

Evaluating Adult Educators' Perceptions of the Pedagogical Value of ICT Integration in Community Learning Centres in South Africa

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Abstract. The integration of Information and Communication Technology (ICT) has become central to educational transformation worldwide, yet evidence on its pedagogical value in Adult Basic Education and Training (ABET) remains limited, particularly in resource-constrained contexts (Ditlhale & Van den Berg, 2024; Nchabeleng, 2024). Existing research has focused largely on technological access and infrastructure, with comparatively little attention given to how key stakeholders perceive the educational value of ICT in adult learning (Daniels, 2022; Maceke, Nkoana, & Chauke, 2026). This study addresses this gap by exploring the perceptions of adult educators, adult learners, and centre managers regarding the pedagogical value of ICT integration in community learning centres in South Africa. Guided by an interpretivist paradigm, the study employed a qualitative multiple-case study design involving two community learning centres. Semi-structured interviews were conducted with 10 purposively selected participants: 4 adult educators, 4 adult learners and 2 centre managers. Data were analysed using the thematic analysis of Braun and Clarke (2021). Four interconnected themes emerged: enhanced learner engagement and motivation; improved conceptual understanding through visualisation; support for diverse learning needs; and perceived improvement in learner confidence and academic performance. However, participants also identified persistent institutional barriers, including inadequate infrastructure, unreliable connectivity, limited access to digital resources, and insufficient pedagogically focused professional development, which constrained meaningful ICT integration. Interpreted through activity theory (Engeström, 1987), the findings demonstrate that effective ICT integration depends not only on technological availability but also on interactions among educators, learners, institutional support, and organisational conditions. The study contributes to the limited scholarship on ICT integration in adult education by providing stakeholder-informed evidence to support policy development, educator professional development, and the advancement of digitally inclusive

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adult learning environments in South Africa and comparable educational contexts.

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1. Introduction

Information and Communication Technology (ICT) has become an essential component of contemporary education, offering opportunities to enhance teaching, learning, collaboration and access to educational resources. Across the globe, governments and educational institutions have promoted the integration of ICT increasingly to improve educational quality, learner engagement, digital literacy and lifelong learning. In adult education, ICT has the potential to support flexible, learner-centred and contextually relevant learning experiences that respond to the diverse educational, occupational and social needs of adult learners. However, the pedagogical value of ICT extends beyond mere availability; it depends on how educators integrate these tools into teaching to promote meaningful learning outcomes.

In South Africa, Adult Basic Education and Training (ABET), now delivered largely through community learning centres (CLCs), plays a critical role in addressing historical educational inequalities by providing learning opportunities to adults who were excluded previously from formal education. Adult learners often enter these programmes with diverse educational backgrounds, varying literacy levels, limited digital skills and multiple socio-economic challenges that require innovative and responsive teaching approaches. Consequently, effective ICT integration has the potential to improve learner participation, conceptual understanding, motivation, confidence and access to lifelong learning opportunities (Akintolu & Letseka, 2021; Daniels, 2020).

Despite national policies promoting digital transformation within the education sector, ICT integration within South African adult education remains inconsistent. Previous studies have identified persistent barriers, including inadequate infrastructure, unreliable internet connectivity, insufficient access to digital devices, limited institutional support, and inadequate professional development for educators (Aruleba & Jere, 2022; Munje & Jita, 2020; Shava, 2022). These structural challenges often restrict the ability of educators to integrate ICT effectively into teaching and learning, particularly in historically disadvantaged and resource-constrained community learning centres.

Existing research has contributed significantly to understanding ICT adoption, digital readiness and technology-related challenges in schools, Technical and Vocational Education and Training (TVET) colleges and higher education institutions (Abel et al., 2022; Holler et al., 2023; Meladi & Awolusi, 2020). Comparatively, there has been little empirical research which has examined how ICT is experienced pedagogically in adult education settings, particularly from the perspectives of those involved directly in teaching and learning. Furthermore, much of the existing literature emphasises technological access and infrastructure

while giving less attention to how educators, adult learners and centre managers perceive the pedagogical value of ICT in supporting adult learning. Consequently, a limited understanding remains of the factors that shape meaningful ICT integration in South African CLCs.

This study addresses this knowledge gap by exploring the perceptions of adult educators, adult learners and centre managers regarding the pedagogical value of ICT integration in community learning centres offering Adult Basic Education and Training. Understanding these stakeholder perspectives is important because educators ultimately determine how technology is incorporated into classroom practice; learners experience the direct educational benefits and challenges of ICT-supported instruction; and centre managers influence institutional support, resource allocation and implementation practices.

Examining these perspectives provides a more comprehensive understanding of the opportunities and constraints influencing ICT integration in adult education. The study is guided by activity theory, which conceptualises ICT integration as a socially mediated activity shaped by interactions among individuals, technological tools, institutional rules, community structures and the division of responsibilities. Rather than viewing technology adoption as a purely technical process, activity theory provides a framework for understanding how contextual, organisational and pedagogical factors collectively influence the use by educators of ICT and the learning experiences of adult learners.

The findings contribute to the growing body of knowledge on ICT integration in adult education by providing empirical evidence from community learning centres in the South African context. The study offers insights for policymakers, adult education practitioners, institutional leaders and professional development providers seeking to strengthen digital inclusion and to improve the pedagogical use of ICT in adult learning environments. The findings may also inform ICT implementation strategies in similar resource-constrained adult education contexts beyond South Africa.

The study was guided by the following research questions:

1. How do adult educators, adult learners, and centre managers perceive the pedagogical value of ICT integration in Adult Basic Education and Training centres?
2. What pedagogical benefits do participants associate with the use of ICT in adult learning?
3. What barriers influence the effective pedagogical integration of ICT in community learning centres?
4. How can ICT integration be strengthened to enhance teaching and learning in Adult Basic Education and Training centres?

The overall objective of this study was to evaluate stakeholder perceptions of the pedagogical value of ICT integration in Adult Basic Education and Training centres in South Africa and to identify the opportunities and challenges influencing its effective implementation.

2. Literature Review

2.1 ICT Integration in Adult Basic Education and Training

ICT integration refers to the purposeful use of digital technologies to enhance teaching, learning, assessment, communication and knowledge construction. Contemporary scholarship argues that effective ICT integration extends beyond the availability of technological resources to encompass the pedagogical practices that enable meaningful learning experiences (Abel et al., 2022; Meladi & Awolusi, 2020). Consequently, the educational value of ICT should be evaluated by how technology supports learning rather than merely by whether digital devices are present in educational institutions. In Adult Basic Education and Training (ABET), ICT integration is particularly important because adult learners often differ significantly from school learners in their educational experiences, learning motivations, occupational responsibilities and digital competencies.

Adult education is grounded in the principles of relevance, experiential learning, self-direction and practical application, requiring instructional approaches that recognise the existing knowledge and life experiences of learners (Akintolu & Letseka, 2021; Daniels, 2020). Digital technologies therefore offer opportunities to create more flexible, contextualised and learner-centred educational experiences that align with adult learning principles. However, successful ICT integration in adult education remains uneven, particularly in developing contexts. Studies conducted across South Africa consistently identify inadequate infrastructure, unreliable internet connectivity, insufficient access to digital devices and limited institutional support as significant barriers to technology-enhanced learning (Aruleba & Jere, 2022; Munje & Jita, 2020).

These structural constraints reduce the opportunities for educators to integrate ICT meaningfully into classroom practice despite increasing the national emphasis on digital transformation. While these studies provide valuable insights into barriers affecting ICT implementation, they focus primarily on technological access and institutional readiness, offering comparatively limited understanding of how ICT is experienced pedagogically by stakeholders in adult education environments.

2.2 Pedagogical Value of ICT in Adult Learning

The pedagogical value of ICT is reflected in its capacity to enhance learner engagement, facilitate conceptual understanding, support collaborative learning and accommodate diverse learning needs. Research demonstrates that digital technologies can increase learner participation by providing interactive, visual and authentic learning experiences which encourage active knowledge construction rather than passive information acquisition (Mnisi et al., 2024; Shava, 2022). Such approaches are particularly relevant in adult education, where learners often benefit from practical demonstrations, problem-based learning and opportunities to connect educational content with real-world experiences. Similarly, studies indicate that multimedia resources, instructional videos, simulations and mobile learning technologies can improve conceptual understanding by presenting abstract concepts through multiple representations (Adelabu et al., 2022; Ramnarain & Ndlovu, 2023). These approaches are

especially beneficial for adult learners with diverse literacy levels and educational backgrounds, enabling educators to adapt instruction to accommodate varying learning preferences. Mobile learning expands educational opportunities further by increasing flexibility and enabling learning beyond traditional classroom settings (Ditlhale & Van den Berg, 2024).

Despite these documented pedagogical benefits, the literature also suggests that ICT does not improve educational outcomes automatically. Rather, technology contributes positively only when educators integrate digital resources intentionally into pedagogically sound instructional practices. Consequently, the effectiveness of ICT depends not solely on technological availability but also on the pedagogical competence of educators, their instructional decision-making and their confidence in using technology to support learning (Meladi & Awolusi, 2020). This highlights the importance of examining the perceptions of educators of the educational value of ICT rather than assuming that technology adoption leads naturally to improved teaching and learning.

2.3 Adult Educators' Perceptions and Professional Support

The perceptions of educators have been identified consistently as one of the strongest predictors of successful ICT integration. Positive attitudes towards technology, perceived usefulness, self-efficacy and confidence influence the decision of educators to incorporate digital technologies into everyday teaching practices (Abel et al., 2022; Rana, 2023). However, positive perceptions alone are insufficient to sustain meaningful ICT integration when institutional conditions limit the capacity of educators to implement innovative teaching approaches. Professional development therefore occupies a central position in ICT adoption. Holler et al. (2023) argue that educators require continuous development which extends beyond basic computer literacy to include pedagogical strategies for technology-enhanced teaching.

Likewise, Ngcapu et al. (2022) emphasise that digital transformation requires carefully planned professional learning which supports educators in adapting instructional practices to emerging technological environments. These findings suggest that educator competence should be viewed as an ongoing developmental process rather than a once-off training intervention. Institutional support further influences the willingness and ability of educators to integrate ICT. Organisational leadership, technical support, policy implementation, infrastructure maintenance and resource allocation collectively shape the experiences of educators of technology adoption (Education, Training and Development Practices SETA, 2021; Yalley, 2022). Without these enabling conditions, educators may recognise the educational value of ICT while remaining unable to implement technology effectively in their classrooms.

2.4 Activity Theory as the Conceptual Framework

This study is underpinned by activity theory, originally developed by Vygotsky (1978) and further expanded by Engeström (1987) as a framework for understanding the complex interactions that influence ICT integration in educational environments. Activity theory conceptualises teaching and learning as socially mediated activities in which human actions are shaped by relationships

among individuals, technological tools, institutional rules, community members and the division of labour. In the context of this study, adult educators represent the primary subjects whose pedagogical practices are mediated through ICT tools in pursuit of the object of improving adult learning. Their activities are influenced simultaneously by institutional policies, organisational structures, available infrastructure, professional development opportunities and interactions with adult learners and centre managers. Consequently, successful ICT integration depends not only on the individual competencies of educators but also on the broader educational system in which teaching occurs.

Activity theory, therefore, provides an appropriate analytical lens because it explains how technological adoption is influenced by interconnected pedagogical, organisational and contextual factors rather than by technology alone. The framework enables this study to examine both the opportunities and contradictions that emerge during ICT integration in community learning centres and provides a coherent foundation for interpreting the experiences of participants throughout the analysis and discussion.

2.5 Research Gap

The literature review demonstrates growing interest in ICT integration in South African education. However, three important gaps remain evident. First, existing research has concentrated predominantly on schools, Technical and Vocational Education and Training colleges, and higher education institutions, while comparatively little attention has been given to Adult Basic Education and Training in CLCs. Second, previous studies have focused largely on technological infrastructure, digital readiness and institutional challenges, with relatively limited attention given to the perceptions of stakeholders of the pedagogical value of ICT in adult learning environments. Third, few studies have examined the perspectives of adult educators, adult learners and centre managers simultaneously, despite these groups collectively shaping the implementation of ICT in community learning centres.

Addressing these gaps, the present study explores how adult educators, adult learners and centre managers perceive the pedagogical value of ICT integration in Adult Basic Education and Training centres in South Africa. Guided by activity theory, the study provides a comprehensive understanding of the pedagogical opportunities and contextual challenges influencing ICT integration in adult education and contributes empirical evidence to inform policy, professional development and future implementation strategies.

3. Methodology

3.1 Research Paradigm and Design

This study adopted an interpretivist paradigm using a qualitative multiple-case study design to explore the perceptions of stakeholders of the pedagogical value of ICT integration in CLCs in South Africa. The interpretivist paradigm was considered appropriate because the study sought to understand the lived experiences, meanings and interpretations of participants regarding ICT integration in their natural educational contexts rather than measuring

predetermined variables. Interpretivism recognises that reality is socially constructed and that knowledge emerges through interactions between researchers and participants (Creswell & Poth, 2018).

A qualitative multiple-case study design was selected because it enabled an in-depth examination of ICT integration across two CLCs, allowing for the exploration of similarities and contextual differences between cases. Case study research is particularly appropriate for investigating contemporary educational phenomena in real-world settings where contextual factors influence the experiences of participants (Yin, 2018). The design therefore provided rich insights into how adult educators, adult learners and centre managers perceived the pedagogical value of ICT in their respective institutions.

3.2 Study Context

The study was conducted in two CLCs in South Africa that offer Adult Basic Education and Training programmes. One centre was situated in a relatively ICT-resourced environment, while the second represented a resource-constrained setting characterised by limited technological infrastructure. The selection of centres with differing ICT contexts enabled the study to capture diverse experiences regarding technology integration while reflecting the inequalities that continue to characterise adult education provision in the South African post-school education sector. CLCs provide educational opportunities for adults who were excluded previously from formal schooling because of historical, socio-economic or personal circumstances. These centres, therefore, represent appropriate settings for investigating how ICT can support inclusive adult learning despite resource limitations.

3.3 Participants and Sampling

Purposive sampling was employed to recruit participants with direct experience of ICT integration in ABET. Purposive sampling is used widely in qualitative research because it enables researchers to select information-rich participants who can provide detailed insights into the phenomenon under investigation (Patton, 2015).

The study included 10 participants, comprising:

- 4 adult educators
- 4 adult learners
- 2 centre managers

Participants represented different ages, educational backgrounds and levels of experience with ICT, allowing multiple perspectives on technology integration to emerge. Adult educators were selected because they were responsible directly for integrating ICT into teaching and learning. Adult learners were included because they experienced ICT-supported instruction, while centre managers provided organisational perspectives regarding institutional support, infrastructure and policy implementation. Sampling continued until a sufficient depth of information was obtained and no substantially new insights emerged across interviews, indicating adequate information power for the study.

3.4 Data Collection

Data were collected through semi-structured individual interviews, which allowed participants to describe their experiences while enabling the researcher to probe emerging issues in greater depth. Semi-structured interviews were considered appropriate because they provide flexibility to explore the perceptions of participants while ensuring consistency across interviews (Kvale & Brinkmann, 2015).

An interview guide was developed, organised around the study objectives. Questions explored:

- the experiences of participants of ICT use in ABET teaching and learning;
- perceived pedagogical benefits of ICT integration;
- barriers affecting effective ICT implementation; and
- recommendations for improving ICT integration in community learning centres.

Each interview lasted approximately 45 to 60 minutes and was conducted in a private setting at the respective centres of the participants to ensure confidentiality. With the informed consent of the participants, interviews were audio-recorded and supplemented by field notes documenting contextual observations and reflective insights.

3.5 Data Analysis

Interview recordings were transcribed verbatim before analysis. Data were analysed using the six-phase thematic analysis of Braun and Clarke (2006), which provides a systematic approach for identifying and interpreting patterns in qualitative data.

The analysis followed six sequential stages:

1. familiarisation with the interview transcripts through repeated reading;
2. generation of initial codes describing meaningful units of data;
3. searching for relationships among codes to develop preliminary themes;
4. reviewing themes against the complete dataset to ensure coherence;
5. defining and naming the final themes; and
6. producing the final analytical narrative supported by representative participant quotations.

Coding was undertaken manually to enable close engagement with the data throughout the analytical process. The process yielded four overarching themes: learner engagement, conceptual understanding, inclusive learning, and perceived academic improvement. To improve transparency, participants were identified using descriptive codes indicating their stakeholder group rather than solely by numerical identifiers. For example: Educator 1 (E1), Learner 2 (L2), and Centre Manager 1 (CM1). This approach enhanced clarity while maintaining participant anonymity.

3.6 Trustworthiness

Trustworthiness was established using the criteria of Lincoln and Guba (1985) of credibility, dependability, confirmability and transferability. Credibility was enhanced through prolonged engagement with participants, verbatim transcription of interviews and the inclusion of direct quotations to support interpretations. Dependability was strengthened by maintaining a detailed audit trail documenting interview procedures, coding decisions, theme development and analytical reflections throughout the research process. Confirmability was achieved through reflexive note-taking and continuous comparison between the accounts of participants and emerging interpretations, to minimise researcher bias. Transferability was supported by providing rich descriptions of the research context, participant characteristics and methodological procedures, enabling readers to determine the applicability of the findings to similar adult education settings.

3.7 Ethical Considerations

Ethical approval for the study was obtained from the University of South Africa College of Education Research Ethics Committee (Ethics Clearance No. [REF 7795]) before data collection commenced. Permission to conduct the study was obtained from the relevant community learning centres. All participants received written information explaining the purpose of the study, voluntary participation, confidentiality, anonymity and their right to withdraw at any stage without penalty. Written informed consent was obtained before interviews commenced. To protect the identities of participants, pseudonyms and participant codes were used throughout the reporting of findings. Digital recordings, transcripts and research documents were stored securely and were accessible only to the researchers.

3.8 Conceptual Framework

This study was guided by activity theory (Engeström, 1987), which conceptualises ICT integration as a socially mediated activity influenced by interactions among educators, learners, technological tools, institutional rules, the wider educational community and the division of responsibilities. Activity theory provided the analytical lens for understanding how these interconnected elements shaped the perceptions of participants of the pedagogical value of ICT in community learning centres. The framework informed the design of the interview protocol, thematic analysis and interpretation of the findings.

4. Results and Findings

This section presents the findings from interviews conducted with adult educators (n = 4), adult learners (n = 4) and centre managers (n = 2) regarding their perceptions of the pedagogical value of ICT integration in CLC centres. Four themes emerged from the thematic analysis: (1) enhanced learner engagement and motivation; (2) improved conceptual understanding through visualisation; (3) support for diverse learning styles and adult learner needs; and (4) perceived improvement in academic performance and assessment outcomes. Participant quotations are presented using stakeholder identifiers to preserve anonymity while indicating the perspective from which each finding emerged.

4.1 Theme 1: Enhanced Learner Engagement and Motivation

Participants described ICT consistently as an important pedagogical resource that stimulated learner engagement and sustained motivation during classroom activities. Adult educators explained that digital technologies encouraged active participation by making lessons more interactive than traditional textbook-based instruction. Adult learners similarly reported that technology increased their interest in learning and improved their willingness to participate during lessons.

One educator explained:

"Learners get bored when they are being taught through textbooks, but when an educator starts using simple technology, they become more engaged." (Educator 2)

A learner similarly stated:

"Technology creates motivation to focus and learn more." (Learner 3)

Another learner commented:

"Learners enjoy technology because it makes participation easier and learning becomes more interesting." (Learner 1)

A centre manager also observed increased classroom participation:

"Whenever educators use digital resources, learners participate more actively than during conventional lessons." (Centre Manager 1)

Across all participant groups, ICT was perceived as creating a more engaging learning environment that encouraged learner participation, increased attention during lessons and enhanced motivation to learn.

4.2 Theme 2: Improved Conceptual Understanding Through Visualisation

Participants perceived ICT as valuable for improving conceptual understanding through visual demonstrations, multimedia resources and practical illustrations. Adult educators explained that videos, projected demonstrations and digital images helped learners to understand concepts that were often difficult to explain with textbooks alone. Learners particularly valued technology when learning practical subjects where visual demonstrations reflected authentic workplace activities.

One learner explained:

"Seeing a cashier working at the till made it easier to relate the theory to real workplace activities." (Learner 2)

Another learner commented:

"When learning only comes from textbooks, some topics become difficult to understand, but technology makes everything easier because we can actually see what is being explained." (Learner 2)

An educator added:

"Instructional videos allow learners to observe practical activities before attempting them themselves." (Educator 4)

A centre manager similarly noted:

"Visual demonstrations improve learners' understanding because they can observe real examples instead of relying only on verbal explanations."
(Centre Manager 2)

Participants viewed ICT consistently as supporting learning by making abstract concepts more concrete through visual representation and practical demonstration.

4.3 Theme 3: Support for Diverse Learning Styles and Adult Learner Needs

Participants recognised that adult learners possess diverse educational backgrounds, literacy levels, learning preferences and previous educational experiences. ICT was therefore viewed as an important instructional resource which enabled educators to accommodate these differences through multiple modes of content delivery.

One educator explained:

"Learners have different learning styles, so it is beneficial to use different teaching methods, including videos and images." (Educator 3)

A learner stated:

"Technology allows us to see and hear information instead of only reading books, which helps many learners understand better." (Learner 1)

A centre manager similarly observed:

"Some learners understand concepts much better when they watch videos than when they only listen to explanations." (Centre Manager 1)

Another educator added:

"Technology helps educators respond to learners who require practical demonstrations instead of only theoretical explanations." (Educator 1)

Overall, participants perceived ICT as promoting more inclusive teaching by providing multiple ways for adult learners to access and understand educational content.

4.4 Theme 4: Perceived Improvement in Academic Performance and Assessment Outcomes

Participants believed that ICT contributed to improved academic performance by strengthening understanding, increasing confidence and supporting knowledge retention. Although participants did not attribute academic success solely to technology, they described ICT consistently as improving learning by helping learners to understand educational content better before assessment.

One educator stated:

"Learners perform better during assessments because they understand the work much more easily when technology is used." (Educator 2)

A learner similarly explained:

"Access to technology makes a big difference because I understand the work better and perform better during tests." (Learner 2)

Another educator commented:

"Interactive and visual teaching methods help learners remember information for much longer." (Educator 4)

A centre manager added:

"Learners become more confident when they understand concepts through practical demonstrations before completing assessments."
(Centre Manager 2)

Participants therefore perceived ICT as enhancing academic performance indirectly through improved understanding, confidence, participation and knowledge retention.

The findings demonstrate broad agreement among adult educators, adult learners and centre managers regarding the pedagogical value of ICT integration in Adult Basic Education and Training centres. Participants described ICT consistently as enhancing learner engagement, improving conceptual understanding through visualisation, accommodating diverse learning needs and contributing to improved academic performance. At the same time, participants acknowledged that these pedagogical benefits depended on the effective use by educators of technology and the availability of appropriate institutional support. The implications of these findings are explored in the discussion section, where they are interpreted in relation to existing literature and activity theory.

5. Discussion

The findings demonstrate that participants perceived ICT as a valuable pedagogical resource which could improve teaching and learning in CLCs. Across all stakeholder groups, ICT was associated with increased learner engagement, improved conceptual understanding, greater responsiveness to diverse learning needs and enhanced learner confidence. However, participants also recognised that these pedagogical benefits depended on the ability of educators to integrate technology meaningfully in their instructional practices and on the institutional conditions that supported technology use. These findings reinforce the argument that successful ICT integration is fundamentally a pedagogical rather than a purely technological process.

The first important finding relates to learner engagement and motivation. Participants consistently reported that ICT increased the attention, participation and enthusiasm of learners during classroom activities. This finding supports previous studies which have shown that digital technologies promote active participation by creating interactive learning environments which encourage learners to become more involved in knowledge construction (Mnisi et al., 2024; Shava, 2022). In adult education, this finding is particularly significant because many adult learners return to formal education after prolonged educational interruptions and may experience anxiety or limited confidence. The use of multimedia resources, videos, demonstrations and interactive presentations appears to create learning environments that are more responsive to educational needs of adult learners than traditional teacher-centred approaches.

The findings indicate further that participants viewed ICT as improving conceptual understanding through visualisation and practical demonstration. Adult learners reported that videos, simulations and digital demonstrations enabled them to connect theoretical concepts with authentic workplace practices. This finding aligns with Adelabu et al. (2022), who argue that multimedia learning facilitates understanding by presenting information through multiple representations. Similarly, Ramnarain and Ndlovu (2023) emphasise that ICT contributes to meaningful learning when digital resources are aligned intentionally with subject content and learning objectives in the ABET context, where many programmes emphasise practical and occupational competencies, visual learning appears particularly valuable in supporting adults who learn more effectively through demonstration than through abstract theoretical instruction.

Another significant finding concerns the capacity of ICT to accommodate the diversity of adult learners. Participants recognised that adult learners differ considerably in age, educational background, literacy levels, confidence and preferred learning approaches. ICT was therefore perceived as supporting inclusive teaching by enabling educators to combine visual, audio and practical learning resources. This finding aligns with principles of adult learning theory, which emphasise that effective adult education should acknowledge the prior experiences of learners and provide learning opportunities that are relevant, flexible and responsive to individual needs (Akintolu & Letseka, 2021). Rather than replacing traditional teaching, ICT expands the pedagogical repertoire of educators by enabling multiple approaches to knowledge construction.

Participants also associated ICT integration with improved academic performance. Importantly, the findings do not suggest that technology alone improves learner achievement. Instead, participants perceived academic improvement as resulting from greater understanding, increased learner confidence and improved engagement generated through the effective pedagogical use of ICT. This finding supports Meladi and Awolusi (2020), who argue that educational outcomes depend not upon the availability of technology itself but on the ability educators to integrate digital tools into meaningful instructional practices. Consequently, technology should be viewed as an enabling resource that supports effective pedagogy rather than as a substitute for quality teaching.

Although participants expressed overwhelmingly positive perceptions of the pedagogical value of ICT, they also identified important contextual constraints that limit its effective implementation. Limited access to digital devices, unreliable internet connectivity, inadequate maintenance, resource sharing, and insufficient professional development restricted the ability of educators to integrate ICT consistently into teaching practice. These findings corroborate previous South African studies that identify infrastructure limitations and institutional support as persistent barriers to digital transformation in resource-constrained educational settings (Aruleba & Jere, 2022; Munje & Jita, 2020).

The findings therefore suggest that positive educator perceptions alone are insufficient to sustain meaningful ICT integration without appropriate organisational support. These relationships are explained effectively through the lens of activity theory. From an activity theory perspective, ICT integration represents a socially mediated activity system in which educators (subjects) use technological tools to achieve the object of improving adult learning. However, this activity is influenced simultaneously by institutional rules, available infrastructure, organisational leadership, community relationships and the division of responsibilities within community learning centres.

The findings demonstrate that contradictions emerged between the recognition by participants of the pedagogical value of ICT and the organisational conditions required to implement technology effectively. While educators valued ICT as a teaching resource, limitations in infrastructure, connectivity, technical support and professional development constrained their ability to translate positive perceptions into sustained pedagogical practice. These contradictions illustrate that successful ICT integration depends upon the interaction of multiple elements in the educational activity system rather than upon technology alone. The study makes an important contribution to the literature on ICT integration in adult education.

Previous research has concentrated primarily on technological access, infrastructure, digital readiness and institutional challenges in schools, Technical and Vocational Education and Training colleges, and higher education institutions. Comparatively little research has examined how multiple stakeholders perceive the pedagogical value of ICT in CLCs offering Adult Basic Education and Training. By incorporating the perspectives of adult educators, adult learners and centre managers, this study provides a more comprehensive understanding of the pedagogical opportunities and contextual constraints that influence ICT integration in adult education.

The findings, therefore, extend existing knowledge by demonstrating that successful ICT integration requires the alignment of educator competence, institutional support, infrastructure and pedagogically meaningful teaching practices. Overall, the findings suggest that ICT should not be viewed merely as technological infrastructure but rather as a pedagogical resource embedded within broader organisational and educational systems. Sustainable ICT integration in Adult Basic Education and Training, therefore, requires coordinated investment in educator professional development, institutional leadership, reliable digital infrastructure and supportive policy implementation. Such an integrated approach is essential if CLCs are to realise the educational potential of ICT and to contribute meaningfully to digital inclusion and lifelong learning.

6. Conclusion

This study explored the perceptions of adult educators, adult learners and centre managers regarding the pedagogical value of ICT integration in CLCs in South Africa. The findings demonstrate that ICT is perceived widely as a valuable pedagogical resource capable of enhancing learner engagement, improving conceptual understanding through visualisation, accommodating diverse learning needs and strengthening learner confidence and academic performance. These findings suggest that the educational value of ICT lies not in the availability of digital technologies alone but in their purposeful integration into learner-centred teaching practices that respond to the unique characteristics of adult learners.

The study demonstrates further that the effective pedagogical integration of ICT remains constrained by contextual and institutional challenges, including inadequate infrastructure, unreliable internet connectivity, limited access to digital devices, insufficient maintenance and inadequate professional development for educators. These findings highlight that sustainable ICT integration requires a systemic approach which combines technological resources with institutional leadership, educator capacity development, supportive policies and ongoing technical support. Guided by activity theory, the study shows that successful ICT integration arises from the interaction among educators, learners, technological tools, organisational structures and institutional practices rather than from technology itself.

This study contributes to the literature by extending current understanding of ICT integration in adult education, an area that has received comparatively limited scholarly attention compared with school, Technical and Vocational Education and Training and higher education sectors. By incorporating the perspectives of adult educators, adult learners and centre managers, the study provides a more comprehensive understanding of the pedagogical opportunities and contextual constraints influencing ICT integration in CLCs. The findings offer practical evidence to inform policy development, institutional planning and professional development initiatives aimed at strengthening digital inclusion in adult education.

7. Practical Recommendations

Based on the findings, several practical recommendations are proposed:

- Adult educators should receive continuous professional development focused on the pedagogical integration of ICT rather than on basic digital literacy alone.
- CLCs should prioritise investment in reliable digital infrastructure, including internet connectivity, equipment maintenance and access to appropriate learning technologies.
- Institutional leaders should develop clear ICT implementation strategies that align technology integration with curriculum delivery and adult learning principles.

- Policymakers should provide sustained financial and technical support to reduce digital inequalities across CLCs and strengthen equitable access to technology-enhanced learning.

8. Limitations of the Study

This study should be considered in the light of several limitations. First, the research was conducted in only two CLCs, which limits the transferability of the findings to other adult education contexts. Second, the relatively small qualitative sample was intended to generate rich contextual understanding rather than statistical generalisation. Finally, the study relied primarily on the perceptions and experiences of participants and did not include classroom observations or quantitative measures of learner performance which could validate the reported pedagogical benefits of ICT integration further.

9. Future Research

Future studies should examine ICT integration across a broader range of CLCs representing different geographical and socio-economic contexts in South Africa. Comparative studies involving public and private adult education institutions, mixed-methods investigations combining qualitative and quantitative data and longitudinal research exploring the long-term impact of ICT-supported teaching on adult learner achievement would strengthen further understanding of effective technology integration in adult education.

Future research might also investigate the effectiveness of targeted professional development programmes designed to enhance the pedagogical use of digital technologies by educators. Overall, this study demonstrates that ICT has considerable potential to strengthen teaching and learning in ABET. However, achieving this potential requires more than providing technological resources. Sustainable and meaningful ICT integration depends upon the alignment of educator competence, institutional support, infrastructure, leadership and pedagogically informed teaching practices. Addressing these interconnected factors will enable CLCs to contribute more effectively to lifelong learning, digital inclusion and the broader transformation of adult education in South Africa. This research project shows that adult educators appreciate the benefits that ICT can offer in adult learning at ABET centres in South Africa. Participants believe that technology can help to enhance learner engagement, motivation, visual perception, participation, confidence and skill acquisition.

It appears that adult educators can use digital tools effectively to enhance adult learning when they are used to explain difficult subjects, provide real-life examples and support learners with diverse educational backgrounds. At the same time, this research suggests that the importance of ICT is not embraced fully at the selected CLCs. In particular, the use of technology remains limited by limited access, resource sharing constraints, poor internet connectivity, outdated technology and a lack of maintenance. This situation restricts educators from utilising technology in their classroom instruction and lesson delivery. Moreover, although most educators received basic computer training, they still lack sufficient professional guidance on applying technology to lesson planning,

learner engagement, assessment and adult education in general. In other words, this study confirms that the effective use of technology in ABET depends on more than just having the devices themselves. Indeed, the successful application of technology requires an appropriate infrastructure, educator competence, leadership support, policy directions and continued professional development.

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11. References

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