instructions, and minimal feedback mechanism.
"The ODFeL program is not well organized."
"I find it hard to follow the learning path—it's confusing."
These comments pinpoint a critical area for instructional enhancement: coherent design and clearer academic support.

Theme 5: Time Management and Motivation

Time management was a repetitive concern. Without structured class times and tangible accountability, most students struggled with procrastination, distraction, and maintaining discipline.
"Balancing work, family, and school is hard with ODFeL."
"It's difficult to stay motivated when you're on your own."
This theme emphasizes the need for embedded self-regulation supports and motivational feedback systems in ODFeL platforms.

Theme 6: Technical Challenges and Infrastructure Issues

Technical issues, such as unreliable internet connections, LMS instability, or lack of digital literacy, were major barriers to success in ODFeL.
"The LMS is sometimes too slow or not functional."
"Network problems make it difficult to attend classes regularly."
Such barriers disproportionately affect students in remote or underserved areas, reinforcing the digital divide.

Theme 7: Need for More Interactivity and Feedback

Students repeatedly requested more interactive content and real-time feedback. Many perceived ODFeL as excessively passive, with partial instructor engagement.
"They should improve on their learning style and make it interactive."
"We need quicker responses and real-time feedback from lecturers."
This reinforces the importance of designing ODFeL environments with active, two-way communication features.

Theme 8: Scheduling and Academic Support

Respondents expressed a desire for more structured schedules, consistent lecturer presence, and clearer learning pathways.
"They should organize a clear timetable and stick to it."
"More consistent communication from instructors would help."
This calls for institutional planning and policy around scheduling and learner support in ODFeL programs.

Theme 9: Blended or Synchronous Options

A recurring recommendation was the inclusion of occasional physical classes or synchronous live sessions to supplement asynchronous content.
"More physical lectures, even if just once a month, would help."
"Real-time classes help clarify what we don't understand online."
These findings suggest that purely asynchronous models may not meet all learner needs.

Triangulation and Integration of Quantitative and Qualitative Data

The integration of quantitative and qualitative data in this study provides a comprehensive understanding of the effectiveness of the proposed ODFeL framework. By comparing findings across both strands, several points of convergence, complementarity, and divergence were identified, enhancing the validity and depth of the conclusions.

Converging Patterns

"Studying at my own pace and schedule."
"The course adjusts to how I learn, and that helps."
A strong alignment emerged between the quantitative results and qualitative themes in key areas:

Adaptive Learning (Q1–Q5)
Quantitative results showed high mean scores and mode values of 4 ("Agree"), indicating positive perceptions of personalized pacing and content. This was mirrored in qualitative feedback where students cited flexibility and self-paced learning as the most supportive aspect of ODFeL:

Active Learning (Q6–Q10)
The quantitative data reflected high engagement with real-world tasks (means > 3.8), supported qualitatively by praise for projects, case-based learning, and LMS content:
"Project-based tasks helped me apply what I learned."

Peer Collaboration (Q11–Q15)
Students agreed on the value of group work and peer feedback (Q13–Q15 all with mean ~4), aligning with narrative themes about collaboration enhancing motivation and understanding:
"Discussions with peers helped clarify difficult topics."

Learning Outcomes (Q16–Q20)

Respondents reported increased critical thinking and real-world application (mean ~3.9), reinforced by qualitative comments highlighting improved confidence and self-efficacy:
"What I learned online helped me in real-life situations."

Complementary Insights
Qualitative data enriched the quantitative findings by offering context-specific nuances:
While organized content (Q2, Q3) scored high quantitatively, qualitative responses shows that LMS functionality and instructor receptiveness are different — pointing to jagged experiences:
"Sometimes the LMS is too slow, or the course content isn't uploaded on time."

Quantitative data reflected satisfaction with peer collaboration, but some students still desired stronger instructor presence and more synchronous interaction:
"Peer feedback is good, but we also need more real-time lecturer interaction."

Divergent Observations
Some divergence was noted where high statistical scores masked underlying frustrations:
Although engagement metrics (Q16–Q20) scored positively overall, a subset of qualitative responses revealed challenges in motivation, time management, and isolation, particularly among learners with fewer self-regulation skills:
"It's hard to stay focused without physical presence."

While adaptive learning was commended, some students still struggled due to technical barriers or lack of digital literacy, issues not fully captured in Likert responses.

Framework Validation

Together, the integrated data strongly support the relevance of the three-component framework:

Table 3. Integration of Quantitative and Qualitative Evidence Across Key Framework Components of the Learning Experience

Framework Component	**Quantitative Support**	**Qualitative Support**
Adaptive Learning Paths	High agreement on personalized pacing	Emphasized flexibility and autonomy
Active Learning Strategies	Strong ratings on real-world tasks	Projects, LMS access, critical thinking references
Peer Collaboration	High peer engagement scores	Peer feedback, reduced isolation, deeper discussion

Table 3 presents a synthesis of quantitative and qualitative findings aligned with key framework components of the learning experience. For Adaptive Learning Paths, respondents showed high agreement with personalized pacing in the quantitative data, while qualitative feedback highlighted the importance of flexibility and learner autonomy. In the area of Active Learning Strategies, strong quantitative ratings reflected satisfaction with real-world task engagement, which was further supported by qualitative mentions of project-based learning, access to LMS resources, and encouragement of critical thinking. Regarding Peer Collaboration, high peer engagement scores were echoed by qualitative insights emphasizing the value of peer feedback, reduced feelings of isolation, and enriched class discussions. Together, these findings demonstrate the coherence between measurable outcomes and learner experiences across core elements of educational design.

Discussion
The findings of this study underscore a transformative shift in the design, implementation, and evaluation of Online and Distance Flexible Education and Learning (ODFeL). Rather than focusing solely on access and completion rates as indicators of success, this research reveals the critical importance of learner engagement, personalized pathways, and authentic assessment strategies in achieving meaningful educational outcomes.

One of the most salient outcomes is the strong affirmation of adaptive learning pathways. Quantitative data demonstrated that students overwhelmingly appreciated the flexibility and individualized pacing of their courses, while qualitative responses consistently highlighted the autonomy this approach afforded. These findings align

with prior research (Anderson, 2016; Pane et al., 2017), reinforcing that personalization not only enhances satisfaction but also fosters persistence in ODFeL settings. However, a noteworthy gap emerged around sustained motivation, suggesting that adaptive systems must incorporate progress-tracking features and motivational supports such as automated reminders and timely feedback.

The evidence also validated the integration of active learning strategies. Students reported high engagement with real-world tasks, project-based assignments, and case studies—approaches that bridge theory and practice. This supports the constructivist learning theory, indicating that learners are more likely to develop critical thinking and problem-solving skills when involved in experiential learning. Qualitative feedback further underscored that these strategies enhanced content retention and comprehension, confirming literature by Freeman et al. (2014) and Chi & Wylie (2014) that advocate for cognitive engagement in digital learning environments.

Similarly, the study found that peer collaboration and assessment play a significant role in promoting deeper understanding, motivation, and a sense of community. Quantitative results showed high satisfaction with peer-related learning activities, while qualitative insights emphasized that these interactions reduced isolation and clarified complex topics. Yet, learners also expressed the need for more real-time instructor engagement and synchronous learning moments, suggesting that peer collaboration should be complemented by active instructor facilitation to create a balanced learning ecosystem.

The triangulated data also revealed critical tensions and divergences. For instance, while overall satisfaction with ODFeL was high, open-ended responses exposed challenges such as poor course structure, technical barriers, and limited instructor presence. These issues, not always captured in closed-ended surveys, point to a pressing need for institutions to go beyond surface metrics and embrace student-centered evaluation practices. Importantly, the study also challenges the adequacy of traditional ODFeL success measures, such as course completion rates. Instead, it advocates for authentic, competency-based assessment models that prioritize the application of knowledge and transferable skills.

Conclusion

In conclusion, the proposed framework, built on adaptive learning, active engagement, and peer collaboration, has proven both theoretically robust and practically effective. It offers a redefined approach to ODFeL that not only increases access but also ensures impact. This has significant implications for policymakers, instructional designers, and educators, pointing to the need for holistic models that consider the cognitive, social, and emotional dimensions of learning. As ODFeL continues to expand across diverse contexts, its success will hinge not merely on enrolment figures but on its ability to foster transformative and learner-driven educational experiences.

Recommendations

Based on the findings, in line with Sustainable Development Goal 4 (SDG 4), the following recommendations are suggested:

1. Implement Personalized and Adaptive Learning Systems
2. Embed Active, Competency-Based Learning and Assessment
3. Enhance Peer Interaction and Instructor Presence
4. Ensure Inclusive Access and Reliable Infrastructure
5. Institutionalize Structured Delivery, Monitoring, and Evaluation

References

Alammary, A. (2022). Blended learning models for introductory programming courses: A systematic review. Education and Information Technologies, 27(2), 1519–1544. https://doi.org/10.1007/s10639-021-10702-0

Bozkurt, A., Jung, I., Xiao, J., Vladimirschi, V., Schuwer, R., Egorov, G. & Paskevicius, M. (2020). A global outlook to the interruption of education due to COVID-19 pandemic: Navigating in a time of uncertainty and crisis. Asian Journal of Distance Education, 15(1), 1–126.

Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education. The Internet and Higher Education, 2(2-3), 87–105. https://doi.org/10.1016/S1096-7516

Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2014). The effectiveness of online and blended learning: A meta-analysis of the empirical literature. Teachers College Record, 115(3).

Pane, J. F., Steiner, E. D., Baird, M. D., & Hamilton, L. S. (2017). Informing progress: Insights on personalized learning implementation and effects. RAND Corporation.

Topping, K. J. (2009). Peer assessment. Theory into Practice, 48(1), 20–27. https://doi.org/10.1080/00405840802577569

Wang, Y., Hall, N. C., & Wang, Q. (2021). Understanding student engagement in online learning: Challenges and solutions. Educational Research Review, 34, 100386. https://doi.org/10.1016/j.edurev.2021.100386

Xie, K., Durrington, V., & Yen, C.-J. (2011). Relationship between students' motivation and their participation in asynchronous online discussions. Journal of Online Learning and Teaching, 7(1), 17–29.