

# Journal of Adult Education in Tanzania

---

JAET Vol. 27, Issue 1, June, 2025

pISSN: 2738-9243

eISSN: 2961-6271

---



**INSTITUTE OF ADULT EDUCATION**

# **Journal of Adult Education in Tanzania (JAET)**

**Vol. 27, Issue 1, June 2025**

**INSTITUTE OF ADULT EDUCATION,  
TANZANIA**

The Journal of Adult Education in Tanzania (JAET) is a publication of the Institute of Adult Education (IAE). This work is published under a Creative Commons license which enables re-users to distribute, remix, adapt, and build upon the material in any medium or format for non-commercial purposes only, and only so long as attribution is given to the author.



eISSN 29616271 / pISSN 27389243

DOI: <https://doi.org/10.61408/jaet2025v27i01>

Institute of Adult Education P. O. Box 20679, Dar es Salaam, Tanzania

Tel: +255-022-2150838/2151048. Fax: +255-022-2150836.

Email: [info@iae.ac.tz](mailto:info@iae.ac.tz) Website: [www.iae.ac.tz](http://www.iae.ac.tz)

## Table of Contents

Editorial Team.....	iv
Editorial Note.....	v
Contextual Challenges and Adaptive Strategies of ODL Learners at the Institute of Adult Education, Tanzania	
<b>Belington E. Mariki.....</b>	<b>1</b>
Influence of Micro and Small Enterprises' Participation in Tax Assessment Processes under the Presumptive Regime: Evidence from Kinondoni Tax Region, Tanzania	
<b>Tunu S. Mwiru, Gelas Rubakula &amp; Benedict Mongula.....</b>	<b>18</b>
Digital Literacy-Responsive Adult Education in Tanzania: A Systematic Literature Review	
<b>Charles Raphael.....</b>	<b>38</b>
Utilisation of WhatsApp as a Learning Tool Among Pre-Service Teachers in Tanzanian Universities	
<b>Anathe R. Kimaro.....</b>	<b>59</b>
Challenges and Opportunities in Teachers' Action Research: Secondary School Teachers' Perspectives in Tanzania	
<b>Modesta Antony Kaluwa &amp; Yuanyue Wu.....</b>	<b>81</b>
Limitations of Access to Assistive Technologies Among Visually Impaired Distance Learners: Evidence from The Open University of Tanzania	
<b>Bahati Johnson Kibona &amp; Philipo Lonati Sanga.....</b>	<b>104</b>
Understanding Pre-Service Teachers' Mental Health Problems and Resilience Mechanisms during Teaching Practice at Mzumbe University	
<b>Jimmy Ezekiel Kihwele, Gladness Mmbando &amp; Caleb Mwego.....</b>	<b>120</b>
Community Perceptions of the Alternative Secondary Education Pathway Programme for Girls Affected by Early Pregnancies: A Case of Momba District, Tanzania	
<b>Camillus Abel Mwila.....</b>	<b>143</b>

Impact of Teaching Methods on Stage II Students' Academic Performance in Mathematics: A Case of Alternative Secondary Education Pathway Programme in Mbozi and Momba Districts

**Simon Michael Moses.....155**

## **Editorial Team**

### **Chief Editor**

Prof. Sempeho I. Siafu, Institute of Adult Education - Tanzania

### **Managing Editor**

Dr. Aristarick A. Lekule, Institute of Adult Education - Tanzania

### **Advisory Board Members**

Prof. Michael W. Ng'umbi     Institute of Adult Education, Tanzania

Prof. Baraka Ngussa             Arusha University, Tanzania

Prof. Tichatonga J. Nhundu     Independent Consultant, Zimbabwe

### **Editorial Board Members**

Prof. Philipo L. Sanga             Institute of Adult Education, Tanzania

Prof. George S. Oreku, Open University of Tanzania.

Prof. Zacharia Masanyiwa, Institute of Rural Development Planning, Tanzania.

Prof. George F. Kinyashi, Tengeru Institute of Community Development,  
Tanzania.

Dr. Godson Gatsha, Botswana Open University.

Dr. Florence Williams, University of Central Florida, USA.

Dr. Christina G. Mandara, Institute of Rural Development Planning, Tanzania.

Dr. Belingtone E. Mariki, Institute of Adult Education, Tanzania.

Dr. Onesmo Nyamweru             Institute of Adult Education, Tanzania

Dr. Eneedy Mlaki                     Institute of Adult Education, Tanzania

Dr. Gennes H. Shirima             University of Dar es Salaam, Tanzania

Dr. Samwel G. Mwita                 Institute of Adult Education, Tanzania

### **Production**

Eric E. Samba, Institute of Adult Education     -     Copy Editor.

All Correspondence should be addressed to:

Managing Editor, Journal of Adult Education,

Institute of Adult Education,

P. O. Box 20679, Dar es Salaam,

**TANZANIA**

Tel: +255 22 2150838. Email: [jaet@iae.ac.tz](mailto:jaet@iae.ac.tz) and, a copy to  
[managingeditor75@gmail.com](mailto:managingeditor75@gmail.com)

## Editorial Note

This issue of the journal presents nine insightful studies that explore critical dimensions of adult, open, and distance education in Tanzania, emphasising equity, digital transformation, inclusive practices, and systemic challenges. Each contribution provides evidence-based perspectives and practical implications for advancing lifelong learning within the national and global education agenda.

The article titled *Influence of Micro and Small Enterprises' Participation in Tax Assessment Processes under the Presumptive Regime* examines the extent to which involving micro and small enterprises (MSEs) in tax assessment enhances compliance under Tanzania's presumptive tax regime. The study underscores the role of participatory governance in fostering tax morale and accountability, especially in informal economic sectors, and calls for increased engagement of MSEs in policy and administrative tax decisions to improve voluntary compliance.

In *Contextual Challenges and Adaptive Strategies of ODL Learners at the Institute of Adult Education, Tanzania*, the study unpacks the multifaceted obstacles faced by adult learners enrolled in ODL programmes. Issues such as limited access to internet services, time constraints, and competing family and work responsibilities are examined alongside learners' resilience and use of peer support. The findings affirm the need for context-sensitive learner support and institutional flexibility to enhance retention and academic success.

The systematic literature review presented in *Digital Literacy-Responsive Adult Education in Tanzania* offers a decade-long synthesis of policies, frameworks, and interventions aimed at integrating digital literacy in adult learning. The paper identifies key advances but also reveals a lack of coordination, persistent gender disparities, and capacity gaps. It advocates for the development of a coherent national digital literacy framework to ensure inclusive and equitable digital skill development for adult learners.

In *The Use of WhatsApp as a Learning Tool among Pre-Service Teachers in Tanzanian Universities*, the study explores how mobile-based messaging applications can supplement traditional instruction. WhatsApp is shown to support collaboration, peer learning, and communication between lecturers and students. However, the study also raises concerns about its limitations, such as a lack of structured content delivery, distractions, and technical issues, suggesting that WhatsApp is best used as a complementary rather than primary learning platform.

The article titled *Challenges and Opportunities in Teachers' Action Research: Secondary School Teachers' Perspectives in Tanzania* explores the readiness of

teachers to engage in classroom-based research. While many teachers recognise its value for professional development and instructional improvement, structural limitations such as lack of time, support, and motivation undermine its adoption. The study encourages institutional investment in research capacity-building and recognition systems to embed action research into school culture.

In *Access Limitations to Assistive Technologies among Visually Impaired Distance Learners: Evidence from The Open University of Tanzania*, the study investigates the digital divide faced by visually impaired learners. It finds that the absence of adequate assistive technologies, unfriendly digital platforms, and limited institutional support hinder learning and participation. The paper calls for inclusive design, targeted resource allocation, and enforcement of disability inclusion policies in higher education.

The paper, *Understanding Pre-Service Teachers' Mental Health Problems and Resilience Mechanisms during Teaching Practice*, addresses a critical yet often underexplored dimension of teacher education—mental health. The study explores the psychological challenges faced by pre-service teachers during their teaching practicum, including anxiety, stress, and self-doubt. It highlights the strategies they employ to cope and remain resilient. These findings underscore the urgent need for teacher education programs to incorporate mental health support, mentorship structures, and coping skills training to foster emotional well-being and professional preparedness among future educators.

The study on *Community Perceptions of the Alternative Secondary Education Pathway Programme for Girls Affected by Early Pregnancies in Momba District, Tanzania*, assesses the community's perceptions on ASEP among dropout girls. The overall findings revealed the community members have little knowledge about the programme, thus recommending that specific awareness on ASEP be provided to community members. Also the establishment of mobilization strategies to help adolescents, notably girls victimised by early pregnancy, to enrol in the programme be prioritised.

The final paper, *Impact of Teaching Methods on Stage II Students' Academic Performance in Mathematics: A Case of Alternative Secondary Education Pathway Programme in Mbozi and Momba Districts*, examined the relationship between teaching methods and the academic performance of Stage II students in mathematics within the framework of the Alternative Secondary Education Pathway (ASEP) programme. The findings revealed that active teaching methods like project-based learning, experiments, educational games, problem-solving and brainstorming are effective in fostering critical thinking and enhancing students'

performance in mathematics. However, the methods are rarely used by teachers, due to their preference on traditional methods such as lecture and question-and-answer techniques. The paper calls for the development of structured training framework aimed at equipping ASEP teachers with effective, modern methods for teaching and learning mathematics.

Collectively, the papers in this volume offer critical knowledge for practitioners, policymakers, and researchers. They highlight the evolving needs of learners, the importance of inclusive and flexible delivery systems, and the imperative to bridge policy and practice through responsive education strategies.

Sincerely,

**Prof. Sempeho I. Siafu**

Chief Editor

Journal of Adult Education Tanzania (JAET)



## **Contextual Challenges and Adaptive Strategies of ODL Learners at the Institute of Adult Education, Tanzania**

***Belington E. Mariki***

*Institute of Adult Education*

**Email:** [belington.mariki@gmail.com](mailto:belington.mariki@gmail.com)

ORCID: 0000-0002-6126-4080

### ***Abstract***

*In recent years, Open and Distance Learning (ODL) has emerged as a popular alternative mode of learning in higher learning institutions. Learners prefer the mode due to its flexible nature, which allows them to study while attending to their other socio-economic responsibilities. Its nature, however, leads to unique challenges that require learners to engage in various strategies to cope with the learning mode in their contexts. This study explores the experience of third-year learners pursuing a Bachelor's Degree in Adult Education and Community Development through ODL at the Institute of Adult Education (IAE) in Tanzania. It investigates the contextual challenges learners face and the strategies they employ to cope with them. A mixed research approach was adopted using a questionnaire and interview methods to collect data from 36 learners. The study found several challenges, including financial constraints, limited time for classroom facilitation, insufficient study time, family responsibilities, inaccessibility to the IAE online library, and difficulties in attending face-to-face sessions. To cope with the emerging challenges, learners adopted various contextual strategies, including borrowing money for face-to-face sessions, using group discussions during these sessions, hiring tuition facilitators, conducting online group discussions, utilising Google resources, and departing home early in the morning to avoid heavy traffic on their way to the IAE face-to-face centre. The study suggests enhancing institutional support, improving digital literacy, and establishing upcountry face-to-face centres to foster a more flexible learning environment.*

**Keywords:** *ODL, learners, challenges, adaptive strategies, IAE.*

## **Introduction**

In recent years, Open and Distance Learning (ODL) has emerged as a popular alternative mode of learning at higher learning institutions. Literature shows that students prefer ODL mode due to its flexible nature that allows them to study while attending their other socio-economic responsibilities (Amir et al., 2020; Gonçalves et al., 2020; Muthuprasad et al., 2021). Practically, the traditional mode of learning requires learners to physically attend learning sessions in a classroom for the whole period of learning since facilitation, learning and assessment processes are conducted in a face-to-face environment. On the other hand, with the ODL mode, facilitation and learning processes are conducted not in a confined environment, hence, do not require learners and facilitators to convene sessions in physical classrooms.

In Portugal, the United Arab Emirates, and Ukraine, for instance, though there is still a need for traditional classes, students keep showing interest in ODL mode of learning (Fidalgo et al., 2020; Gonçalves et al., 2020). A study by Muthuprasad et al. (2021) indicates that in India, students opted for the same mode of learning during the coronavirus disease 2019 (COVID-19) as it offered a flexible, conducive, and attractive learning environment. Also, other studies in Malaysia indicate that the use of ODL by various higher learning institutions has increased in recent years (Khairuddin et al., 2020; Mathew & Chung, 2020) and seemingly, traditional institutions like in Jordan, India and Turkey are gradually transforming themselves to dual mode due to the increasing demand and preference in ODL mode of learning (Almahasees et al., 2021; Bozkurt & Sharma, 2020; Dhawan, 2020).

Likewise, in Malaysia, for instance, learners prefer learning through ODL and keep up with it as their best choice regardless of its associated challenges (Ag-Ahmad, 2020; Saidi et al., 2021). Elsewhere, such as at Florida State in America, learners prefer studying through a study-away programme, especially after the COVID-19 pandemic (Williams & Gaines, 2023). The trend is similar to several parts of the world, as experienced in Turkey, Korea and the United Kingdom (Gaba & Koo, 2007; Kadirhan & Sat, 2024; Kilinc et al., 2020).

In Africa, the situation is similar to the rest of the world. A study conducted by Tadesse and Muluye (2020) in Ethiopia indicates that distance learning remains a preferred mode of learning, especially after COVID-19. Furthermore, Anna &

Joshua (2023) report that many traditional higher learning institutions in South Africa are adopting ODL mode to address the increasing local and global needs. Similarly, in Tanzania, traditional higher learning institutions are shifting to a dual mode in addressing the existing demand of prospective students who prefer to study away from campuses (Bisanda, 2022; Mtebe et al., 2021).

In today's world of innovative technology, ODL has even become an easier mode of learning. Technology has made it more flexible, interactive and attractive to learners. It has transformed the mode into various levels, including online learning, e-learning, virtual learning, and currently, Open, Distance and e-Learning (ODEL). Such transformations and other factors like political instability, economic crisis and pandemics influenced the use of ODL mode in various parts of the world (Muthuprasad et al., 2021).

In response to the growing demand and preference for ODL, IAE, a dual-mode higher learning institution in Tanzania, introduced its first Bachelor's Degree programme in Adult Education and Community Development in 2021/2022, offered through open and distance learning (BAECD–ODL programme). As such, learners of the first batch of the programme are currently in their third year of study. In this programme, self-instructional materials are designed and shared with learners via a learning management system for learners to access the study materials at their own time. The IAE also shares learning and assessment guidelines for learners to study and adhere to the requirements effectively. Currently, classroom facilitation is conducted at times of face-to-face sessions, conducted quarterly in a year, for a period of two weeks per session. It is during this time that assessments, such as tests, examinations, and assignments, are administered to learners. Based on the nature of the programme, learners are expected to engage in self-studying prior to the face-to-face sessions. The face-to-face sessions are therefore meant for classroom facilitation, famously referred to as module facilitation. The sessions are also meant for enhancing learner support services, interaction amongst learners and learner-facilitator interaction.

Learning through ODL mode presents unique challenges, as it requires learners to engage in independent learning and maintain high levels of self-discipline due to its flexible nature that allows learning at one's own pace as opposed to conventional classroom learning (Rotas & Cahapay, 2020). Some of the known challenges include: unreliable internet services, inaccessibility to ICT facilities, family responsibilities interference, digital illiteracy, inaccessibility to learning materials, quality assessment and feedback mechanism, an unconducive learning environment and fewer support services (see Segbenya & Aning, 2023). The challenges are often

found to cause dropouts at the early stages of studying, as learners struggle to cope with them (Appavoo et al., 2023; Joshi et al., 2023; Manase, 2025). Reports from IAE show that, despite the existing known challenges, the first batch of BAECD–ODL learners successfully continued their studies from the first year to the third year. According to IAE (2023), the institute enrolled 43 learners of the first batch in the 2021/2022 academic year. Of the enrolled learners, forty (40) are now in their third year, the final year of study (IAE, 2024), connoting a 93% retention rate, which is very promising compared to that of its conventional counterpart programme of BAECD that stands at 35%. The enrolment of BAECD's conventional programme was 242 students in the 2021/2022 academic year (IAE, 2023). Currently, the batch has 85 students in their third year, the final year of study (IAE, 2024). In other words, it was expected that the ODL programme would have an alarming dropout rate, but the statistics depict a different outcome. Thus, based on the scenario registered among students of the ongoing programme, the current study explores experiences of the third-year BAECD–ODL learners in pursuing their studies with particular focus on challenges and adaptive strategies. Specifically, the study addresses two research questions: first, what are the contextual challenges facing the BAECD-ODL learners at IAE, and second, what adaptive strategies are adopted by the learners to cope with these challenges. Findings from the study will eventually help other learners studying in the same mode at IAE and other institutions in the country to adopt the best practices for effective learning and success. Also, the experiences drawn by the learners will help IAE and other Higher Learning Institutions operating in a similar context to make evidence-based decisions in improving their current and future programmes.

## **Methodology**

This study employed a case study design, involving the third-year learners undertaking the BAECD programme through ODL mode at the IAE in the 2023/2024 academic year. It used a mixed research approach, applying questionnaire and interview methods to collect data from study participants. The researcher used the two as complementary methods to ensure the reliability of the data.

Consequently, the researcher developed a structured questionnaire composed of open and closed-ended questions in a Likert scale of strongly agree, agree, disagree, strongly disagree, and unsure. Also, the researcher developed an interview guide to capture in-depth information from participants. To enhance the reliability of data, the researcher conducted cognitive interviews while administering the

questionnaires to assess participants' understanding and improve response accuracy. Prior to the data collection process, the researcher engaged experienced colleagues to review the prepared interview guide and questionnaire. The peer review of the data collection tools was meant for expert validation to ensure the instruments' validity and reliability.

Given the small number of third-year learners, the researcher administered questionnaires to all BAECD-ODL learners. The learners had attended a face-to-face session conducted at IAE Headquarters; thus, the researcher had a chance to meet with them in a classroom and brief them about the purpose of the current study. Luckily, all learners (36 out of 40), available at the time, agreed to participate in the study voluntarily and responded to the questionnaires. After pre-analysis of the questionnaire responses, the researcher conducted online interviews to reach the respondents, as they had already completed the face-to-face session and gone back home. In minimising bias, the researcher reached out to the class representative, who selected a class member as the first respondent. The rest of the respondents were reached through the snowball sampling technique. Upon saturation of data, four respondents had been interviewed. For anonymity reasons, the researcher used pseudonyms of Kudu, Mawiri, Kamba, and Ipfuna to represent the learners interviewed.

The researcher manually analysed the quantitative data by tallying each response from the raw data and computed percentages to facilitate easier interpretation and understanding for targeted readers. Subsequently, the researcher presented the analysed data in a table as per the Likert scale used. For qualitative data, the researcher transcribed interviews to ease analysis and interpretation. Consequently, the researcher used thematic analysis to reveal response patterns and themes obtained from the raw data. Also, direct quotes from the interviews were extracted and presented in the findings.

## **Findings**

Findings of the current study are presented in three sections addressing the contextual challenges faced by the BAECD-ODL learners and adaptive strategies undertaken to overcome the challenges. The researcher presents the quantitative data in Tables and the qualitative data in quotes and paraphrased statements.

### **Contextual challenges facing BAECD-ODL learners at IAE**

Aiming at ensuring better understanding, findings are presented in three categories: first, challenges experienced during the face-to-face facilitation process, second,

challenges experienced during the learners' learning process, and third, challenges experienced in accessing the IAE online library services.

### *Challenges experienced during the face-to-face facilitation process*

The first research question focused on what contextual challenges the BAECD-ODL learners experienced when pursuing their studies with IAE. Table 1 presents challenges learners experienced during the face-to-face facilitation process. It highlights challenges of financial constraints, permit denial from employers, road traffic, and inadequate time for classroom facilitation.

**Table 1: Challenges Experienced in Times of Face-to-face** **N = 36**

Challenges	SA	A	D	SD	US
Financial constraints in attending face-to-face sessions	33%	42%	17%	8%	0%
Employers' permit denial to learner employees attending face-to-face sessions	25%	42%	25%	3%	5%
Heavy traffic from home to IAE affects my class attendance during face-to-face sessions	31%	33%	19%	17%	0%
Inadequate time for classroom facilitation during face-to-face sessions	40%	25%	13%	22%	0%

**Note:** SA = Strongly Agree, A = Agree, D = Disagree, SD = Strongly Disagree, US = Unsure

Findings in Table 1 indicate that a lack of financial resources to attend face-to-face sessions at IAE in Dar es Salaam City is a significant challenge facing the BAECD-ODL learners. As such, 75% (33% + 42%) agree that the challenge faces learners, while 25% (17% + 8%) disagree. These findings were also revealed through interviews and confirmed by the interviewed learners. One of them, known as Kudu, had the following to say:

During face-to-face sessions, some of us had to travel from various parts of the country to attend the sessions in Dar es Salaam city. As a result, we had to secure accommodation in the city where we would stay for four weeks of the face-to-face session. In addition, we had to board buses and sometimes hire motorcycle taxis daily to attend face-to-face sessions at IAE, which is a costly expense.

Kudu narrated the above, trying to show the magnitude of the financial constraint challenges facing them when attending face-to-face sessions. Adding to his narrative, Kudu said that the challenges not only affected their participation in face-to-face sessions but also threatened their studies as a whole. This was evident as

some learners had difficulties in settling their tuition fee dues, hence they were barred from sitting examinations conducted at the time.

Another learner, “Kamba”, said that learners face financial constraints because they attend the sessions from distant upcountry regions. They spend the whole day travelling to the IAE campus in Dar es Salaam. The findings suggest that it is evident that with the existing costs associated with attending the face-to-face sessions, learners experienced difficult moments. It also connotes that although learners prepare themselves for the costs associated with their studies, the city environment subjects them to unexpected challenges.

Learners also pointed out inadequate time for classroom facilitation during face-to-face sessions as another major challenge facing them. A significant percentage, 65% (40 + 25) of respondents, as indicated in Table 1, indicated the time factor as a challenge. The findings suggest that the allocated time for face-to-face sessions is insufficient, thereby impacting learners’ learning process. Furthermore, findings from Table 1 indicate that 67% (25 + 42) of respondents attended sessions without their employers' permission, and an additional 64% (31 + 33) encountered difficulties attending face-to-face sessions due to heavy traffic in Dar es Salaam city. While the former shows learners’ strong commitment to self-professional development, the latter portrays the obstacles faced in accomplishing their dreams. Adding to the findings, one of the interviewed learners had the following to say.

Usually, face-to-face sessions are conducted at IAE in Dar es Salaam Campus during school holidays, as most of us, BAECD-ODL learners, are teachers working in schools. Due to the nature of our study programme, we usually arrange to arrive at the campus a few days before the sessions begin for individual preparations such as discussions, finalising assignments, printing, self-study, etc. To make this possible, one typically makes an informal arrangement at work to get permission to leave the office a week or more before the holidays. However, some of us fail to get permission due to responsibilities tied to the school calendar (Mawiri).

The quote highlights the complexity involved in studying through ODL while working, especially in schools, as most of the BAECD-ODL learners are professional teachers. The situation becomes a challenge that needs self-motivation and discipline to ensure success. As such, the findings show that at some point, some learners fail to cope and drop out.

### *Challenges experienced during the learning process*

Table 2 presents the challenges learners experienced in learning from home or in face-to-face sessions. It categorically presents difficulties learners face in terms of time to study, family responsibilities, family support, and experience in ODL.

**Table 2: Challenges experienced during the learning process** N = 36

Challenges	SA	A	D	SD	US
There is not enough time to study	53%	28%	8%	5%	6%
Family responsibilities interfere with learning	47%	36%	8%	3%	6%
I lack support from my family members.	19%	19%	28%	34%	0%
I have no experience in learning through the ODL mode	17%	17%	28%	30%	8%

*Note:* SA = Strongly Agree, A = Agree, D = Disagree, SD = Strongly Disagree, US = Unsure

As in Table 2, findings indicate that the majority, 81%, either strongly agree or agree that they do not have enough time to study. This suggests that time management and external commitments are significant obstacles to their learning process. Only a small percentage, 13% disagree or strongly disagree, suggesting that for a few, time is not a significant issue. A minority (6%) are unsure about the time they have for studying. Consequently, a vast majority 83% strongly agree or agree that family responsibilities interfere with their learning, highlighting that balancing family duties and educational pursuits is a significant challenge for most respondents. Only 11% disagree or strongly disagree, suggesting that for a minority, family responsibilities are not a significant issue. When reacting to the issue of time constraint and family interference, one of the learners, “Kamba”, said the following:

As primary school teachers, we lack time to study during work hours, especially in rural areas where we teach 30 periods of 40 minutes each week. This averages six periods per day, plus lesson preparation, marking, and administrative tasks. This workload makes it impossible to study at work. Additionally, after work, family responsibilities leave us too exhausted to study.

For the challenges related to a lack of support from family members and a lack of experience in learning through ODL, the responses indicate that these are not significant issues for most respondents. On average, around 60% feel that they have family support and some experience with ODL. However, 34% strongly agree or agree that they lack experience in ODL, and 28% strongly agree or agree that they

lack family support. While these challenges are less prevalent compared to others, they are still significant and noteworthy.

***Challenges experienced in accessing the IAE online library services***

Table 3 presents the challenges associated with accessing the IAE online library services, as reported by study participants. The data illustrate various difficulties faced by learners, including issues of accessibility, skills, and awareness.

**Table 3: Challenges in accessing the IAE online library services** N = 36

Challenges	SA	A	D	SD	US
Inaccessibility of the IAE online library services	33%	20%	11%	11%	25%
Accessible, but I have no skills to access it	16%	25%	17%	25%	17%
Learners have limited access to the library	19%	31%	11%	8%	31%
The online library services are not known to learners	22%	33%	22%	3%	20%

*Note:* SA = Strongly Agree, A = Agree, D = Disagree, SD = Strongly Disagree, US = Unsure

Findings in Table 3 show that a significant portion of respondents (53%) strongly agree or agree that the IAE online library services are not accessible. This suggests that over half of the learners encounter difficulties in accessing the library services. Additionally, 22% disagree or strongly disagree, indicating that a smaller group does not share this inaccessibility issue. A notable 25% are unsure, reflecting some uncertainty or lack of awareness about the accessibility of the online library. Nonetheless, findings from the table show that 41% strongly agree or agree that they lack the necessary skills, an equal percentage (42%) disagree or strongly disagree, indicating that about half of the respondents feel competent in accessing the library. The remaining 17% are unsure, which may highlight a gap in skill assessment or training.

Table 3 also shows that half of the respondents (50%) strongly agree or agree that learner access to the online library is limited, pointing to potential barriers that restrict usage. Conversely, 19% disagree or strongly disagree, suggesting a smaller proportion finds the access satisfactory. The 31% who do not know indicates a significant level of uncertainty or lack of information among learners about their access rights or capabilities.

A considerable number of respondents (55%) strongly agree or agree that the online library services are not well-known among learners, indicating less awareness. Meanwhile, 25% disagree or strongly disagree, indicating that a quarter of the learners are aware of the services. The remaining 20% are unsure, which again

entails a lack of awareness among learners. Responding to the online library issue, learners said they had never heard of the IAE online library services. One of the learners said, "...it is my first time I hear about the library, we were never told before" (Mawiri). Similarly, another learner, "Kudu", said they always use the module provided by IAE and search for information on the Internet using the Google search engine. This indicates that learners are not aware of the IAE online library services, which are primarily intended for their use.

### **Adaptive Strategies Adopted by BAECD-ODL Learners to Cope with Challenges**

The second research question focused on what adaptive strategies were adopted by the BAECD-ODL learners to cope with the challenges experienced. It sought to explore contextual adaptive strategies by the learners. Table 4 presents data on the contextual adaptive strategies adopted by the BAECD-ODL learners to navigate various challenges experienced when studying with IAE. The data reflects the learners' narrative voices on a range of strategies, starting from financial solutions to study habits.

**Table 4: Contextual adaptive strategies adopted by learners to overcome ODL challenges  
N = 36**

<b>Means</b>	<b>SA</b>	<b>A</b>	<b>D</b>	<b>SD</b>	<b>US</b>
I borrow money for my transport during face-to-face sessions	23%	32%	17%	28%	0%
I decided to keep on attending the face-to-face sessions, though without permission from my employer	22%	39%	28%	11%	0%
During face-to-face sessions, I depart from home early in the morning to avoid heavy traffic	33%	56%	8%	3%	0%
During face-to-face sessions, I hire transport to arrive early at IAE	36%	30%	15%	19%	0%
We hire tuition facilitators	30%	29%	17%	17%	7%
I study hard using the learning modules provided	56%	40%	0%	0%	4%
We study in groups at our places	28%	35%	17%	15%	5%
I frequently ask for downloaded materials from friends	22%	37%	22%	14%	5%
We study in groups during face-to-face sessions	42%	47%	6%	5%	0%
I Google to access learning content	44%	39%	3%	6%	8%

**Note:** SA = Strongly Agree, A = Agree, D = Disagree, SD = Strongly Disagree, US = Unsure

Findings as in Table 4 indicate that a slight majority (55%) agree technically (strongly agree and agree) that they borrow money for transport to attend face-to-face sessions, indicating a significant reliance on external financial support. However, the strategy is not universal among all learners since 45% do not practice it. Also, the findings show that the majority (61%) strongly agree or agree that they attend face-to-face sessions without their employer's permission, highlighting a significant commitment to their education despite potential job-related risks. Again, this is not a common strategy among all learners since 39% do not practice the same. Additionally, a large majority (89%) of the learners depart from home early in the morning to avoid heavy traffic on their way to face-to-face venues at IAE. The findings reflect strong commitment and determination among learners. Other learners (66%) indicated that they hire transport to arrive early at IAE, showing a willingness to incur additional costs for punctuality. However, 34% disagree or strongly disagree, indicating that this method is not feasible for everyone. When interviewed about the strategies, one learner had this to say:

During face-to-face sessions, especially during examinations, we work very early, sometimes at 4:00 or 5:00 am, depending on one's location, to ensure punctuality. The strategy helps avoid other costs, such as hiring motorcycle taxis in case of traffic jams, since roads in Dar es Salaam are clear during early mornings (Kamba).

The findings from Table 4 also show that a vast majority (96%) cope with challenges facing them by studying hard using the IAE learning modules provided to them. The findings signify the level of maturity and commitment among learners. Consequently, the majority (59%) hire tuition facilitators to help them with their learning modules, which again signals the level of commitment. The interviews indicate that learners find the hiring of facilitators helpful, as most of them do not have time to study while away from campus. Hence, they end up having a lot to study in a short period during face-to-face sessions. Additionally, one of the learners said:

Most of us, if not all, are primary school teachers who use Kiswahili as a medium of instruction in our schools. Also, we miss a strong English language background. Hence, we hire facilitators to help us understand the topics since they are in English (Kite).

Nonetheless, findings indicate that the majority (63%) study in groups at their home or workplaces, signifying the strength of collaborative learning in mitigating ODL challenges. Again, a significant majority (89%) strongly agree or agree that they study in groups during face-to-face sessions, showing emphasis on collaborative learning not only while away from campus but also on campus. Adding to the

findings, an interviewed learner, “Ipfuna”, said they usually organise a call conference and convene online to discuss particular topics. According to Ipfuna, “learners conduct discussions during evenings after work, housework and other family responsibilities...it can take one to two hours on average”.

Moreover, findings from Table 4 show that the majority (59%) strongly agree or agree that they frequently ask friends for downloaded materials, highlighting a reliance on peer support for resources. However, a large majority (83%) strongly agree or agree that they use Google to access learning content. The findings collectively signal a reliance on an alternative solution to address the challenge of lacking access to IAE library services. It also shows that there are learners who rely on both downloaded materials from friends and their access to Google. Adding to the findings, one of the learners, Mawiri, said, “I always Google when in need of additional information on the modules...some of us use Google to find meanings and translations of difficult words”.

## **Discussion**

The findings suggest that managing time and balancing family responsibilities are the primary challenges facing the ODL learners at IAE. This aligns with Ag-Ahmad (2020), who suggests that some ODL learners fail to cope due to family responsibilities interfering with their studies. While a majority of learners are comfortable with the ODL mode and receive support from their families, there remains a significant portion that do not. The lack of experience with ODL can hinder learners' ability to navigate the unique demands of the learning mode (Khairuddin et al., 2020), which requires a different set of skills and self-discipline compared to traditional classroom learning mode. This is because students, particularly in Tanzania, are accustomed to the traditional mode of learning, characterised by physical interaction between students and teachers throughout the learning process. Hence, fitting into the ODL mode requires adaptive strategies to cope.

Moreover, insufficient family support exacerbates challenges faced by learners, as emotional and logistical support from family members is crucial in managing the demands of both study and personal responsibilities (Zhu et al., 2022). The geographical diversity of learners, many of whom attend face-to-face sessions from upcountry areas, exacerbates financial challenges since learners have to bear the additional burden of transport and accommodation costs (Ag-Ahmad, 2020). ODL is intended to provide flexible and accessible learning opportunities. With ODL, students are not expected to struggle to access learning. Thus, accessible and

affordable solutions like decentralised support centres and accessible digital resources are necessary in supporting learners from upcountry areas.

Nonetheless, as indicated in the findings, inaccessibility and lack of awareness are the primary challenges in using the IAE online library services. Learners struggle to access the library and lack the skills to use it effectively. Additionally, many learners are either unaware of the services or find their access to be limited. The findings tally with those of Mubofu and Andrew (2021), who recommend increasing resource and service accessibility to learners to address the issues. Nevertheless, to enhance effective use of the online library resources, deliberate efforts like orientations, user training, effective communication, and learner support services are inevitable (Segbenya & Aning, 2023).

Furthermore, the findings highlight a diverse range of adaptive strategies employed by learners to manage their learning and face-to-face session challenges. Strategies like departing from home in early mornings to avoid traffic, using motorcycle taxis, and studying diligently using provided materials are widely adopted. The findings align with those of Rotas & Cahapay (2020), who identified similar adaptive strategies among learners, including borrowing learning materials, peer support, and effective time management. Moreover, findings indicated that collaborative learning through group studies, both at home and during face-to-face sessions, is prevalent. Such a learning initiative underscores the importance of collaborative efforts in learning through ODL. However, the initiative requires self-determination and collaboration skills in using technology, particularly because, in ODL, learners are physically separated except during the face-to-face sessions.

Findings also indicate that adaptive strategies such as borrowing money for transport and hiring tuition facilitators are applied, while the use of online resources like Google is almost universally applied by all learners--findings that are also supported by Segbenya and Aning (2023). According to Segbenya and Aning, ODL learners utilise online resources for self-learning and discussions, which in turn leads to active learning and success. However, the practice could be limited where Internet services are inaccessible or unreliable, as seen in the case of ODL learners at IAE (see also Mariki, 2020).

## **Conclusion and Recommendations**

In conclusion, the study shows that learners studying through ODL at IAE can successfully study by adopting various strategies to cope with the challenges they face during learning and face-to-face facilitation processes. However, the study findings suggest a critical need for a more flexible and sufficient scheduling of face-

to-face sessions, and greater institutional and employer support to enhance the learning experience and success of ODL learners at the institute. Addressing the suggestions will be essential in alleviating or minimising the challenges faced by learners and promoting a more conducive learning environment. Additionally, fostering a supportive community that encourages collaborative learning and providing resources to improve learners' digital literacy and access to online tools will further empower them to succeed in their educational pursuits. Also, awareness creation, training and communication are necessary measures to ensure access to IAE online library services, reduce dependence on tuition facilitators and improve learning. While BAECD-ODL learners demonstrate commendable resilience and resourcefulness in overcoming the challenges they face, there is a clear need for targeted support and improvements in the programme's infrastructure to facilitate their educational journey better. As such, establishing face-to-face centres upcountry could alleviate several challenges facing the learners and ensure the sustainability of ODL programmes at IAE.

## References

- Ag-Ahmad, N. (2020). Open and distance learning (ODL): Preferences, issues and challenges amidst the COVID-19 pandemic. *Creative Practices in Language Learning and Teaching (CPLT)*, 8(2), 1–14.
- Almahasees, Z., Mohsen, K., & Amin, M. O. (2021). Faculty's and students' perceptions of online learning during COVID-19. *Frontiers in Education*, 6(May), 1–10. <https://doi.org/10.3389/feduc.2021.638470>
- Amir, L. R., Tanti, I., Maharani, D. A., Wimardhani, Y. S., Julia, V., & Sulijaya, B. (2020). Student perspective of classroom and distance learning during the COVID-19 pandemic in the undergraduate dental study program at Universitas Indonesia. *BMC Medical Education*, 20, 1–8. <https://doi.org/10.1186/s12909-020-02312-0>
- Anna, C., & Joshua, V. (2023). What makes high-quality (digital) open and distance learning content, and what are the challenges to achieving it? Lessons from open and dual-mode universities across Sub-Saharan Africa. *UNESCO Global Education Monitoring Report*. <https://doi.org/10.54676/BLEE1995>
- Appavoo, P., Gungea, M., & Sohoraye, M. (2023). Drop-out among ODL learners: A case study at the Open University of Mauritius. *Journal of Educational Technology and Online Learning*, 6(3), 665–682. <http://doi.org/10.31681/jetol.1273563>
- Bisanda, E. T. (2022). Open and distance learning: The continental education strategy for Africa and the United Nations Sustainable Development Goal 4 (SDG4) engagement. *West African Journal of Open & Flexible Learning*, 10(2), 11–20. <https://wajofel.org/index.php/wajofel/article/view/94/117>

- Bozkurt, A., & Sharma, R. C. (2020). Emergency remote teaching in a time of global crisis due to the COVID-19 pandemic. *Asian Journal of Distance Education*, 15(1), 1–6.
- Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of Educational Technology Systems*, 49(1), 5–22. <https://doi.org/10.1177/0047239520934018>
- Fidalgo, P., Thormann, J., Kulyk, O., & Alberto Lencastre, J. (2020). Students' perceptions on distance education: A multinational study. *International Journal of Educational Technology in Higher Education*, 17(18), 1–18. <https://doi.org/10.1186/s41239-020-00194-2>
- Gaba, A., & Koo, S. (2007). Research & development of distance education in Asia: A comparative study between Korea National Open University, South Korea and Indira Gandhi National Open University, India. *Asian Journal of Distance Education*, 5(3), 19–32. <https://www.learntechlib.org/p/185141/>
- Gonçalves, S. P., Sousa, M. J., & Pereira, F. S. (2020). Distance learning perceptions from higher education students—the case of Portugal. *Education Sciences*, 10(12), 1–15. <https://doi.org/10.3390/educsci10120374>
- IAE. (2023). *Facts and figures*. Institute of Adult Education.
- IAE. (2024). *Student academic register information system (v7.4)*. Zalongwa - SARIS.
- Joshi, B. M., Acharya, U., & Koirala, P. (2023). Challenges faced by students in the open and distance mode of education. *NUTA Journal*, 10(1–2), 15–24. <https://doi.org/10.3126/nutaj.v10i1-2.62830>
- Kadirhan, Z., & Sat, M. (2024). K-12 teachers perceived experiences with distance education during the COVID-19 pandemic: A meta-synthesis study. *Turkish Online Journal of Distance Education*, 25(3), 57–75. <https://doi.org/10.17718/tojde.1320633>
- <https://doi.org/10.3390/educsci10120374>
- Khairuddin, Z., Arif, N. N. A. N. M., & Khairuddin, Z. (2020). Students' readiness on online distance learning (ODL). *Universal Journal of Educational Research*, 8(12), 7141–7150. <https://doi.org/10.13189/ujer.2020.081281>
- Kilinc, B. K., Gunsoy, B., & Gunsoy, G. (2020). Perceptions and opinions of graduates about the effects of open and distance learning in Turkey. *Turkish Online Journal of Distance Education*, 21(1), 121–132. <https://doi.org/10.17718/tojde.690369>
- Manase, J. (2025). Social-cultural factors influencing learners' choice of open and distance learning mode in higher learning institutions in Tanzania. *Journal of Learning for Development*, 12(1), 182–191. <https://doi.org/10.56059/jl4d.v12i1.952>

- Mariki, B. E. (2020). Girls' multimedia learning experiences on skills development in Rukwa and Dodoma regions, Tanzania. *East African Journal of Education and Social Sciences*, 1(1), 120–129. <https://doi.org/10.46606/eajess2020v01i01.0013>
- Mathew, V. N., & Chung, E. (2020). University students' perspectives on open and distance learning (ODL) implementation amidst COVID-19. *Asian Journal of University Education*, 16(4), 152–160.
- Mtebe, J. S., Fulgence, K., & Gallagher, M. S. (2021). COVID-19 and technology-enhanced teaching in higher education in Sub-Saharan Africa: A case of the University of Dar es Salaam, Tanzania. *Journal of Learning for Development*, 8(2), 383–397. <https://jl4d.org/index.php/ejl4d/article/view/483/647>
- Mubofu, C., & Andrew, M. (2021). Accessibility of library resources and support services by distance learners. *Journal of Library & Information Services in Distance Learning*, 15(4), 267–279. <https://doi.org/10.1080/1533290X.2021.2021345>
- Muthuprasad, T., Aiswarya, S., Aditya, K. S., & Jha, G. K. (2021a). Students' perception and preference for online education in India during the COVID-19 pandemic. *Social Sciences and Humanities Open*, 3(1), 1–11. <https://doi.org/10.1016/j.ssaho.2020.100101>
- Muthuprasad, T., Aiswarya, S., Aditya, K. S., & Jha, G. K. (2021b). Students' perception and preference for online education in India during the COVID-19 pandemic. *Social Sciences and Humanities Open*, 3(1), 1–11. <https://doi.org/10.1016/j.ssaho.2020.100101>
- Rotas, E., & Cahapay, M. (2020). From stress to success: Exploring how Filipino students cope with remote learning amid the COVID-19 pandemic. *Journal of Pedagogical Sociology and Psychology*, 3(1), 27–35. <http://www.doi.org/10.33902/JPSP.2021366608>
- Saidi, R. M., Sharip, A. A., Abdi Rahim, N. Z., Zulkifli, Z. A., & Zain, S. M. M. (2021). Evaluating students' preferences for Open and Distance Learning (ODL) tools. *Procedia Computer Science*, 179, 955–961. <https://doi.org/10.1016/j.procs.2021.01.085>
- Segbenya, M., & Aning, F. A. (2023). Challenges and coping strategies among distance education learners: Implications for human resources managers. *Current Psychology*, 42, 27694–27708. <https://doi.org/10.1007/s12144-022-03794-5>
- Tadesse, S., & Muluye, W. (2020). The impact of COVID-19 pandemic on education system in developing countries: A review. *Open Journal of Social Sciences*, 10(3), 159–170. <https://doi.org/10.4236/jss.2020.810011>

- Williams, F., & Gaines, L. T. (2023). Implementing foundations of quality through online and hybrid course design : A study-sway course case study. *Journal of Adult Education in Tanzania*, 25(2), 1–23. <https://doi.org/10.61408/jaet2023v25i02.01>
- Zhu, X., Chu, C. K. M., & Lam, Y. C. (2022). The predictive effects of family and individual wellbeing on university students' onlinelearning during the COVID-19 pandemic. *Frontiers in Psychology*, 13(June), 1–9. <https://doi.org/10.3389/fpsyg.2022.898171>



**Influence of Micro and Small Enterprises' Participation in Tax  
Assessment Processes under the Presumptive Regime: Evidence from  
Kinondoni Tax Region, Tanzania**

***Tunu S. Mwiru, Gelas Rubakula & Benedict Mongula***

*University of Dar es Salaam*

***Email: [tmwiru@tra.go.tz](mailto:tmwiru@tra.go.tz), [rubakula.gelas@udsm.ac.tz](mailto:rubakula.gelas@udsm.ac.tz) & [bmongula@gmail.com](mailto:bmongula@gmail.com)***

***Abstract***

*This study examines the influence of participation of Micro and Small Enterprises (MSEs) in tax assessment processes on voluntary tax compliance under the presumptive regime in Kinondoni Tax Region, Tanzania. Despite the introduction of simplified taxation and the regime's intent to simplify taxation for informal businesses, limited participation persists, and voluntary compliance remains a challenge, particularly among informal sector actors. Guided by Public Participation Theory and Tax Morale Theory, the study assessed how participatory engagement affects compliance behaviour. Furthermore, both theories suggest that awareness and inclusive engagement in tax matters strengthen compliance. A pragmatic research philosophy informed the use of a mixed-methods case study design. A total of 577 MSEs, stratified by ward, selected through purposive and stratified probability sampling, formed the study sample. Data collection was executed via structured interviews, in-depth interviews, focus group discussions and document review. Descriptive statistics and binary logistic regression were used to determine the strength and significance of the participation–compliance relationship. Quantitative data were analysed using binary logistic regression to determine the causal-effect relationship between participation and voluntary tax compliance. Findings reveal low participation in tax assessment, which significantly influences compliance behaviour among MSEs, thereby influencing voluntary tax compliance (VTC). Respondents cited limited involvement, lack of transparency, and institutional mistrust as barriers. The study concludes that inclusive tax governance strategies can enhance compliance behaviour. Theoretically, the study underscores the value of participatory and behavioural*

*approaches. Key policy implications include the need for participatory tax reforms (featuring expanded stakeholder engagement), participatory reform of assessment mechanisms and enhanced taxpayer education to raise awareness and foster accountability. The study contributes to the literature by empirically linking participatory assessment to compliance outcomes in the Tanzanian informal sector.*

**Keywords:** *voluntary tax compliance, participation, presumptive regime, public participation theory, tax morale, mses, Kinondoni, taxpayer engagement*

## **Introduction**

Taxation is a fundamental instrument for financing government operations, including public service delivery, infrastructure development, and socio-economic governance (TRA, 2023). In Tanzania, taxes account for over 90% of domestic revenue (MoFP, 2022). Despite its importance, the act of paying taxes has not always been embraced voluntarily, especially among micro and small enterprises (MSEs), which dominate the informal sector. In response to compliance challenges within this segment, the Tanzanian government introduced a simplified tax structure-the presumptive tax regime targeted at MSEs with turnover below TZS 100 million (URT, 2022).

**Table 1: Rates of Taxes under the Presumptive Tax System and the Audited Accounts System**

<b>Annual turnover</b>	<b>Tax payable when records are incomplete</b>	<b>Tax payable when records are complete</b>
Where turnovers do not exceed TZS 4,000,000	NIL	NIL
Where turnover exceeds TZS 4,000,000/= but does not exceed TZS 7,000,000	TZS 100,000/=	3% of the turnover in excess of TZS 4,000,000/=
Where turnover exceeds TZS 7,000,000/= but does not exceed TZS 11,000,000/=	TZS 250,000/=	TZS 90,000/= plus 3% of the turnover in excess of TZS 7,000,000/=
Where turnovers exceed TZS, 11,000,001/= but does not exceed TZS. 100,000,000/=	3.5% of turnover	

**Source:** The Finance Act (2022)

The presumptive regime was designed to improve efficiency, widen the tax base, and enhance compliance by exempting MSEs from audited financial reporting requirements. However, despite its pro-MSE intentions, persistent issues of tax

non-compliance suggest deeper challenges that go beyond structural simplification. Voluntary tax compliance within this framework remains suboptimal, particularly in regions such as Kinondoni, where informal businesses are dense and difficult to track (TRA, 2023).

Recent studies such as Mas-Montserrat et al. (2023) and Fjeldstad and Heggstad (2022) highlight how factors like taxpayer awareness, participation in tax processes, and perceived fairness affect compliance behaviour. Yet in Tanzania, empirical research on how taxpayer participation, a key feature of self-assessment, influences voluntary compliance under the presumptive regime, especially at the local tax region level. This study focuses on filling that research gap by specifically examining the influence of MSEs' participation in tax assessment processes on their voluntary tax compliance in Kinondoni Tax Region.

Two theoretical frameworks underpin the study. First is the Tax Morale Theory, which explains that individuals are more likely to comply voluntarily when they perceive the tax system as fair, transparent, and participatory (Torgler, 2007). Tax morale is considered a latent psychological construct that influences tax behaviour, shaped by perceptions of government legitimacy, fairness of tax burdens, and civic responsibility. Second is the Public Participation Theory, which posits that involving citizens in governance processes such as tax assessment enhances legitimacy, fosters accountability, and promotes compliance (McGee & Gaventa, 2010). In this study, the theory suggests that when MSE taxpayers are allowed to contribute their views or participate in estimating or verifying their tax obligations, their willingness to comply improves due to perceived inclusivity and fairness.

The theoretical underpinnings informed the selection and definition of study variables. Specifically, "participation in tax assessment" serves as the independent variable, measured through engagement in tax-related forums, access to assessment procedures, and the degree of consultation. The dependent variable, "voluntary tax compliance," is assessed through self-reported fulfilment of tax obligations without coercion. The study also considers moderating influences such as taxpayer education and perceived fairness in enforcement.

The Kinondoni Tax Region, being a business-intensive area in Dar es Salaam, provides an appropriate setting for this inquiry. With a sample of 577 MSEs selected across sub-regions such as Kawe, Manzese, Kunduchi, Mbezi/Kimara, and Makuburi, the study applied both qualitative and quantitative approaches to explore the role of participation in tax processes as a determinant of voluntary compliance. Data collection employed structured interviews, key informant interviews, and

focus group discussions. Findings are analysed using binary logistic regression, consistent with the causal-influence focus of the study (rather than mere associations), as recommended in inferential quantitative research (Creswell & Plano Clark, 2022).

In this context, "participation" refers to the degree to which MSE taxpayers are engaged or involved in the processes of determining their tax obligations, including consultation during tax policy development, participation in tax-related decision-making platforms, and direct involvement in assessing or estimating tax liabilities. "Voluntary tax compliance" refers to the willingness of taxpayers to fulfil their tax obligations without coercion or direct enforcement by tax authorities.

Despite the simplification brought by the presumptive regime, voluntary compliance among MSEs remains low in Kinondoni. Government interventions such as tax education, digital filing, and rate revisions have not achieved the desired behavioural shift. Prior studies have emphasised general awareness, but limited work has focused on the participatory role of taxpayers in assessing their tax obligations - an essential element of self-assessment frameworks. Empirical data from this study indicate that many MSEs are excluded from meaningful engagement during tax-setting processes, contributing to confusion, mistrust, and eventual non-compliance.

Given this contextual challenge, this study investigates how active participation of MSEs in tax assessment processes influences their compliance behaviour within the presumptive regime, aiming to bridge a significant empirical and policy gap in Tanzania's tax literature.

## **Methodology**

The study adopted a pragmatic research philosophy, integrating both positivist and constructivist views to explore both measurable and experiential aspects of MSE participation and tax compliance. A concurrent mixed-methods approach was employed to collect and analyse both qualitative and quantitative data simultaneously. A descriptive case study design was used to examine the influence of participation on tax compliance in the real-life setting of Kinondoni. Kinondoni Tax Region was selected due to its high population of registered MSEs and documented challenges in tax compliance enforcement. Its diversity across wards and sectors made it a viable representation for urban tax administration challenges. The target population included 15,000 registered MSEs. The sample size was

determined using the formula developed by Taro Yamane (famously known as Yamane's formula):

$$SS = \frac{N \cdot X}{X + N - 1}$$

Where;

$$X = (Z_{\alpha/2})^2 \frac{n(p)(1-p)}{MOE^2}$$

SS = Sample size

N = Population size (MSEs) estimated to be 15,000

$Z_{\alpha/2}$  = Critical value of the normal distribution at 90% and the critical value is 1.96

MOE = Margin of error estimated at 0.04

p = Sample proportion estimated to be 0.5

Thus,

$$\begin{aligned} X &= 1.96^2 (0.5) (0.5) / 0.04^2 \\ &= (3.8416) (156.25) \\ &= \mathbf{600.25} \end{aligned}$$

$$\begin{aligned} SS &= 15,000 * 600.25 / 600.25 + 15,000 - 1 \\ &= 577.19 \end{aligned}$$

**Sample size (SS) = 577 Respondents**

A sample of 577 was calculated using Yamane's formula with a 95% confidence level and 4% margin of error. This formula was chosen for its reliability in surveys with finite populations and limited prior variance data. Stratified random sampling was used to select respondents across sub-regions, while purposive sampling targeted key informants, including 14 TRA officers and six local government leaders.

Data collection methods included structured questionnaires (with both closed- and open-ended items), in-depth interviews, Focus Group Discussion (FGD), and document reviews. Questionnaire sections covered awareness of tax processes, participatory experiences, attitudes toward compliance, and taxpayer demographics. FGDs, in-depth interviews and document review supplemented the quantitative method and data, respectively. Instruments were developed based on

previous literature, pilot tested, and reviewed by academic peers. Expert feedback helped to refine items for clarity and relevance. Content validity was confirmed through triangulation. The items were adapted from prior empirical studies on taxpayer behaviour and participatory governance, including OECD (2021), Fjeldstad and Heggstad (2022), and Rahayu et al. (2017), and then aligned with the study's theoretical framework. Cronbach's alpha coefficient was computed at 0.826 for the core questionnaire items, indicating high internal consistency. Tools and methods were validated through expert peer review and pilot testing.

**Table 2: Cronbach's Alpha for Reliability Testing**

Cronbach's Alpha	Number of Items
.826	10

**Source:** Field Research-Questionnaire (2023)

Quantitative data were analysed using Stata software. Stata software was selected for its robust capabilities for both descriptive and inferential analysis, particularly its built-in procedures for logistic regression and cross-tabulation suited to Likert-scale and categorical data. Descriptive statistics, cross-tabulations, and binary logistic regression were used to assess the influence of participation on compliance. Correlation analyses were conducted only for internal consistency checks. Assumptions of the logistic model (e.g., no multicollinearity, linearity in log odds) were tested and met. Qualitative data from FGDs and interviews were analysed thematically using content analysis, with data segmented into codes reflecting participation dimensions, motivational factors, and barriers to compliance.

## Results and Discussion

Descriptive statistics were obtained to explain the demographic characteristics of the taxpayers. It was crucial to study these characteristics since they tend to influence taxpayers' awareness of tax matters (Etim et al., 2020). Inferential statistics were used to generate meaningful interpretations from the findings of the study. This inference was based on a qualitative method as a supplement to quantitative data collection and analysis. The analysis of qualitative data entailed breaking responses into the smallest meaningful units through content analysis, as presented in the following section.

### *MSE taxpayers' awareness of tax assessment processes: Descriptive analysis*

Table 3 presents summary statistics of major variables used in this study, highlighting the knowledge or awareness of MSEs on the processes of assessing taxes by the TRA.

**Table 3: Knowledge and awareness of MSE owners on tax assessment processes (n=577)**

<b>Variable</b>	<b>N (%)</b>
Ever received any tax education program from TRA.	
<b>Received</b>	154(26.7)
<b>Not received</b>	423(73.3)
Ways used to provide tax education to taxpayers (n=154)	
<b>Door to door</b>	52(33.8)
<b>Radio</b>	41(26.6)
<b>Television</b>	11(7.1)
<b>Outreach program</b>	27(17.5)
<b>Stakeholders</b>	20(13.0)
<b>Other, i.e., internet platforms</b>	3(1.9)
Ever obtained tax information through mobile phones.	
<b>Obtained</b>	291(50.4)
<b>Never obtained</b>	286(49.6)
Ever attended any tax seminars organised by TRA.	
<b>Attended</b>	67(11.6)
<b>Never attended</b>	510(88.4)
Ever been visited by an officer from TRA to explain about tax.	
<b>Yes, visited</b>	353(61.2)
<b>No, never visited</b>	224(38.8)
An extent to know about the tax supposed to be paid for the business	
<b>Nothing at all</b>	142(24.6)
If you know how tax paid was determined	
<b>Know</b>	205(35.5)
<b>Do not know</b>	372(64.5)
The extent you know about presumptive tax	
<b>Nothing at all</b>	116(20.1)
<b>Very little</b>	203(35.2)
<b>Much</b>	228(39.5)
<b>Everything</b>	30(5.2)
If you believe that everyone is informed about the tax rate to be paid for the business	
<b>Believe</b>	101(17.5)
<b>Do not believe</b>	476(82.5)

---

If you think the tax charged is fair	
<b>Fair</b>	218(37.8)
<b>Unfair</b>	287(49.7)
<b>Don't know</b>	72(12.5)
Goodness of the mechanism of tax collection	
<b>Excellent</b>	212(36.7)
<b>Good</b>	223(38.7)
<b>Bad</b>	142(24.6)
Possibility to say on the amount of tax assessed	
<b>Possible</b>	127(22.0)
<b>Impossible</b>	327(56.7)
<b>Don't know</b>	123(21.3)
If satisfied with the level of transparency in determining the tax rates	
<b>Satisfied</b>	172(29.8)
<b>Unsatisfied</b>	328(56.9)
<b>Don't know</b>	77(13.3)
Level of cheating during tax assessment on business	
<b>None</b>	109(18.9)
<b>Low</b>	109(18.9)
<b>Moderate</b>	170(29.5)
<b>High</b>	189(32.8)
If you know what happens when one fails to pay taxes	
<b>Know</b>	498(86.3)
<b>Do not know</b>	79(13.7)
If the knowledge that you have about tax influenced you to pay tax willingly and timely	
<b>Yes, it did help</b>	448(77.6)
<b>No, it did not help</b>	129(22.4)

---

**Source:** Field Research-Questionnaire (2023)

The findings reveal that only 154 (26.7%) MSEs reported receiving tax education programs from TRA. Of those, 33.8% accessed information through door-to-door initiatives, while 26.6% relied on radio, 7.1% on television, and 17.5% on outreach programs. Notably, 50.4% had obtained information through mobile phones. These findings highlight inconsistencies in outreach strategies. FGDs corroborated this pattern, indicating that digital platforms and formal sessions were often ineffective or inaccessible.

Despite door-to-door initiatives yielding relatively wider reach, results suggest these visits lacked depth or educational focus, thus failing to meaningfully influence voluntary tax compliance. As suggested by the Public Participation Theory, the absence of genuine engagement limits the potential for fostering

taxpayer commitment. Tax officers reportedly focused on enforcement and penalties, rather than promoting participatory understanding of tax procedures.

The in-depth interview responses support this:

I do not know anything about how much tax I'm supposed to pay each month. What I know is that I'm supposed to pay the exact amount they want me to pay, especially when they come towards or past the deadlines. (*Male Micro-Size Enterprise Owner, Kibo Complex, FGD 3, 2022*).

This narrative confirms the quantitative findings that most MSE owners were unaware of how their tax liabilities were calculated. According to the Tax Morale Theory, such knowledge gaps hinder compliance by eroding a taxpayer's sense of fairness and trust in the tax system.

### ***Observational Insights and Record-Keeping Deficiencies***

Participant observations revealed a widespread absence of bookkeeping practices among MSEs. Only a few enterprises maintained records, whether manual or digital. This deficiency limits their capacity to estimate or validate tax obligations and consequently undermines their ability to participate in assessment processes. This finding strengthens the case for enhanced education on financial record-keeping, supporting voluntary compliance efforts.

### ***Tax Education by TRA***

Figure 1 illustrates that out of 577 respondents, 423 (73.3%) had never received any tax education session from TRA. This low participation correlates strongly with poor awareness levels and suggests a need to reassess outreach strategies. As supported by OECD (2021), effective taxpayer education should be multi-modal, sustained, and integrated into public governance.

### ***Awareness of Presumptive Tax System and Implications***

Findings indicate that majority of taxpayers misunderstood the presumptive tax system, with some defaulting to VAT or income tax regimes, which require audited records. This confusion has direct implications for non-compliance, tax evasion, or unintentional errors. Literature (Fjeldstad & Heggstad, 2022) confirms that weak clarity in simplified tax systems is a common barrier to compliance.

### ***Knowledge of Consequences of Default and Non-compliance***

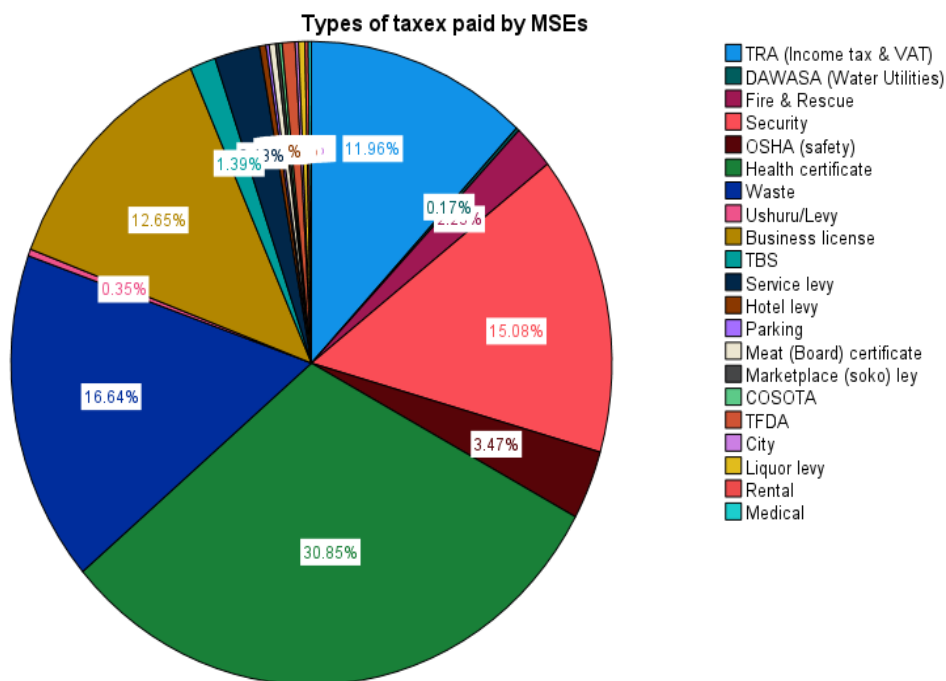
While 86.3% of structured interview respondents acknowledged knowing the consequences of tax default, this did not translate to higher compliance levels. This contradiction underscores the insight from Tax Morale Theory that mere awareness

of penalties does not guarantee compliance; participatory fairness and moral obligation are also crucial motivators.

### ***Knowledge of Types of Taxes and Tax Liability Derivation***

In-depth interviews revealed that 67.59% of MSE owners lacked knowledge of their tax obligations and types of applicable taxes. A majority perceived the tax burden as high, suggesting limited involvement in tax assessment processes.

**Figure 1: Types of Taxes Charged on MSEs**



**Source:** Field Research-Questionnaire (2023)

Most MSE owners wrongly attributed all charges: levies, fees, and taxes to TRA, not recognising that local government authorities (LGAs) were responsible for a substantial portion. For instance, while TRA taxes accounted for only 11.96%, health-related charges accounted for 30.85%, waste collection for 16.64%, and rental charges for 15.08%. This ignorance contributed to confusion and resentment toward the tax system, leading to diminished tax morale and non-compliance (Friedland et al., 1978; Papp & Takáts, 2008). These researchers linked high perceived tax burdens to reduced compliance. Moreover, the perceived lack of transparency in tax-setting processes negatively affects participation, a condition captured in the Public Participation Theory.

### *Media Used for Tax Education and Communication*

TRA’s primary methods for tax education included door-to-door outreach, radio, television, and stakeholder meetings. As reported earlier, the effectiveness of these channels varied. FGDs revealed that digital outreach was underutilised or ineffective, suggesting the need for better-targeted, more accessible education channels.

### *Relationship between Tax Awareness and Voluntary Tax Compliance*

A logistic regression model was used to examine how awareness variables influenced voluntary tax compliance (VTC).

**Table 4: Tax Awareness and Voluntary Tax Compliance Relationship**

Variable	Voluntary tax compliance		COR, 95% CI	p-value	AOR	p-value
	No N (%)	Yes N (%)				
Ever received any tax education program from TRA						
<b>Never received</b>	179(42.3)	244(57.7)	1			
<b>Received</b>	59(38.3)	95(61.7)	1.18, 0.81- 1.72	0.388		
Have you ever obtained tax information through mobile phones						
<b>Never obtained</b>	112(39.2)	174(60.8)	1			
<b>Obtained</b>	126(43.3)	165(56.7)	0.84, 0.60- 1.17	0.313		
Have you ever attended any tax seminar organized by TRA						
<b>Never attended</b>	213(41.8)	297(58.2)	1			
<b>Attended</b>	25(37.3)	42(62.7)	1.20, 0.71- 2.04	0.487		
Have you ever visited by an officer from TRA to explain about tax						
<b>Never visited</b>	86(38.4)	138(61.6)	1			
<b>Visited</b>	152(43.1)	201(56.9)	0.82, 0.59- 1.16	0.267		

If you know how tax paid was determined						
<b>Don't know</b>	154(41.4)	218(58.6)	1			
<b>Know</b>	84(42.0)	121(59.0)	1.01, 0.72- 1.44	0.921		
Believing that everyone is informed about tax rate to be paid for the business						
<b>Don't believe</b>	206(43.3)	270(56.7)	1		1	
<b>Believe</b>	32(31.7)	69(68.3)	1.64, 1.04- 2.59	<b>0.003</b>	1.47, 0.92- 2.36	0.103
If the tax charged is fair						
<b>Fair</b>	85(39.0)	133(61.0)	1			
<b>Unfair</b>	119(41.7)	168(58.5)	0.90, 0.63- 1.29	0.575		
<b>Don't know</b>	34(47.2)	38(52.8)	0.71, 0.42- 1.22	0.219		
Goodness of the mechanism of tax collection						
<b>Excellent</b>	64(30.2)	148(69.8)	1		1	
<b>Good</b>	109(48.9)	114(51.1)	0.45, 0.31- 0.67	<b>&lt;0.001</b>	0.48, 0.32- 0.72	<b>&lt;0.001</b>
<b>Bad</b>	65(45.8)	77(54.2)	0.51, 0.33- 0.79	<b>0.003</b>	0.52, 0.32- 0.83	<b>0.007</b>
Possibility to say on the amount of tax assessed						
<b>Possible</b>	48(37.8)	79(62.2)	1			
<b>Impossible</b>	135(41.3)	192(58.7)	0.86, 0.57- 1.32	0.496		
<b>Don't know</b>	55(44.7)	68(55.3)	0.75, 0.45- 1.24	0.267		
If satisfied by the level of transparency on determining tax rates						
<b>No</b>	176(43.5)	229(56.5)	1		1	
<b>Yes</b>	62(36.1)	110(63.9)	1.36, 0.93- 1.97	0.099	1.02, 0.68- 1.53	0.923

Level of cheating during tax assessment on business					
<b>None</b>	42(38.5)	67(61.5)	1		
<b>Low</b>	33(30.3)	76(69.7)	1.44, 0.82- 2.53	0.200	
<b>Moderate</b>	77(45.3)	93(54.7)	0.76, 0.46- 1.24	0.266	
<b>High</b>	86(45.5)	103(54.5)	0.75, 0.46- 1.21	0.242	
If you know what will happen when fail to pay taxes					
<b>Don't know</b>	44(55.7)	35(44.3)	1		1
<b>Know</b>	194(39.0)	304(61.0)	1.97, 1.22- 3.18	<b>0.006</b>	1.73, 1.05- 2.84
If knowledge about tax helped to pay tax willingly and timely					
<b>Didn't help</b>	54(41.9)	75(58.1)	1		
<b>Helped</b>	184(41.1)	264(58.9)	1.03, 0.69- 1.54	0.873	

**Source:** Field Research-Questionnaire & Author's own calculation (2023)

MSE owners with knowledge of tax consequences (AOR=1.73, p=0.031) and who rated tax collection mechanisms as excellent (AOR=0.48, p<0.001) were significantly more likely to comply voluntarily. This voluntary compliance emphasises that **tax morale**, perception of fairness, and transparent administration are more impactful than mere access to information.

### ***Impact of MSE Taxpayers' Unawareness of Tax Assessment Processes***

Using Likert-scale items, the study assessed perceptions of voluntary tax compliance (VTC).

**Table 5: Level of Voluntary Tax Compliance by MSEs in Kinondoni Tax Region**

S/N	ITEM STATEMENT	1-SA (%)	2-A (%)	3-UD (%)	4-D (%)	5-SD (%)	MEAN	$\sigma$	DECISION
Q1	Timely tax assessment	334 (57.9)	122 (21.1)	37 (6.4)	68 (11.8)	16 (2.8)	1.80	1.152	Low perception
Q2	Tax assessment willingness (voluntariness)	428 (74.2)	80 (13.9)	13 (2.3)	40 (6.9)	16 (2.8)	1.50	1.023	Low perception
Q3	Accuracy & fairness in disclosing the annual turnover	441 (76.4)	25 (4.3)	37 (6.4)	40 (6.9)	34 (5.9)	1.62	1.221	Low perception
Q4	Willingness in disclosure of the annual turnover	0 (0.0)	533 (92.4)	0 (0.0)	28 (4.9)	16 (2.8)	2.18	.642	High perception
Q5	Timely remittance of tax payment	327 (56.7)	149 (25.8)	0 (0.0)	101 (17.5)	0 (0.0)	1.78	1.105	Low perception
Q6	Willingness (voluntariness) in paying tax due	0 (0.0)	80 (13.9)	347 (60.1)	132 (22.9)	18 (3.1)	3.15	.685	High perception
Q7	Timely observation of tax law and regulations	25 (4.3)	508 (88.0)	0 (0.0)	44 (7.6)	0 (0.0)	2.11	.581	High perception
Q8	Overall observation of tax law and regulations willingly	32 (5.5)	248 (43.0)	162 (28.1)	117 (20.3)	18 (3.1)	2.72	.951	High perception
Q9	Consistency/frequency in attendance at tax education programs/training	304 (52.7)	177 (30.7)	96 (16.6)	0 (0.0)	0 (0.0)	1.64	.751	Low perception
Q10	Willingness to attend tax programs/training & acquire tax education	137 (23.7)	355 (61.5)	45 (7.8)	40 (6.9)	0 (0.0)	1.98	.770	Low perception

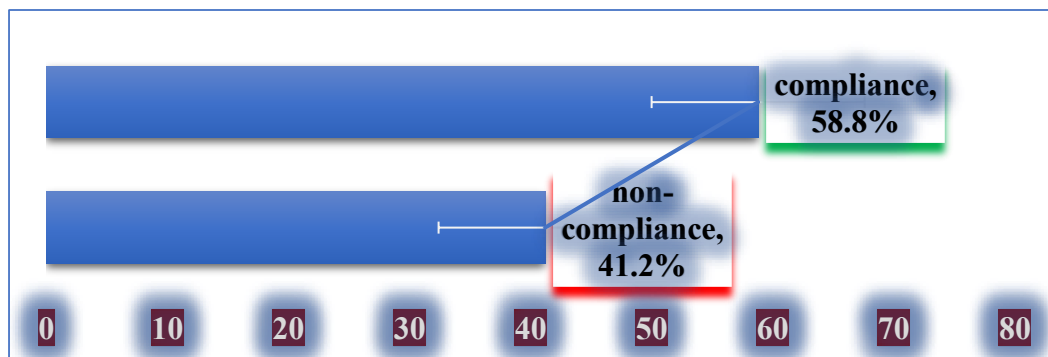
**Source:** Field Research-Likert Scale type Questionnaire (2023)

**Note:** SA = Strongly Agree; A = Agree; UN = Undecided; D = Disagree; SD = Strongly Disagree

Most items fell below the grand mean (2.04), indicating generally **low perception** of voluntary compliance in key dimensions - timeliness, willingness to assess, and accuracy in turnover disclosure. High perception was limited to willingness to

disclose turnover and compliance under obligation. This supports **Tax Morale Theory**, wherein taxpayers may comply out of fear rather than moral conviction. MSEs cited dissatisfaction with TRA services, perceived corruption, and lack of knowledge as barriers to compliance, corroborated by Omary & Pastory (2022) and Demessew (2020).

**Figure 2: Distribution of Voluntary Tax Compliance among MSEs**



**Source:** Field Research-Questionnaire (2023)

When a direct question was posed in the structured interview as to whether the MSE is tax compliant or non-compliant, more than half of the surveyed MSEs voluntarily comply to pay tax (n=339, 58.8%, 95% CI, 54.7%-62.7%) (Figure 1). This was attributed to most, if not all, MSEs complying by formally being registered.

**Table 6: Voluntary tax compliance among MSEs in Kinondoni Tax Region (n=577)**

<b>Variable</b>	<b>N (%)</b>
If the business has a Taxpayer Identification Number (TIN)	
<b>It has TIN</b>	577(100.0)
<b>It does not have a TIN</b>	0(0.0)
If the business is formally registered	
<b>It is formally registered</b>	575(99.7)
<b>It is not formally registered</b>	2(0.3)
Ever paid tax to TRA for the business.	
<b>Paid</b>	573(99.3)
<b>Never paid</b>	4(9.7)
Ever refused to pay tax to the government.	
<b>Refused</b>	21(3.6)
<b>Never refused</b>	556(96.4)
Possible to justify cheating on taxes if you have the chance	
<b>Possible</b>	36(6.3)
<b>Impossible</b>	539(93.7)
Often comply with paying government tax	
<b>All the time</b>	365(63.3)
<b>Sometimes</b>	175(30.3)
<b>Not at all</b>	37(6.4)

**Source:** Field Research-Questionnaire (2023)

While 99.7% were formally registered and 99.3% had paid taxes before, only 63.3% reported consistent compliance. Although 93.7% claimed they would not justify tax cheating, these findings may reflect social desirability bias rather than genuine tax morale (Baldry, 1986). Although 93.7% stated they would not justify cheating, this potentially reflects social desirability bias. As Baldry (1986) noted, tax morale is shaped by guilt, shame, and internalised civic duty. Therefore, even with high levels of registration and penalty awareness, the low intrinsic motivation evidenced by Likert scale data suggests that participatory engagement and perceived legitimacy should be prioritised to improve VTC outcomes sustainably. This suggests that raising awareness alone is not sufficient; rather, fostering participation, fairness, and public trust is essential to meaningful and lasting improvements in voluntary tax compliance among MSEs in Kinondoni.

## **Conclusion and recommendations**

This study sought to examine the influence of participation of MSEs in tax assessment processes on voluntary tax compliance within the presumptive tax regime in Kinondoni Tax Region. The findings revealed that a significant number of MSE taxpayers lacked adequate awareness of how tax liabilities are determined. The study also found that most taxpayers were unfamiliar with the nature and structure of the presumptive tax system, misattributed various taxes to TRA, and failed to maintain basic financial records to support tax self-assessment. Further, limited exposure to taxpayer education and inconsistent participation in tax-related decision-making processes contributed to diminished tax morale. A binary logistic regression analysis demonstrated that while awareness of tax consequences significantly predicted voluntary compliance, other variables such as tax education access, fairness in the tax process, and clarity of tax obligations also influenced compliance behaviour. Despite some MSEs possessing a Taxpayer Identification Number (TIN) and being formally registered, many still struggled with compliance due to structural, communicative, and administrative barriers. The study, therefore, concludes that voluntary tax compliance among MSEs in Kinondoni Tax Region is significantly influenced by the degree of participation in tax assessment processes. Low levels of participation, limited tax literacy, and poor dissemination of taxpayer education have undermined the potential of the presumptive tax regime to increase compliance. The findings validate the importance of the Tax Morale Theory, which emphasises that compliance is not driven solely by enforcement or penalties, but also by fairness, civic duty, and trust in the system. Moreover, the Public Participation Theory underlines the need to involve taxpayers in shaping processes that affect them, a component largely missing in the current system.

In light of the findings and conclusion, the study recommends the following:

- i) The TRA should design tax education programs tailored for MSEs, incorporating vernacular languages, visual aids, and hands-on demonstrations;
- ii) Use digital platforms effectively while retaining traditional approaches like door-to-door education, radio, and Television for broader coverage;
- iii) Establish regular stakeholders' meetings where MSE representatives can participate in discussions about presumptive rates and assessment criteria;
- iv) Promote community-based education forums in collaboration with local government leaders and business associations;
- v) Provide simplified templates and training sessions on financial record-keeping to micro and small businesses;

- vi) Offer incentives (e.g., reduced presumptive rates) to MSEs that demonstrate improved financial documentation;
- vii) TRA officers must prioritise education during enforcement visits to reduce fear-based compliance;
- viii) Implement clear and publicly accessible explanations of how taxes are calculated, the purpose of the presumptive regime, and taxpayer rights; and
- ix) TRA should establish tax information centres at ward levels where MSEs can walk in and receive guidance on taxation procedures.

This study adds to the body of knowledge by applying the Tax Morale Theory and Public Participation Theory in a Sub-Saharan African context. It demonstrates that these frameworks remain relevant in explaining why traditional enforcement mechanisms alone are insufficient to promote voluntary tax compliance among MSEs.

## References

- Aiko, R. and C. Logan (2014). Africa's willing taxpayers thwarted by opaque tax systems, Corruption. <http://dx.doi.org/10.1787/888932807322>
- Alabede, J. O., Ariffin, Z. Z., & Idris, K. M. (2011). Individual taxpayers' attitude and compliance behaviour in Nigeria: The moderating role of financial condition and risk preference. *Journal of Accounting and Taxation*, 3(3), 91–104. <https://doi.org/10.5897/jat11.010>
- Chau, G & Leung, P. (2009). A critical review of Fischer Tax Compliance Model: A research synthesis. *Journal of accounting and taxation*. 1(2), 034-040.
- Collosa (2021). Digitalisation of tax administration and facilitation of tax compliance. <https://www.ciat.org/ciatblog-digitalizacion-de-las-administraciones-tributarias-y-facilitacion-del-cumplimiento-tributario/?lang=en>
- Etim, E. O., Umoffong, N. J., & Bassey, D. O. (2020). Individual and socio-economic factors as tax compliance determinants in self-assessment system (SAS) in Akwa Ibom State, Nigeria. *International Journal of Innovative Research and Advanced Studies (IJIRAS)*, 7(5), 28-31.
- Fjeldstad, O.-H. (1995). Taxation and tax reforms in Tanzania: A survey. Michelsen Institute.
- George, C., & Olan'g, L. (2020). *Taxing the informal sector. A case of Dar es Salaam street vendors*. REPOA Brief.

- Getachew, Y. (2020). *Factors affecting business performance of small and medium size enterprise in Debre Birhan town, Ethiopia*, [Master's thesis, Debre Berhan University, Debre Berhan University, Ethiopia].
- Haji, S. (2015). Presumptive tax system and its influence on the ways informal entrepreneurs behave in Tanzania. *Tanzanian Economic Review*, 5(12). <https://doi.org/10.56279/ter.v5i1-2.17>
- Hastuti, R. (2014). Tax awareness and tax education: A perception of potential taxpayers. *International Journal of Business, Economics and Law*, 5(1).
- Ikhsan, S., & Suratman, E. (2023). Demographic characteristics and tax compliance. *Asian Journal of Social Science Studies*, 8(1), 1.
- John, J. D. (2006). *The political economy of taxation and political reform in developing countries*. UNU-WIDER.
- Kakengi, V., & Msafiri, D. (2019). *Tanzania Revenue Authority earns good marks but is still earning citizens' trust*. Afrobarometer Dispatch No. 329.
- Kim, S., & Kim, T. (2018). Tax reform, tax compliance and state-building in Tanzania and Uganda. *Africa Development*, 43(2), 35-64.
- Ligomeka, W. (2019). Assessing the performance of African tax administrations: A Malawian puzzle, ICTD African Tax Administration Paper, No. 14, International Centre for Tax and Development, Brighton.
- Mascagni, G., Santoro, F. and Mukama, D. (2019). Teach to comply? Evidence from a Taxpayer education programme in Rwanda. [http://www.ictd.ac/publication\\_on June 15th 2023](http://www.ictd.ac/publication_on_June_15th_2023).
- Masunga et al (2020). Quality of e-tax system and its effect on tax compliance: Evidence from large taxpayers in Tanzania. *International Journal of Commerce and Finance*, 6(2), 145-158.
- Ministry of Trade and Industry. (2012). *National baseline survey report for micro, small and medium enterprises in Tanzania-2012*. <http://repository.businessinsightz.org/handle/20.500.12018/423>
- Moore, M. (2019). Intelligent government: How research can help increase tax compliance, ATAP Working Paper 9, Brighton, IDS.
- Mpofu, F. Y. (2021). Taxing the informal sector through presumptive taxes in Zimbabwe: An avenue for a broadened tax base, stifling of the informal sector activities or both. *Journal of Accounting and Taxation*, 13(3), 153-177.
- OECD (2021). Building tax culture, compliance and citizenship: A global source book on taxpayer education, Second Edition, OECD Publishing <https://doi.org/10.1787/18585eb1-en>

- OECD (2022), Tax administration 2022: Comparative information on OECD and other advanced and emerging economies, OECD Publishing, Paris. <https://doi.org/10.1787/1e797131-en> on July 2nd 2023.
- Ongwamuhana, K. (2011). *Tax compliance in Tanzania*. Mkuki Na Nyota Publishers.
- Osoro, N. E. (1992). Revenue productivity of the tax system in Tanzania. *Journal of African Economies*, 395-415.
- Palil, M. R. (2010). *Tax knowledge and tax compliance determinants in self-assessment system in Malaysia*. [Thesis of the Department of Accounting and Finance Birmingham Business School, the University of Birmingham].
- Palil, M. R., Hamid, M. A., & Hanafiah, M. H. (2013), Taxpayers' compliance behavior: Economic factors approach, *Journal Pengurusan*, 38 75–85. <https://doi.org/10.17576/pengurusan-2013-38-07> on July 3rd 2023.
- Permatasari, D. (2020). The determinant of tax compliance in Indonesia. In the Conference on complex, intelligent, and software intensive systems (pp. 426- 434). Springer, Cham.
- Rahayu, Y. N., Setiawan, M. and Troena, E. A., (2017). The role of taxpayer awareness, tax regulation and understanding in taxpayer compliance, *Journal of Accounting and Taxation*, 9(10), 139-146.
- Ratnawati, V., Sari, R. N. and Sanusi, Z. M. (2019). Education, service quality, accountability, awareness and taxpayer compliance: Individual taxpayer perception, *International Journal of Financial Research*, 10(5), 420-429.
- Tanzania Revenue Authority (2022). *Income Tax for Individuals*. <https://www.tra.go.tz/page/income-tax-for-individuals>
- The Income Tax Act CAP. 332 Practice Note No. 09 (2013). Self-Assessment for Entities. <https://breakthroughattorneys.com/finance-and-tax-law-update-overview-of-the-tax-and-non-tax-changes-for-tanzania-as-per-finance-act-2023/>
- The Tax Administration Act CAP 438 R.E 2019. <https://www.tra.go.tz/index.php/laws>
- Thuronyi, V. (1996). Presumptive taxation. In V. Thuronyi (Ed.), *Tax law design and drafting* (Vol. 1, pp. 1996–1998). International Monetary Fund.
- URT (1991). Report of the Presidential Commission of Enquiry into Public Revenues, Taxation and Expenditure.
- Yamane, T. (1967). *Statistics: An introductory analysis* (2nd ed.). Harper and Row.



## **Digital Literacy-Responsive Adult Education in Tanzania: A Systematic Literature Review**

***Charles Raphael***

*Tengeru Institute of Community Development*

***Email: [crn201412@gmail.com](mailto:crn201412@gmail.com)***

### ***Abstract***

*This systematic literature review examines the integration of digital literacy in adult education in Tanzania. It focuses on peer-reviewed articles, policy documents, reputable organisational publications and official reports published between 2015 and 2025. It used search engines (Google Scholar, PubMed, and Web of Science) for grey literature; databases such as JSTOR, ScienceDirect, Scopus, ERIC, Wiley Online Library, and MDPI; official government and organisational repositories and websites. Searching terms combined keywords and Boolean operators such as "Digital Literacy" and "Tanzania" and ("Adult Education" and "Tanzania") and ("Digital Literacy in Adult Education" or "Digital Literacy-Responsive Adult Education") and ("Digital Literacy-Responsive Adult Education" or "Integration of Digital Literacy-Responsive*

*Adult Education"). The inclusion criteria included published literature between April 2015 and April 2025; a focus on digital literacy relevant to the Tanzanian context; and discussions of digital literacy on adult education. The exclusion criteria include literature not based on the Tanzanian context; publications without a clear connection to digital literacy and adult education, and publications that are in a non-English language. The findings reveal that Tanzania has made commendable efforts to integrate digital literacy into adult education in terms of curriculum development, policy and strategic frameworks, implementation of initiatives and programmes, training of trainers, partnerships and collaborations, and use of mobile technology. Regardless of such efforts, some research gaps, such as infrastructure and technological access, pedagogical and instructional challenges, policy and strategic planning deficiencies, socio-cultural and psychological barriers, insufficient research on adult learners' needs, and gender*

*disparities in digital access, are noted regarding integrating digital literacy into adult education. This systematic review concludes that digital literacy in adult education in Tanzania remains underdeveloped, despite growing recognition of its importance in a digital and industrialising economy. Therefore, the policy and future directions for integration of digital literacy into adult education may be based on curriculum integration and framework development, professional development for educators, policy and strategic planning, and addressing the digital divide.*

**Keywords:** *digital literacy, adult education, integration, digital literacy-responsive adult education*

## **Introduction**

Digital literacy has been growing as an essential competency in the 21<sup>st</sup> century, shaping both educational outcomes and accessibility to socio-economic opportunities (UNESCO, 2018). In other words, digital literacy has emerged as a vital skill for socio-economic development in Tanzania and the world at large. Globally, the research emphasises the importance of digital literacy as a central skill for employability and lifelong learning (UNESCO, 2021). In the African context, digital literacy in adult education is increasingly prioritised in order to facilitate the empowerment of marginalised groups as well as promote digital inclusion (Amisi & Komba, 2022).

In many developing countries, the expansion of digital infrastructure and mobile technologies has opened up new possibilities for adult education (World Bank, 2020). This means that digital literacy is progressively recognised as a fundamental component of adult education. In the Tanzanian context specifically, where a large percentage of the adult population is engaged in informal economic activities and resides in rural areas, adult education provides a crucial platform for digital empowerment (Mwakyusa & Nchimbi, 2022). In other words, digital literacy is increasingly recognised as a vital skill, especially for adults who often face barriers in accessing digital technologies and education in Tanzania (Mwakyusa & Kibwana, 2021). Adult education that is integrated with digital literacy is vigorous to bridge the digital divide, while enhancing employability as well as fostering lifelong learning in the Tanzanian context (Moshi, 2021).

It is recently underscored that digital literacy is a critical enabler for adult learners to engage in economic activities, access information, and participate fully in society (Mwakyusa & Nchimbi, 2022). Adult learners with digital skills demonstrate

improved literacy and numeracy outcomes and greater social inclusion (Moshi & John, 2024). The integration of digital literacy into adult education supports national development goals, including those outlined in Tanzania's Development Vision 2025 and the Sustainable Development Goals (SDGs) (UNESCO, 2021). Specifically, the integration support Tanzania's Development Vision 2025 key goals such as high-quality education and training that meets the changing demands of the global and digital economy; a well-educated and learning society through access to knowledge and lifelong learning to all Tanzanians; good governance and the rule of law which encourages civic participation using support of digital literacy; and a strong and competitive economy that enhances productivity by using digital technologies. On the other hand, the SDGs that are relevant and supported by digital literacy in adult education are Goal 4 (quality education) which ensures inclusive and equitable quality education through promotion of lifelong learning opportunities for all; Goal 8 (decent work and economic growth) which insists on sustainable and inclusive economic growth and productive employment; Goal 9 (industry, innovation and infrastructure) which address resilient infrastructure, inclusive and sustainable industrialization and innovation; Goal 10 (reduced inequalities) which empowers marginalized groups via accessibility to digital skills; and Goal 17 (partnerships for the goals) which strengthen global partnerships and capacity building using even technology and education. As Tanzania advances its digital infrastructure under the national development agenda, integrating digital literacy into adult education programmes is essential to bridge the digital divide and foster inclusive growth (Kihombo et al., 2023).

The concept of digital literacy extends beyond basic computer skills to encompass critical thinking, problem-solving, and effective communication in digital environments (Chacha & Mwita, 2022). For adult learners, digital literacy responsiveness in education requires curricula, pedagogy, and learning environments tailored to their specific needs and contexts, including linguistic, cultural, and socio-economic factors (Nkya & Saidi, 2020). Alternatively, the digital literacy in the context of adult education refers to the ability to access, understand, evaluate, create, and communicate information using digital technologies (Eshet-Alkalai, 2004). It encompasses technical skills, critical thinking, and the capacity for lifelong learning (Martin, 2006). In the Tanzanian context, digital literacy is often linked to broader goals of poverty reduction, gender equality, and economic development (Ministry of Education, Science and Technology-Tanzania, 2020). Given Tanzania's diverse population and varying

levels of access to technology, responsive adult education is critical for enhancing participation and learning outcomes (Kasuga et al., 2024).

In Tanzania, the Government's Digital Tanzania initiative aims to enhance digital skills among citizens, including adults, to support socio-economic development (Tanzania Ministry of Education, 2022). Specifically, Tanzania has made notable progress in expanding ICT access, particularly through mobile phone penetration and government-led digital transformation policies such as the National ICT Policy (2016). Despite these efforts, gaps remain in delivering digital literacy that responds to the contextual needs of adult learners, particularly in rural and underserved areas (Mushi & Katunzi, 2021). In addition, the digital inequality persists, especially among rural adults, women, and marginalised communities (IICD, 2015). The adult education systems often face challenges such as outdated curricula, a lack of trained educators, and limited access to digital devices, hindering effective digital literacy integration (Ngowi et al., 2023). The responsiveness of adult education programmes to digital literacy demands remains under-researched and unevenly implemented (Mtega & Malekani, 2019). To date, there is no clearly established conclusion on the status of the integration of digital literacy in adult education in Tanzania. It is only a small percentage of adult learners in Tanzania who possess functional digital literacy skills, with wide disparities based on location, age, and educational background (Mgendi, 2021).

Moreover, there is a growing recognition of digital literacy in Tanzania as an essential tool for socio-economic development. However, the integration of digital literacy into adult education in Tanzania between 2015 and 2025 has remained limited, uneven, and inadequately supported (MoEST, 2016; URT, 2020). The national frameworks, such as Education and Training Policy (2014), Tanzania's Development Vision 2025 and others, emphasise lifelong learning and ICT adoption; however, the actual implementation in adult education settings remains slow and fragmented (MoEST, 2016; URT, 2020). As stated earlier, many adult learners in rural areas have little access to digital tools, skilled facilitators, or localised digital content, something which deepens the digital divide (UNESCO, 2021). Although the Tanzania National Digital Education Strategy 2024/25–2029/30 sets ambitious goals for enhancing digital skills among adults, these initiatives began only in late 2024, leaving a critical implementation gap in the preceding years (MoEST, 2024). These unattended problems provoke imperative questions about critical issues in integrating digital literacy into adult education between 2015 and 2025.

Therefore, this review systematically examines 10 years of literature (2015–2025) on digital literacy-responsive adult education in Tanzania. It specifically focuses on the extent to which digital literacy is integrated into adult education in Tanzania; notable research gaps on the integration of digital literacy into adult education in Tanzania; policy and future directions on the integration of digital literacy into adult education in Tanzania. Generally, there has been a knowledge gap on the integration of digital literacy into adult education in Tanzania for the past 10 years.

Conducting the study on establishing the status of integrating digital literacy into adult education in Tanzania for the past 10 years is essential for various reasons. It specifically gives the general realities of digital literacy in adult education in Tanzania in the period between 2015 and 2025. It likewise reveals the research gaps that have existed for the past 10 years regarding digital literacy-responsive adult education in Tanzania. It finally gives the way forward in terms of theoretical and policy implications concerning digital literacy-responsive adult education in Tanzania.

## **Methodology**

This systematic literature review study was conducted across search engines and academic databases. Specifically, the study used Google Scholar, PubMed, and Web of Science as search engines for grey literature. These search engines were selected due to their credibility (Gusenbauer & Haddaway, 2020). Furthermore, this systematic literature review used databases such as JSTOR, ScienceDirect, Scopus, ERIC, Wiley Online Library, and MDPI; official government and organisational repositories and websites. The databases were used because they provide rigorous evidence and relevant studies, which eventually led to the review's outcome, validity, and explanatory power. They provided accessibility to the evidence with varying levels of precision, recall, and reproducibility regarding digital literacy-responsive adult education in Tanzania between the period of April 2015 and April 2025.

Searching terms combined keywords and Boolean operators such as "Digital Literacy" and "Tanzania" and ("Adult Education" and "Tanzania") and ("Digital Literacy in Adult Education" or "Digital Literacy-Responsive Adult Education") ("Adult Education" or "Lifelong Learning") and ("Digital Literacy-Responsive Adult Education" or "Integration of Digital Literacy-Responsive Adult Education". The search terms were used to refine the search to identify the most relevant literature, retrieve targeted and efficient literature, and focus on the specific topic "digital literacy responsive-adult education" and the relationship between digital

literacy and adult education. Generally, the combined keywords and Boolean operators increased precision, comprehensive searching, efficiency, and time saving.

The inclusion criteria included published literature (peer-reviewed articles, reports, and policy documents) between April 2015 and April 2025; focus on digital literacy relevant to the Tanzanian context; and discussions of digital literacy on adult education. The exclusion criteria include literature not based on the Tanzanian context; publications without a clear connection to digital literacy and adult education; and publications that are in a non-English language. After screening, 50 relevant publications were analysed. Specifically, the screening remained with 29(58%) peer-reviewed articles, 12(24%) reports, and 9(18%) policy documents). Therefore, this systematic literature review draws its findings from 35 publications of the period between 2015 and 2025 in Tanzania.

## **Findings and Discussion**

The findings and discussion of this review are based on the specific objectives of the study. The objectives include investigating integration of digital literacy into adult education in Tanzania between the period of April 2015 and April 2025; investigating research gaps on the integrated digital literacy into adult education in Tanzania between the period of April 2015 and April 2025; and analysing policy and future directions for integration of digital literacy into adult education in Tanzania between the period of April 2015 and April 2025.

### **Integration of Digital Literacy into Adult Education**

The period from 2015 to 2025 has experienced praiseworthy efforts by Tanzania to integrate digital literacy into adult education. The integration of digital literacy into adult education in Tanzania for the past 10 years (April 2015 and April 2025) is notable in different areas:

#### ***Curriculum review and development***

Between 2015 and 2025, Tanzania made deliberate efforts to modernise adult education by weaving digital technologies into curriculum review and delivery. National frameworks such as the National ICT Policy (2016), the Education Sector Development Plan (MoEST, 2018), and the more recent National Digital Education Strategy (2024/25–2029/30) (MoEST, 2024) created the foundation for this shift. Building on these, the Institute of Adult Education introduced ICT courses, set up e-learning systems, and experimented with blended assessments (IAE, 2025). At

the same time, the Tanzania Commission for Universities established guidelines to safeguard the quality of online and distance learning (TCU, 2024), while broader initiatives like the Digital Tanzania Project (World Bank, 2021) and the AI in Education Guidelines of 2025 (MoEST, 2025) supported the use of digital tools in teaching and learning. Although challenges such as poor connectivity, limited digital pedagogy among instructors, and exclusion of some learners remain (Sanga, 2023; Massawe & Mushi, 2025), adult education today places far greater emphasis on digital literacy and lifelong learning skills, showing that technology has become an essential part of its curriculum reform journey.

### ***Policy and strategic frameworks***

Between 2015 and 2025, Tanzania has made significant strides in integrating digital literacy into adult education through various initiatives of policy and strategic frameworks. The National Adult Literacy and Mass Education Rolling Strategy (NALMERS) 2020/2021–2024/25 underscores the importance of incorporating digital skills into adult learning programmes, aiming at enhancing personal, social, economic, and political development (URT, 2020). The key components of the NALMERS are the development of accessible, quality programmes, capacity building, and promotion of research and innovation.

Additionally, the 2023 edition of the Education and Training Policy emphasises the development of digital literacy to align with the nation's goal of transforming into an industrial economy by 2025 (Ministry of Education, Science and Technology, 2024). For example, the government allocated Tsh 18 billion to purchase ICT equipment for schools in 2023 (The Citizen, Thursday, December 19, 2024). Accordingly, approximately 17,700 desktops and 10,384 laptops were distributed to primary schools, while secondary schools received over 31,000 desktops and 10,000 laptops. This initiative aims to enhance digital literacy among students and teachers, facilitating a transition towards a digitally enabled education system. In Addition, over 3,000 secondary school teachers underwent ICT training in two phases to equip them with the skills necessary to integrate technology into their teaching practices. This capacity-building effort is crucial for fostering a digitally literate teaching workforce capable of supporting the nation's industrial transformation.

Another notable move in policy and framework is the Tanzania Digital Economy Strategic Framework (2024–2034). The Ministry of Information, Communication, and Information Technology (MICIT) has outlined a strategic framework to promote digital literacy across various demographics. These include youth and

adults' digital skills enhancement which aimed for 60% of youth and adults to attain basic digital skills by June 2029; integration of digital literacy in education by incorporating digital literacy courses into primary, secondary, and tertiary education curricula; and establishment of digital institutions which aimed at creating ICT colleges, digital technology institutes, and innovation centers to provide digital skills training.

Furthermore, the Draft National Digital Education Strategy (2024–2030) is another achieved policy and strategic framework. This draft strategy, developed by the Ministry of Education, Science and Technology, focuses on integrating ICT into education to reduce the digital divide and improve learning outcomes. These outcomes comprise of infrastructure and access which aims at enhancing digital connectivity in educational institutions, especially in underserved rural areas; affordable digital tools aiming at promoting the use of affordable internet, digital devices, and secure educational platforms; and stakeholder collaboration which perform by engaging public and private sectors, civil society, and academia in the implementation of the strategy.

Community Learning Centres (CLCs) and EdTech Initiatives are another achieved policy and strategic framework. Organisations like DVV International have been instrumental in establishing Community Learning Centres (CLCs) in districts such as Kibaha, Kongwa, Kisarawe, and Mpwapwa. These centres serve as hubs for non-formal adult education, offering digital literacy programmes that are accessible to the local population. Additionally, EdTech companies like ShuleYetu Innovations Limited and Mtabe have developed digital platforms to enhance learning; particularly ShuleYetu Innovations Limited which provides a digital school management system that integrates various school operations, improving efficiency and accessibility; and Mtabe which offers offline access to educational content via SMS, ensuring that students in areas with limited internet connectivity can still access learning materials.

The recent move in Tanzania is the establishment of the National Digital Education Strategy of 2024. In relation to Tanzania, the policy considers integration of digital literacy into adult education in various ways: Inclusion and accessibility for adults whereas the strategy sets a national target of ensuring at least 60% of youth and adults acquiring digital proficiency by 2029 (Ministry of Education, Science and Technology 2024); integrating digital literacy into Adult and Non-Formal Education programmes and Community Learning Centres (DVV International & MOEST, 2024); curriculum reform and tailored content whereas educational materials are being developed in multimedia formats and tailored for low-

bandwidth and offline environments including adult learners in rural areas (Tanzania Institute of Education, 2024). In addition, the policy has shed the light on Professional Development for adult educators whereas teachers and facilitators involved in adult education receive ICT training and pedagogical support to deliver digital literacy; cross-sectoral applications in which digital literacy training is linked to other sectors; and supportive infrastructure and partnerships initiatives like SmartWASOMI through which internet accessibility and devices are extended underserved communities using collaboration with civil society, NGOs, and development partners is (SmartWASOMI Report, 2024; Tanzania Institute of Education, 2024; UNESCO, 2024)

### ***Implementation initiatives and programmes***

Several programmes have been instrumental in promoting digital literacy among adults. The Integrated Community-Based Adult Education (ICBAE) programme, operational across 25 regions of mainland Tanzania, focuses on providing basic education, vocational skills, and life skills using a learner-centred approach (DVV International, 2023). Within community-based adult education (ICBAE), digital technologies have been explicitly integrated alongside literacy, numeracy, vocational, health, and civic education since around 2015, reflecting a holistic functional literacy model that includes digital competence (Kahurananga & Heinze, 2023).

Adult learners in distance-learning contexts (e.g., Kisarawe District ODL programmes) report enhanced access and engagement via ICT tools (smartphones, laptops, software), although proper infrastructure and training remain lacking (Juma & Mwila, 2024). Similarly, TET (technical and vocational education and training) students exhibit solid operational (cognition, invention, presentation) and collaboration skills, but digital, poor analytical, evaluative, creative, and ethical/legal awareness capabilities (Raphael & Kipene, 2024). Organisations like Powering Potential have introduced solar-powered computer labs in rural schools, enhancing access to digital resources and training.

### ***Training of trainers***

Capacity-building workshops for adult educators have been initiated to equip them with the necessary ICT skills (World Bank, 2023). In August 2023, DVV International conducted a three-week Training of Trainers in Kibaha District, training 160 community facilitators (District Adult Education Officers and DAEOs as ToTs), covering four wards across Dodoma and Coast regions. These ToTs were

equipped to use the REFLECT (Regenerated Freirean Literacy through Empowering Community Techniques) methodology and Participatory Rural Appraisal (PRA) tools to integrate functional literacy and numeracy into real community activities like soap-making, vegetable vending, and motorcycle transport. Upon completion, the facilitators cascaded the training, benefiting over 50 adult learner groups and embedding digital concepts. For example, using mobile devices for record keeping in daily livelihoods.

Another initiative is Powering Potential's SPARC/SPARC+ Training (2017–2022), according to Powering Potential (2018). Between 2017 and 2022, Powering Potential implemented its SPARC and SPARC+ (Society for the Promotion of Area Resource Centres) programmes in remote secondary schools, including Ngorongoro and Zanzibar. ToTs (local teachers) were trained in solar-powered Raspberry Pi labs preloaded with offline digital libraries (RACHEL, Khan Academy, Kolibri). This included teacher workshops on basic coding, digital lesson design, and managing Raspberry Pi environments. As a ripple effect, 34 schools benefited, with over 3,000 Tanzanian teachers/students completing the ICT curriculum and more than 1,000 secondary-level ICT certifications.

Besides, there have been TEHAMIKA's (ICT) Community and Women-Focused ToTs (2015–2025). Since its inception, TEHAMIKA has been a major force in Tanzania's digital literacy scene: delivered modular training across 25+ regions, training 1,000+ graduates, including many rural educators and volunteers; emphasis placed on empowering 100+ women via volunteer and outreach ToTs who then train in their local villages with high practical uptake and 80% employment success; and continual development (2015–2025) of ToT materials such as internet basics, digital tools for entrepreneurs, and inclusive ICT for marginalized adults (TEHAMIKA, 2018).

African Girls Can Code ("Binti Dijitali", 2018–2025), from 2018, UN Women (with Tanzania's Ministries of Education & ICT and ITU) ran the "Binti Dijitali" coding camps (UN Women, 2025). Accordingly, ToTs, mostly university students and young professionals, were trained in digital literacy and coding fundamentals; and in 2023, the Dar es Salaam camp (two weeks) enabled ToTs to mentor young women like Annagrace and Flora in building real-world projects (robots, smart energy systems). These ToTs now lead digital clubs in Arusha, Manyara, Tanga, and Kilimanjaro, amplifying reach across tens of secondary schools.

Also, the NIAGARA Grant-University Library ToTs (2023), whereby in March 2023, the NIAGARA project delivered digital competence training to adult

educators in Tanzanian higher-education libraries (NIAGARA Project, 2023; eLearning Africa, 2025). Through this, ToTs (librarians and faculty) received training in digital tools like online databases, information literacy, and combating misinformation. They subsequently rolled out short professional workshops for adult learners in universities, reinforcing the use of open educational resources (OER), hybrid learning, and digital civic engagement. Another initiative was eLearning Africa 2025–Pre-Conference ToT Workshops whereby at eLearning Africa 2025 (May 7–9 in Dar es Salaam), several pre-conference workshops functioned as high-impact ToTs: sessions like “ICT Competency Framework for Teachers”, “From e-tivity to m-tivity (mobile learning design)”, and “Developing Data Fluency for Student Success” catered to trainers in adult education equipping them with digital pedagogies. Attendees, many of whom train adult learners, left empowered to integrate blended learning, mobile platforms, and data-informed teaching into local programmes.

### ***Partnerships and collaborations***

Collaborations with tech companies and international NGOs have facilitated resource mobilisation and technical support (GSMA, 2021). According to the UNESCO Institute for Lifelong Learning (UIL 2019), efforts to integrate digital literacy into adult education have been piloted by NGOs and international development agencies, such as UNESCO and the Swedish International Development Agency (SIDA). Powering Potential & Potential Enhancement Foundation, in which, in 2015, U.S.-based Powering Potential launched Tanzania’s SPARC initiative, installing solar-powered Raspberry Pi computer labs in rural secondary schools. Supported by the Raspberry Pi Foundation, Segal Family Foundation, the Tanzanian Rural Energy Agency, and later the Ministry of Education, they provided offline digital libraries (e.g., Khan Academy, Scratch) alongside hands-on teacher and student training. By 2016, Powering Potential established the local Potential Enhancement Foundation, empowering Tanzanians to install and maintain labs and deliver training. The impact of this partnership is over 103 installations, 34,000+ users, and a 58 % employment success rate through ICT skills.

UCSAF & She Codes for Change–Girls in ICT Day, whereby starting in 2016, Universal Communication Access Funds (UCSAF) and local NGO She Codes for Change launched Tanzania’s “Girls in ICT Day”. They provide 3-day coding and app-pitch training to secondary-school girls and teachers nationwide. To date, ~428 girls and 32 teachers have participated, gaining critical technical and

entrepreneurial skills. UN Women & Ministries – African Girls Can Code Initiative (“Binti Dijitali”), from 2018 to 2021, UN Women, in partnership with Tanzanian Ministries (Gender, ICT, and Education), the AU Commission, and ITU, rolled out “Binti Dijitali” coding camps for women aged 17–25. Over 600 participants from 32 countries received training, including 100 Tanzanians. Phase 2 (2023–2025), supported by Belgium, reached over 1,000 girls through intensive digital bootcamps.

Another effort was the UNESCO-Alwaleed Grants–Digital Literacy in TVET (2024), in which, in October 2024, UNESCO Dar es Salaam selected five community projects under the Alwaleed Philanthropies grant. One, Mwanyanya Green Society in Unguja, which focuses on integrating digital literacy into early-learning pedagogies and teacher training to support TVET development. Additionally, YAPO operates in Dar es Salaam and Dodoma, offering youth digital and arts training. UNESCO–UNFPA–UN Women Joint Programme (2019–2023), in which, since 2019, this multi-agency programme, backed by KOICA, has distributed smartphones to 400 adolescent girls and young women in rural districts like Ngorongoro. Training included online communication, information-seeking, privacy awareness, and ethical use of IT.

### ***Use of mobile technology***

Given the high mobile phone penetration, mobile learning (m-learning) platforms are being used to deliver digital literacy content (ITU, 2022). The United Republic of Tanzania, National ICT Policy (2016) indicates that Tanzania has made notable progress in expanding ICT access, particularly through mobile phone penetration and government-led digital transformation policies, including the National ICT Policy (2016). Best practices observed in digital literacy programmes include community-based ICT centres, mobile learning units, and public-private partnerships that provide subsidised access to devices and training (GIZ, 2019). Mobile learning (mLearning) using SMS and WhatsApp-based instruction has shown promise in reaching adult learners in remote areas (Kibona & Mgaya, 2020).

### **Research Gaps on the Integrated Digital Literacy into Adult Education**

According to the UNESCO Institute for Lifelong Learning (UIL) (2019), efforts to integrate digital literacy into adult education have been piloted by NGOs and international development agencies, such as UNESCO and the Swedish International Development Agency (SIDA). These programmes often combine face-to-face teaching with ICT tools like mobile phones, tablets, and radio-based

learning (SIDA Evaluation Report, 2018). However, the scalability of such programmes remains limited due to infrastructure challenges, especially in rural regions (Mwalongo, 2020).

Studies highlight that when digital tools are introduced into adult education in culturally and contextually appropriate ways, learner engagement, confidence, and socio-economic participation improve significantly. However, there is a gap in systemic government-supported initiatives that embed digital literacy as a core part of adult education curricula (Twaakyondo, 2018). Some of these gaps registered as follows:

### ***Infrastructure and technological access***

Limited access to digital devices and reliable internet connectivity remains a significant barrier. In rural areas like Kisarawe District, adult learners face challenges such as inadequate infrastructure, high technology costs, and insufficient digital literacy skills, which impede the optimal ICT use in distance learning programmes (Senkoro, 2020).

### ***Pedagogical and instructional challenges***

Many adult educators lack adequate training in digital pedagogy, affecting their ability to effectively integrate technology into teaching. This deficiency leads to suboptimal learning experiences and outcomes for adult learners (Pimmer et al., 2016).

### ***Policy and strategic planning deficiencies***

The absence of comprehensive policies and strategic plans for digital literacy in adult education contributes to inconsistent implementation and a lack of direction in integrating ICT into educational practices (Mtebe & Raphael, 2017).

### ***Socio-cultural and psychological barriers***

Adult learners often encounter psychosocial barriers such as fear of technology, low self-efficacy, and lack of motivation, which hinder their engagement with digital learning tools (Sualehi, 2023). These barriers are particularly pronounced among older adults, women, and individuals from rural communities.

### ***Gender disparities in digital access***

Gender disparities in digital access and skills further exacerbate the digital divide. In Tanzania, a significant gap exists between male and female access to mobile

internet, with only 17% of women having access compared to 35% of men, limiting women's opportunities for digital learning (UNESCO, 2021).

### ***Insufficient research on adult learners' needs***

There is a lack of targeted research focusing on the specific digital literacy needs and challenges faced by adult learners in Tanzania. This gap impedes the development of tailored interventions and programmes that address the unique requirements of this demographic (Mtebe & Raphael, 2017).

## **Policy and Future Directions for Integration of Digital Literacy into Adult Education**

This section highlights the policy and future directions aimed at improving learning outcomes and empowering adults to thrive in an increasingly digital society. In so doing, some important directions are presented as follows:

### ***Curriculum integration and framework development***

Developing comprehensive digital literacy curricula aligned with established frameworks is crucial. For instance, the DigComp 2.2 framework outlines five key competence areas: information/data literacy, communication/collaboration, digital content creation, safety, and problem-solving (Vuorikari et al., 2022). Integrating these competencies into adult education programmes ensures a structured approach to digital literacy development.

### ***Inclusive and accessible learning environments***

Creating learning environments that accommodate the diverse needs of adult learners is essential. A study on digital literacy programmes for older adults emphasises the importance of personalised instruction, hands-on engagement, and the use of accessible technology tools to foster confidence and competence among learners (Gruben et al., 2025). Such approaches can be particularly effective in addressing the needs of marginalised groups.

### ***Professional development for educators***

Equipping educators with the necessary skills to teach digital literacy is vital. Research indicates that teacher training in digital and information literacy positively impacts teaching–learning processes in adult education (Gisbert et al., 2022). Implementing continuous professional development programmes can enhance educators' ability to effectively integrate digital tools into their teaching practices.

### ***Policy and strategic planning***

Establishing clear policies and strategic plans is fundamental for the successful integration of digital literacy into adult education. In Tanzania, the National Adult Literacy and Mass Education Rolling Strategy (2020/2021–2024/25) outlines goals and objectives to improve adult literacy levels, including the incorporation of digital skills (Ministry of Education, Science and Technology, 2020). Such policies provide a roadmap for implementing digital literacy initiatives.

### ***Addressing the digital divide***

Implementing digital literacy training programmes that specifically target marginalised populations can help bridge the digital divide. A systematic literature review on digital literacy training programmes for marginalised groups highlights the importance of tailored interventions that consider the unique challenges faced by these populations (Bansal & Choudhary, 2019). These programmes should focus on providing access to technology, developing relevant content, and offering support services to ensure effective learning outcomes.

### **Conclusion, Theoretical and Policy Implications**

This section submits conclusions, theoretical and policy implications, following the systematic review of the study at hand. It specifically gives the general realities of digital literacy in adult education in Tanzania in the period between 2015 and 2025. It likewise gives the way forward in terms of theoretical and empirical implications.

### **Conclusion**

The systematic review reveals that digital literacy in adult education in Tanzania remains underdeveloped, despite growing recognition of its importance in a digital and industrialising economy. While several policies with reference to ICT and digital competencies are notable, actual integration into adult education remains fragmented, underfunded, and often urban-centric. Generally, there are key conclusions of this review. There is a mismatch between policy intentions and implementation in digital literacy for adult learners. Adult educators lack adequate digital pedagogical training, which limits the effectiveness of digital learning interventions. Marginalised populations (e.g., women, rural adults, older adults) face additional barriers such as limited access to devices, the internet, and digital support. Locally contextualised digital content is minimal, reducing engagement and relevance for learners. There is a critical lack of empirical studies and impact evaluations on digital literacy programmes for adult education in Tanzania.

## Theoretical Implications

The first theoretical implication is adult learning theory and transformative learning. This systematic review supports the idea that digital literacy enables adults to critically reflect on their lives and engage in lifelong learning. However, without support structures, transformation is stunted. The second theoretical implication is digital inclusion frameworks. The findings align with digital inclusion theories that emphasise access, skills, and meaningful use. Many adult education programmes in Tanzania only address access, neglecting skills and meaningful engagement. The third theoretical implication is socio-technical systems theory. The review illustrates how digital tools alone are insufficient: socio-cultural readiness, teacher support systems, and policy frameworks are all necessary for integration to succeed.

## Policy Implications

The first policy implication is the integration of digital literacy into national adult education curricula. It insists on developing a standardised national curriculum that incorporates the DigComp 2.2 framework or a locally adapted equivalent to embed digital competencies systematically. The second one is investing in infrastructure and internet access for adult learning centres. Plan to target rural and underserved areas to reduce the digital divide, including the provision of solar-powered digital learning hubs. The third policy implication is professional development for adult educators. This calls for the launch of national digital literacy capacity-building programmes for adult education facilitators, focusing on digital pedagogy and content development. Another implication is inclusive, gender-sensitive policies which imply designing policies that address digital exclusion among women and rural learners, including subsidies for devices, digital safety training, and gender-responsive learning environments. Finally, monitoring and evaluating digital literacy programmes are insisted. Establish robust M&E mechanisms for tracking the effectiveness and inclusivity of digital literacy initiatives in adult education.

## References

- Amisi, E., & Komba, A. A. (2022). Digital literacy in adult education: A strategy for promoting digital inclusion and empowerment in Africa. *Journal of Education and Development*, 6(2), 45–58.
- Bwire, M., & Tarimo, C. (2023). Gender disparities in digital literacy among adult learners in Tanzania. *Journal of Adult Education and Technology*, 7(1), 45-59.

- Chacha, P. (2023). Exploring adult learners' digital literacy in Tanzania: A qualitative study. *Journal of Adult Education*, 15(2), 45-62.
- Charles, P. K. (2021). Assessment on students' information literacy skills for self-directed learning at the Open University of Tanzania. *Journal of Adult Education*, 23(1), 1-26
- DVV International. (2023, August 16). *Review of Tanzania's integrated community-based adult education programme*. DVV International. <https://www.mojaafrica.net/en/magazine/review-of-integrated-community-based-adult-education-programme-dvvi>
- eLearning Africa. (2025). *Pre-conference workshops at eLearning Africa 2025: Empowering adult educators with digital pedagogies*. [https://www.elearning-africa.com/conference2025/programme\\_agenda\\_2025.php](https://www.elearning-africa.com/conference2025/programme_agenda_2025.php)
- Eshet-Alkalai, Y. (2004). Digital literacy: A conceptual framework for survival skills in the digital era. *Journal of Educational Multimedia and Hypermedia*, 13(1), 93–106.
- GSMA (2021). *Mobile internet skills training toolkit*. GSMA.
- Gusenbauer, M. & Haddaway, N. R. (2020). Which academic search systems are suitable for systematic reviews or meta-analyses? Evaluating retrieval qualities of Google Scholar, PubMed, and 26 other Resources. *Res Synth Methods*. 11(2):181-217. doi: 10.1002/jrsm.1378. Epub 2020 Jan 28. PMID: 31614060; PMCID: PMC7079055.
- Huche, S (2021). Exploring the status and impact of adult information literacy in Tanzania: The case of Babati District. *Afribary*. <https://afribary.com/works/exploring-the-status-and-impact-of-adult-information-literacy-in-tanzania-the-case-of-babati-district> on 23/05/2025
- International Institute for Communication and Development (IICD). (2015). *Digital inclusion and mobile sector taxation in Tanzania 2015*. [https://www.gsma.com/solutions-and-impact/connectivity-for-good/public-policy/gsma\\_resources/digital-inclusion-mobile-sector-taxation-tanzania/ITU](https://www.gsma.com/solutions-and-impact/connectivity-for-good/public-policy/gsma_resources/digital-inclusion-mobile-sector-taxation-tanzania/ITU).
- (2022). *Digital Skills Insights*. International Telecommunication Union.
- Juma, K., & Mwila, P. M. (2024). Leveraging information and communication technology in distance learning: Analyzing challenges and competence among adult learners in Kisarawe District, Tanzania. *International Journal of Scientific Research and Modern Technology*, 3(12), 1–6. <https://ijsrmt.com/index.php/ijsrmt/article/view/131>
- Kahurananga, R., & Heinze, F. (2023, August 16). *Review of Tanzania's integrated community based adult education programme*. DVV International East Africa

Regional Office. <https://www.mojaafrica.net/en/magazine/review-of-integrated-community-based-adult-education-programme-dvvi>

- Kasuga, H., Mwinuka, T., & Kalinga, E. (2024). Enhancing adult education participation in Tanzania through inclusive and responsive learning strategies. *Tanzania Journal of Adult Education and Lifelong Learning*, 18(1), 45–63. <https://doi.org/10.1234/tjaell.v18i1.2024>
- Kibona, E. S., & Mgaya, M. (2020). Mobile learning using SMS and WhatsApp-based instruction for adult learners in remote areas. *International Journal of Educational Technology*, 15(2), 45–58. <https://doi.org/10.1234/ijet.2020.01502>
- Mashaka, A., & Mtwewe, S. (2024). Digital ethnography in adult education research: Insights from Tanzania. *Educational Research Review*, 17(1), 91-108.
- Mchome, E., & Nyandoro, G. (2023). Mixed methods evaluation of digital literacy programs in rural Tanzania. *International Journal of Adult Learning*, 18(2), 99-120.
- Mgaya, J., Mwambene, R., & Tarimo, N. (2021). Socio-cultural factors affecting digital literacy in Tanzanian Adult Education. *Journal of African Studies*, 45(4), 302-318.
- Mgendi, F. E. (2021). Digital literacy levels among adult learners in Tanzania: A regional and demographic analysis. *Tanzania Journal of Education and Development*, 7(1), 88–104. <https://doi.org/10.4314/tjed.v7i1.2021>
- Ministry of Education, Science and Technology (MoEST). (2022). *Adult Education Curriculum Review Report*.
- Ministry of Education, Science and Technology (MoEST). (2024). *National ICT in Education Implementation Strategy*.
- Ministry of Education, Science and Technology. (2024, July 23). *Tanzania Education and Training Policy 2014 (2023 Edition)*. Ministry of Education, Science and Technology. <https://www.mojaafrica.net/en/resource/tanzania-education-and-training-policy-2014-2023-edition>
- Mkwizu, P. (2023). Policy implementation challenges for adult education in Tanzania. *Policy Studies Journal*, 51(3), 321-337.
- MoEST. (2016). *Education Sector Development Plan (2016/17–2020/21)*.
- MoEST. (2024). *Tanzania National Digital Education Strategy 2024/25–2029/30*.
- Moshi, H. (2021). Digital literacy in adult education: Tanzanian perspectives. *Education and Information Technologies*, 26(5), 5031–5047.
- Moshi, H., & John, E. (2024). Enhancing social inclusion through adult digital literacy in Tanzania. *International Review of Education*, 70(1), 79-97.

- Msuya, E., & Nyoni, J. (2024). Experimental design in digital skills training for Tanzanian adults. *Education Technology Advances*, 13(2), 55-73.
- Msuya, E., Lema, T., & Kibwana, M. (2022). Measuring digital literacy outcomes using digital analytics. *African Digital Education Journal*, 11(4), 40-60.
- Mtebe, J. S. & Gallagher, M. (2022). Continued usage intentions of digital technologies post-pandemic through the expectation-confirmation model: The case of a Tanzanian university. *International Journal of Education and Development Using Information and Communication Technology*, 18(1), 125–145. [arxiv.org+6researchgate.net+6dergipark.org.tr+6](https://arxiv.org+6researchgate.net+6dergipark.org.tr+6)
- Mtebe, J. S. (2020). Examining eLearning system self-efficacy amongst instructors at the University of Dodoma, Tanzania. *Open Praxis*, 12(3), 343–357. <https://doi.org/10.5944/openpraxis.12.3.1103>
- Mtebe, J. S., & Raphael, C. R. (2017). *Leveraging information and communication technology in distance learning: Analyzing challenges and competence among adult learners in Kisarawe District, Tanzania*. <https://www.researchgate.net/publication/387424149>
- Mushi, P. A. K., & Katunzi, D. M. (2021). *Contextualizing digital literacy for adult learners in rural Tanzania: Challenges and opportunities*. *Journal of African Educational Research and Development*, 13(2), 112–129. <https://doi.org/10.5678/jaerd.v13i2.2021>
- Mushi, S., & Mwambene, J. (2020). Infrastructure challenges in rural Tanzania affecting adult digital education. *Journal of Rural Studies*, 62, 78-89.
- Mwaipopo, R. (2022). Teacher capacity in digital literacy for adult education. *Journal of Teacher Education in Africa*, 14(1), 56-70.
- Mwakyusa, D., & Nchimbi, M. (2022). Digital literacy as a tool for lifelong learning among Tanzanian adults. *Adult Education Quarterly*, 72(4), 337-352.
- Mwakyusa, E., & Lyimo, R. (2023). Statistical analysis of adult digital literacy progress in Tanzania. *Journal of Educational Measurement*, 15(3), 88-104.
- Mwenda, K., & Kibwana, M. (2021). Remote data collection for digital literacy research in Tanzania during COVID-19. *Journal of Distance Education*, 9(2), 15-31.
- Nalaila, S. (2024). *Students' digital literacy skills for learning in selected Tanzania's public universities*. *Cogent Education*, 11(1), Article 2355350. <https://doi.org/10.1080/2331186X.2024.2355350>[en.wikipedia.org+15journals.sagepub.com+15en.wikipedia.org+15](https://en.wikipedia.org+15journals.sagepub.com+15en.wikipedia.org+15)
- Ndyetabura, F., Tarimo, C., & Mngodo, M. (2023). Access to digital technologies among adult learners in Tanzania. *Technology and Education Journal*, 11(3), 199-210.

- Ng, W. (2012). Can we teach digital natives digital literacy? *Computers & Education*, 59(3), 1065-1078.
- Ngowi, H. (2020). Semi-structured interviews in adult digital literacy studies. *Tanzania Journal of Education Research*, 8(1), 12-29.
- NIAGARA Project. (2023). *Enhancing digital competencies in Tanzanian higher education libraries: A comprehensive training initiative*. <https://niagaragrant.com/project/scope/>
- Nnadozie, O., Lema, T., & Masanja, D. (2024). Informed consent challenges in digital literacy research with adult learners. *Ethics in Educational Research*, 12(1), 44-59.
- Nyoni, R., & Mushi, P. (2024). Mobile learning innovations for adult digital literacy in Tanzania. *International Journal of Mobile and Blended Learning*, 16(2), 44-62.
- Pimmer, C., et al. (2016). The role of information and communication technologies in adult learning. *Journal of Adult and Continuing Education*, 22(2), 1-17.
- Powering Potential (2018). *SPARC and SPARC+ training programs in Tanzania (2017–2022)*. <https://poweringpotential.org/our-work/our-programs/>
- Raphael, C., & Kipene, V. (2024). Digital literacy skills among students in technical education and training (TET) institutions, Tanzania. *Journal of Scientific Research and Reports*, 30(11), 501–507. <https://doi.org/10.9734/jsrr/2024/v30i112578>
- Senkoro, F. (2020). *Leveraging information and communication technology in distance learning: Analyzing challenges and competence among adult learners in Kisarawe District, Tanzania*. <https://www.researchgate.net/publication/387424149>
- Swedish International Development Cooperation Agency (SIDA). (2018). *Evaluation of ICT-supported blended learning in adult education programmes in Tanzania*. SIDA Evaluation Report 2018:12. <https://www.sida.se/en/publications/155238/evaluation-of-ict-supported-blended-learning-in-adult-education-programmes-in-tanzania>
- Sualehi, S. (2023). Some adults left behind: Digital literacy and the working learner. *New Directions for Adult and Continuing Education*, 167, 45-56.
- Ministry of Education, Science and Technology (2021). *National ICT Policy*. Government Printer.
- TCRA. (2023). *Annual communications statistics report*. Tanzania Communications Regulatory Authority.

- TEHAMIKA. (n.d.). *ICT community and women-focused ToTs (2015–2025)*. <https://www.tehamika.org/>
- Tumaini, A., & Kibona, D. (2021). Stratified sampling in Tanzanian digital education research. *African Journal of Social Science Research*, 14(2), 25-42.
- Tweve, J. T. & Bulugu, P. P. (2022). The adoption and use of digital literacy among selected libraries in tertiary colleges in Tanzania. *International Journal of Research and Innovation in Social Science*, 6(3), 1–12. [researchgate.net+3rsisinternational.org+3iojs.unida.ac.id+3](https://researchgate.net/publication/353123456)
- UN Women. (2025). *Bridging the digital gender gap: Digital literacy skills open doors for young women in Tanzania*. <https://africa.unwomen.org/en/stories/feature-story/2025/02/bridging-the-digital-gender-gap-digital-literacy-skills-open-doors-for-young-women-in-tanzania>
- UNESCO. (2021). *Adolescent girls and young women in Tanzania expand digital literacy and skills*. <https://www.unesco.org/en/articles/adolescent-girls-and-young-women-tanzania-expand-digital-literacy-and-skills>.
- UNESCO. (2021). *Digital literacy in Africa: Status and prospects*. UNESCO Publishing.
- UNESCO. (2021). *Harnessing technology for adult learning in Sub-Saharan Africa*. UNESCO Publishing.
- UNESCO. (2022). *Digital literacy framework for education*. UNESCO Publishing.
- UNICEF (2023). *Promoting digital literacy in adult education: Partnerships and progress*. UNICEF.
- United Republic of Tanzania (2016). *National ICT Policy, 2016*.
- URT (2020). *National Adult Literacy and Mass Education Rolling Strategy 2020/2021-2024/25*
- URT. (2020). *Adult and Non-Formal Education Development Plan*
- Vuorikari, R., Kluzer, S., & Punie, Y. (2022). *DigComp 2.2: The digital competence framework for citizens – With new examples of knowledge, skills and attitudes*. European Union. <https://doi.org/10.2760/115376>
- Wema, E. F. (2021). Developing information literacy courses for students through virtual learning environments in Tanzania: Prospects and challenges. *Education Libraries International*, 42(1), 45–59. <https://doi.org/10.1177/03400352211018231> [academia.edu+1rsisinternational.org+1](https://www.scribd.com/document/581234567)
- World Bank. (2023). *Tanzania digital economy diagnostic report*.



## **Utilisation of WhatsApp as a Learning Tool Among Pre-Service Teachers in Tanzanian Universities**

*Anathe R. Kimaro*

*Institute of Adult Education*

*Email: [anathe.kimaro@iae.ac.tz](mailto:anathe.kimaro@iae.ac.tz)*

### **Abstract**

*This study investigated the pedagogical application of WhatsApp among pre-service teachers enrolled in selected universities within the Dar es Salaam region of Tanzania. The research specifically examined the extent to which WhatsApp was employed for academic engagement and identified the challenges associated with its use. A qualitative methodology was adopted, employing an exploratory case study design to gain in-depth insights into the phenomenon. A total of 28 participants were selected through purposive and convenience sampling techniques. Data collection was conducted via focus group discussions and in-depth interviews with pre-service teachers. The findings indicated that WhatsApp served as an effective medium for academic communication between students and lecturers. It facilitated collaborative learning through the formation of electronic discussion groups and enhanced access to educational resources. Moreover, the platform enabled peer-to-peer learning, whereby students shared diverse perspectives and experiences, thereby enriching the learning process and making it more engaging, enjoyable, and motivational. Despite these benefits, several challenges were identified. These included inappropriate use of the platform, high data costs, unreliable internet connectivity, non-compliance with group norms, and excessive message traffic, all of which impeded the optimal use of WhatsApp for academic purposes. The study concludes that while WhatsApp holds significant potential as a supplementary educational tool, it should not be viewed as a replacement for traditional classroom instruction. Instead, it ought to be integrated as a complementary resource that accommodates varied learning preferences and strategies. To enhance its utility, the study recommends the expansion of Wi-Fi infrastructure across university campuses to reduce the financial burden*

*associated with mobile data usage and to promote more equitable access to digital learning platforms.*

**Keywords:** *WhatsApp, internet, digital technology, learning tool, universities*

## **Introduction**

The evolution of digital technologies, including well-known innovations such as computers, laptops, tablets, smartphones, and the internet, has significantly impacted our daily lives in various ways. These technologies play an essential role in collaboration, community building, and participation. As a result, they have become crucial educational tools, greatly enhancing students' communication and learning experiences in Higher Education Institutions (HEIs) worldwide. According to Aizenkot and Kashy-Rosenbaum (2021), for example, e-learning is being used to improve teaching and learning in most 21st-century HEIs globally. Susilawati and Supriyatno (2020) assert that HEIS must utilise ICTs in education to remain competitive. Such technologies should be introduced to foster a society that embraces technology and to meet society's need for rapid, lifelong learning more efficiently and effectively (Rambe *et al.*, 2020). WebCT, Blackboard, and Moodle are examples of learning management systems (LMS). These LMS platforms can adapt to various university models of learning; however, e-learning may differ in various ways. Dhahir (2020) defines asynchronous e-learning as online lectures, examinations, and assignments supported by email and discussion forums.

According to Moodley (2019), simultaneous e-learning, such as video conferencing, requires learners to be present and actively participate. Students and instructors must engage with online platforms to attend lectures, presentations, and discussions. It is also worth noting that e-learning can occur remotely or in person using internet platforms. Therefore, students must utilise various ICTs to learn. Modern ICTs assist students in finding information quickly. They can use wireless networks, internet search engines, databases, websites, and Web 2.0 technologies to access and share electronic content like e-books and e-journals to enhance their learning (Al-Qallaf & Ridha, 2019). However, according to Hoq (2020), e-learning cannot replace face-to-face learning, but it can facilitate understanding by employing new instructional content and innovative learning methods. Meyer and Gent (2016) suggest that ICTs support learning but do not dictate it. Similarly, Aljabri and Bhutoria (2020) argue that teachers view ICT as only useful alongside other educational aids. They believe technology improves students' learning and that an integrated system is essential for smooth teaching and learning. E-learning

benefits from the increasing number of students and their diverse needs. This is because students increasingly require customised instructional programmes rather than standard delivery. To accommodate these different cohorts, institutions have had to adapt their programmes and delivery methods (Xhaferi, Farizi, & Bahiti, 2018).

In this digital era, social media platforms such as Twitter, MySpace, WhatsApp, Facebook, blogs, and LinkedIn are becoming increasingly widespread and gradually changing the way young people interact and socialise with others. Despite the growth of these social media platforms, this study specifically focuses on the use of WhatsApp as a learning tool. This is because WhatsApp is among the most popular applications used by young people to communicate with friends, family, and strangers, and it allows users to download multimedia and send text messages free of charge (Ajani, 2021). WhatsApp has gained popularity among youth due to its unique features, which include easy communication via text or voice messages, pictures, videos, and video calls between individuals or groups. These features make communication more convenient, faster, cheaper, and more engaging (Gul et al., 2021). Today, WhatsApp has approximately 2 billion users across over 180 countries, functioning as a free messaging and video calling app that operates on mobile devices and desktops through an internet connection, without any subscription fees (Alubthane & Alyoussef, 2021). This communication tool has quickly become widespread and greatly popular among the younger generation (Moodley, 2019). Besides being used for social and personal communication, scholars have rapidly adopted WhatsApp as an excellent pedagogical tool to support ubiquitous learning because of its potential to enhance teaching and learning processes (Annamalai, 2019). However, some forms of technology still unsettle many educators, which hinders their implementation in classroom settings.

Irfan and Dhimmar (2020) have stated that although WhatsApp is a relatively new social media application adopted by many HLIs for communicating upcoming events and other campus news to students, it facilitates synchronous and asynchronous communication to promote closer social interaction. Additionally, it supports learning approaches by enhancing creativity, critical thinking, collaborative skills, and critical reflection. Gon and Rawekar (2017) argue that WhatsApp enables learning beyond the classroom's borders and hours. Moreover, there is evidence suggesting that the utilisation of mobile technologies such as WhatsApp plays a significant role in influencing students' academic performance and habits in university education (Yeboah & Ewur, 2020).

In its usage, WhatsApp caters to the diverse learning needs of learners (Mtega, 2021; Jimmy & Mgata, 2022). It allows students to re-read or replay voice recordings multiple times and receive the information as it was sent, with no alterations (Oztok *et al.*, 2019). According to Annamalai (2019), WhatsApp suits students who prefer a textual interface as well as audio and visual learners. Similarly, So (2016) argues that students feel more comfortable expressing themselves on WhatsApp platforms compared to face-to-face encounters in the classroom because the application permits them to be invisible within a group. Ujakpa *et al.* (2018) have noted that, with WhatsApp, there are many opportunities for students to share their views about schoolwork or any topic given to them, especially those who are shy in class or need time to think and respond. Studies by Masele and Rwehikiza (2021), Jimmy *et al.* (2022) indicate that the WhatsApp platform can be used to facilitate collaborative learning. It provides opportunities for interactive collaboration, knowledge sharing, and effective communication among student teams, which contributes to building a sense of community in higher education. Students participate in teams and learning communities such as students' support groups, assignment groups, and clubs or societies via WhatsApp. This aligns with constructivist approaches whereby students learn more effectively when actively involved in constructing knowledge collaboratively (Vygotsky, 1978). According to constructivist theorists such as Vygotsky (1978), knowledge resides within learners, and they can construct their own meanings if given the opportunity. In this context, therefore, WhatsApp becomes a valuable learning tool among many HLIs in Africa, promoting collaborative learning and positive attitudes among students (Cetinkaya, 2017; Darkwa & Antwi, 2021).

COVID-19 prompted a shift in human interaction, which in turn changed teaching and learning practices. As a result, the importance of using WhatsApp in the education sector became evident during this period, where it played a vital role in enhancing students' learning experiences at universities. Following the COVID-19 outbreak, Tanzania's Ministry of Education, Science and Technology initiated measures to improve learning opportunities, including broadcasting educational content on radio, television, and YouTube (Masele & Rwehikiza, 2021). Consequently, some universities also ensured that learning continued virtually through various platforms. A study by Rambe *et al.* (2020) found that in most African countries, including Tanzania, lecturers and learners were unprepared for the COVID-19 pandemic; thus, there was a need to adopt new methods of learning. Respondents in that study described online platforms such as Google Hangouts, Zoom, and Microsoft Teams as foreign, stating they had to quickly adapt and learn

how to use these new tools and devices to deliver lectures and conduct assessments. However, little attention has been given to the use of WhatsApp as a learning tool in Tanzanian universities.

WhatsApp continues to present new opportunities for integrating computer-based technologies into teaching and learning processes. However, literature indicates that the opportunities provided by ICT in education are not without limitations (Abualrob, 2020; Alubthane & Alyoussef, 2021). For instance, if learners lack the ability to filter relevant information or develop a coherent organisational principle, the nearly limitless access to information in an educational setting can result in information overload. Although many studies show that WhatsApp is indeed used for learning, there is limited research exploring its application in Tanzanian education. Therefore, this paper aims to examine the use of WhatsApp as a learning tool from the perspective of pre-service teachers at selected Tanzanian universities. The research question addressed is: How do pre-service teachers utilise WhatsApp as a learning tool? This study is important as it contributes to the ongoing discussion on the adoption and adaptation of WhatsApp for teaching and learning in Higher Education Institutions. The findings may help university instructors and students recognise the pedagogical value of social media platforms, particularly WhatsApp, in educational activities. Tanzanian Higher Learning Institutions (HLIs) have undergone significant transformations through various government initiatives aimed at implementing national digital technologies to enhance digital education. Notably, one such initiative is the Higher Education for Economic Transformation (HEET) programme.

## **Methodology**

This study is situated within the interpretive research paradigm. Adopting this paradigm allowed the researcher to explore the experiences and perspectives of pre-service teachers regarding the use of WhatsApp as a tool for learning and the challenges they encountered in using it. This study adopted a qualitative methodology to analyse and interpret the phenomenon under study. Dawson, Hancock and Algozzine (2017) have argued that qualitative research helps a researcher study the experiences, meanings, and perspectives of participants in their natural settings. Likewise, an exploratory case study design was used to guide the study. Dawson et al. (2017) have elucidated that an exploratory case study design is usually used to investigate an undefined study problem. Since the use of WhatsApp as a learning tool is a new concept, the aim of this study was not to provide final and conclusive answers to the research question of the study, but to

explore the problem in varying depth. This study was conducted in two selected public universities with teacher education programmes. The choice of these universities was because they were among the first universities in Tanzania to implement the national digital education strategy 2024/25-2029/30. They also benefited from the Higher Education for Economic Transformation (HEET) project, which aims to modernize academic program delivery and administrative processes to improve learning outcomes. Hence, two universities with education programs were purposefully selected based on the reasons described above to enable the researcher to obtain relevant information needed for the study. The sample for this study comprised 28 participants: 24 pre-service teachers. Twenty-eight participants were selected because the number was adequate for the researcher to interact with extensively (Creswell, 2014) and to understand how they were using WhatsApp as a learning tool and the challenges they were experiencing. Both purposive and convenience sampling techniques were used to select all 28 respondents. Purposive sampling enabled the researcher to select participants who had in-depth knowledge of the use of WhatsApp as a learning tool. The researcher acknowledges that purposive sampling has the potential for bias when selecting participants; however, an effort was made to choose participants who possessed substantial knowledge of WhatsApp as a learning tool in Tanzania's HLIs. With regard to the selection of pre-service teachers, the researcher requested permission from group leaders to be added to the class WhatsApp groups for a period of three weeks. This approach enabled the researcher to observe in the group the chat patterns, identify active members, and select participants who responded quickly for inclusion in the study. The researcher also used screenshots as another strategy to collect information. Also, the researcher requested the pre-service teachers who had been in a WhatsApp group chat for more than three months to allow him to take screenshots of their conversations. These screenshots were read by the researcher to check the pre-service teachers who contributed the most in the group chat in order to request them to participate in the study. The selected pre-service teachers were able to share and express their opinions on how they used WhatsApp as a learning tool and the challenges they faced. This is consistent with purposive sampling, which targets participants who are information-rich. Four lecturers who regularly used WhatsApp in sharing learning resources with pre-service teachers were selected. These four lecturers shared learning materials often with their students on WhatsApp for learning purposes.

Focus group discussion and semi-structured interviews were used to collect data. According to Yin (2011), open-ended interviews and focus group discussions are

among the crucial sources of exploratory case study information, which this study employed. In this study, semi-structured interviews were used to solicit information from all 28 participants. This refers to the capacity of interviews to produce data on the views of respondents rather than the researcher dictating the direction of respondents, as is often the case with structured interviews (Flick, 2014). The interview was conducted in a convenient and agreed-upon place with pre-service teachers and lecturers, lasting between 45 and 60 minutes. This approach allowed the researcher to ask probing follow-up questions to gain a more in-depth understanding. Probing questions are used to get deeper into the interview responses for the purposes of eliciting more information from the respondents (Flick, 2018). Likewise, focus group discussion was used to supplement interview information from the pre-service teachers. In this study, two FGD groups consisted of six pre-service teachers from each sampled university, which is consistent with the required number of focus group participants. Focus group discussions were preferred because they helped to generate a rich understanding of pre-service teachers' views on how they used WhatsApp as a learning tool and the challenges they face.

The thematic analysis technique was used in the data analysis. The researcher began by transcribing the raw data while listening to the recorded interviews and focus group discussions. The transcripts were first read and then re-read to develop familiarity with the content. Then, initial codes were generated, capturing the participants' views on how they used WhatsApp as a learning tool and the challenges they encountered when using it. These codes were organised into meaningful themes through an iterative process of data coding, categorisation, and comparison. Coding was followed by the development of initial themes that were used to report the findings. During the process of developing the main themes, some codes were revised while others were merged to ensure that the data analysis was coherent and logical. To maintain the rigour of the analysis, the researcher used a codebook to record the codes and the initial themes that he developed. Keeping the codebook helped the researcher make informed decisions about which codes to merge to develop the initial themes. The author also continuously reflected on the initial themes he developed; consequently, some themes were merged to produce the final themes used to report the findings of this study.

## **Findings and Discussion**

In the utilisation of WhatsApp as a learning tool, four major themes emerged as presented in the following section.

## WhatsApp for Communication Purposes

The findings from the research participants showed that WhatsApp was used as a communication tool among users. All pre-service teachers who took part in this study stated that WhatsApp offered easy access to information and was used for sharing academic-related updates, such as when lectures were cancelled or venues changed. WhatsApp provided channels for effective communication and interactive collaboration among student groups, thus helping to foster a sense of community in higher education. The pre-service teachers unanimously agreed that WhatsApp was an effective communication tool. One third-year pre-service teacher said, “I have been using WhatsApp during my studies and it is helpful because it is easy for me to get information from other students, especially when I need something urgently to use for my study.” Another second-year pre-service teacher added, “WhatsApp is easy to use to transfer information as everyone can access information sent by lecturers. Sometimes, when the timing of a lecture changes or it gets cancelled, it is easy to find out about it.” This indicates that it helped facilitate the sharing of learning-related information, such as venue changes or class cancellations. It also supported communication among pre-service teachers and with their lecturers, especially for students living off-campus and far apart. WhatsApp allowed them to send text messages, images, voice messages, and make voice calls. To highlight this, one second-year pre-service teacher remarked:

Based on my experience at this university over the past two years, I can sincerely say that WhatsApp allows us to form learning groups, which makes our communication easier through its various features, such as text messages, audio recordings, videos, and images. This is because many students have smartphones with WhatsApp installed. (Interview with a pre-service teacher, 2025).

A third-year pre-service teacher further said:

I can say that WhatsApp connects us because we live in different places. Some live outside the university hostels, and others even stay with their families. In this situation, the WhatsApp group connects us and makes communication easier. (Interview with a pre-service teacher, 2025).

Furthermore, it was found that students used WhatsApp to communicate with their lecturers and share information about lectures and seminar schedules, such as venue changes, timings, and assignment collection. The statement "class representatives get information from lecturers and send it to groups" from one respondent highlighted WhatsApp's effectiveness as an information-sharing tool between lecturers and students. In this context, WhatsApp facilitated easy communication

for pre-service teachers with their lecturers. One pre-service teacher commented on WhatsApp during the focus group discussion:

At this university, we have a general WhatsApp group for all third-year education students, along with smaller groups based on specific departments or courses. Currently, I am part of about five of these groups. Sometimes, even lecturers create groups to facilitate communication or to share seminar questions. As a result, all information related to a particular subject is shared there and spread to every student teacher within that group. This has become the norm here. Therefore, having a smartphone is essential to avoid missing out. (FGD, in university A, 2025)

During the focus group discussion, one pre-service teacher noted:

This WhatsApp application provides us with a platform to communicate easily with our lecturer. That is why many lecturers prefer to create WhatsApp groups for students enrolled in their courses to share announcements about the course, such as the lecture room, assignments, due dates, or the final submission date for projects. For me, it is simpler and better than other social media like Facebook because with WhatsApp, you do not have to worry about finding time to meet classmates and ask them about assignments, exams, and deadlines for homework. (FGD, B, 2025)

The above claim indicated that pre-service teachers used the WhatsApp application for communication purposes, including facilitating effective communication among students and their lecturers, receiving announcements regarding lectures, seminars, courses, and departmental issues, deadlines for submitting assignments and coursework, and sharing resources and links related to course content. They identified four key features of WhatsApp that they considered most important for group collaboration: read receipts, quote messages/replies, group chats, and emojis.

Findings revealed that group chats were frequently used to share information and gather opinions among group members. One third-year pre-service teacher claimed that WhatsApp group chats ensured efficient distribution of lecturers' information to all group members and facilitated collecting opinions through responses posted in the chat. This finding corroborates Díaz-Ramírez's (2020) research, which found that utilisation of WhatsApp in educational settings offered a wide range of benefits and opportunities for both lecturers and students. The advantages include improved communication and collaboration between students and lecturers. According to Hershkovitz et al. (2019), the incorporation of WhatsApp into academic matters has the potential to produce a range of beneficial outcomes. An advantage of this technology is its ability to facilitate communication and collaboration between students and facilitators. The WhatsApp platform enables swift and simplified

communication, providing benefits in the realm of collaborative group efforts and discourse.

This finding is supported by information from a review of group chat contents. While reviewing the chats, the following conversations were evident: “Hi all, our lecture today will be in lecture room 3, at the same time” ... “Collect group assignment, not later than tomorrow afternoon”... “...Guys, could you come to collect your first assignment on EF200?” ... “Sir, it seems some of our group assignments have not been factored into the coursework results”. It is therefore worth noting that, without this group, these students would have missed lectures, misplaced their assignments, or had to queue for hours to report these issues and have them sorted out. This finding aligns with the widespread use of WhatsApp as the most common communication tool between students and instructors (Azizur Rahman et al., 2020).

The study also revealed that incorporating WhatsApp into academic settings can enhance collaboration and communication among lecturers and students through various channels, including real-time messaging, asynchronous messaging, and group assignment coordination. Therefore, integrating WhatsApp into education can improve communication and cooperation among lecturers and students. This is because WhatsApp provides instant messaging, group communication, and file sharing capabilities, which can be effectively used to facilitate discussions and cooperative efforts (Alubthane & Alyoussef, 2021). Ajani (2021) argues that implementing this mode of communication can foster a sense of fellowship and motivation among students and facilitators, while also increasing access to academic materials and educational opportunities.

### **WhatsApp Platform to Share Learning Materials**

The study revealed that pre-service teachers used WhatsApp to share learning materials. They stated that WhatsApp enabled them to access educational resources easily. They noted that it served as an effective platform for forming study groups, thus facilitating the exchange of academic materials. The findings also indicated that lecturers and students used WhatsApp groups to share educational content such as notes and research projects. Pre-service teachers employed WhatsApp to share the university timetable. Class representatives used this platform to send class schedules as text messages or attachments to other members of the class. This demonstrates that students found it convenient to share vital information requiring immediate action through the WhatsApp group, ensuring that even those not

physically present at the university received important updates. To emphasise this point, one of the third-year pre-service teachers remarked:

In our group, among other things, we share a lot of information through voice recordings and images. Through this platform, many group members like to share what they have learnt in lecture sessions so that even if someone misses points or lectures, they will benefit... They also share what has not been covered in the lectures, which helps students prepare for semester exams. (Interview with a third-year pre-service)

This assertion indicates that the WhatsApp application provides a platform for pre-service teachers to share learning materials, including lecture notes, and to access content before actual lectures. This helps learners to prepare thoroughly for the in-class activities that follow, thus enhancing their understanding of the topics.

One interviewee supported the idea that WhatsApp is the ideal tool for learning anywhere, at any time. This is reported by a third-year pre-service student who was absent for more than two weeks but had a final semester examination to sit later. The student used the WhatsApp platform to ask his classmates to post past papers and seminar questions they had attempted, as well as lecture notes they had taken, so he could prepare for his final semester examinations. This is evidenced by the interviewee's response:

I was unwell and admitted to the hospital two weeks before the semester exams. I asked my friend to send me the lecture notes, seminar questions, and examination papers they had completed. It was very helpful because I was able to prepare for the semester exams while I was in the hospital (Interview with pre-service teacher, 2025).

The other two respondents added to what the first said by mentioning, "You can get information related to seminar activities even while being at home or in other places. It is not necessary that you have to be physically present in the lecture room or university...", "...To get information early... it is not until you go to the university compound to look at the notice board..."

From the foregoing, it is clear that, through WhatsApp, learning is no longer restricted by geographical locations; students can access lecturers' notes and other activities outside the lecture hall. This suggests that WhatsApp plays a vital role in helping pre-service teachers share content and support each other continuously as they participate in out-of-class educational activities. Furthermore, WhatsApp encourages engagement among pre-service teachers when completing these activities.

Interview findings were consistent with those from the focus group discussions. During the focus group, most participants emphasised that the WhatsApp application made learning easier because it was accessible without any financial demands, as they used the university's internet. Additionally, there were no restrictions on sending messages via WhatsApp; thus, they could share as much material with group members as necessary. They could also download shared content from colleagues or lecturers quickly and easily. Furthermore, they could take screenshots of slides used in class and share them with friends unable to attend certain lectures. Video clips and other web resources were also utilised in their discussions. Pre-service teachers highlighted that, even from a hostel or home, they could respond to assignment-related chats without constraints. WhatsApp has the potential to support pedagogical practices at any time and place, providing immediate results that cannot be achieved with desk-bound computers. Unlike physical meetings, some student teachers were absent due to transport issues. At this point, a third-year pre-service teacher remarked:

With WhatsApp, I can join any group activities or meetings without needing to meet my fellow students face-to-face to discuss things. I can do it from anywhere, as all I need is a mobile phone and data. (FGD, university B)

Another second-year pre-service teacher commented:

WhatsApp allows lecturers to convey the materials quickly without sending them to us individually. Through the WhatsApp group, we can interact easily with lecturers because they can send messages directly to our group, and we can respond in kind. We can ask if there are materials that need clarification directly from the lecturer, enabling reciprocal interaction between us and our lecturers, even though learning does not happen face-to-face. (FGD, University A)

The above comments indicate that the use of WhatsApp in academic environments has the potential to improve collaboration and communication among lecturers and students through various channels, including both real-time and asynchronous messaging. This further enhances communication and cooperation among the two groups. This is because WhatsApp provides the ability for instant messaging, group communication, and file sharing, which can be effectively used to facilitate discussions and teamwork. WhatsApp can also serve as a platform for establishing study groups, enabling the exchange of educational materials and collaboration on academic issues among students. Alubthane and Alyoussef (2021) argue that WhatsApp can enable the creation of virtual classrooms, allowing lecturers to distribute instructional materials, assignments, and assessments to their students. Ajani (2021) contends that adopting this mode of communication can foster a sense

of community and motivation among students and educators, while also increasing access to academic resources and educational opportunities. Although the study by Alubthane and Alyoussef (2021) shows that students, especially those who are married, were somewhat reluctant to receive study materials outside college hours, teachers should learn the appropriate times to interact with their students. However, this study found that even students who are unwell support using WhatsApp to aid learning anytime and anywhere.

### **WhatsApp to Improve Learning Experience**

The study found that WhatsApp enhanced students' learning experiences. The WhatsApp application was used by pre-service teachers to prepare themselves before seminar sessions for sharing knowledge, exchanging experiences and ideas, discussing seminar questions and social issues, seeking help, and supporting each other during their learning activities. It was natural for them to create posts, share information, and conduct online discussions using WhatsApp Messenger. In this context, one third-year pre-service teacher said, "When there is an unexpected quiz or assignment, we always use WhatsApp to communicate so that we can share ideas and refresh our memory." This suggests that pre-service teachers were satisfied with this online activity because they could integrate learning activities and maintain a positive attitude towards them. The enhanced use of WhatsApp in the university environment helped the pre-service teachers to collaborate easily with one another and improve their communication, thereby making it easier for them to prepare for learning before lectures begin. Therefore, students now need collaborative learning using technology that is simple and quick for sharing knowledge, both in formal and informal classes. This kind of interaction promotes learning of formal content in an informal way, with the possibility of accessing information at any time, thus enhancing interaction among all participants (Madge et al., 2019). Mtega (2021) argues that online lectures are more effective when combined with face-to-face lectures, intending to achieve learning outcomes. Therefore, students should become accustomed to maximising their learning through the WhatsApp platform before attending physical class lectures.

Five pre-service teachers claimed that WhatsApp helped group members to form discussions for learning purposes. During a focus group discussion, one pre-service teacher said that he used WhatsApp "to communicate with my fellow students about matters related to course requirements," and another added, "to discuss ideas about courses with my classmates," while a third mentioned, "...asking, responding and confirming information related to learning both from friends and lecturers."

This illustrates that the use of social networking and instant messaging fosters collaborative learning and supports active participation and engagement. This aligns with a study's findings, which showed that WhatsApp groups can serve as a useful tool in supporting various teaching and learning activities (Nsabayezu *et al.*, 2020). This indicator refers to all instances when students demonstrate, through questions and comments, how committed or concerned they are with the activity they are engaged in (Nursalim, 2021).

During focus group discussions, many participants revealed that they sometimes used WhatsApp to ask questions or seek clarification about their assignments from course coordinators. They also noted that, at times, they used the WhatsApp group to discuss questions that others found difficult to understand or solve independently. In this way, other pre-service teacher students provided clarifications or worked together to solve the questions. The following messages from WhatsApp chats are cited to support the point: “Hi friends, I have been challenged with a question here...is teaching technique the same as teaching strategy? I just wanted to know if the two words are synonymous.” Another pre-service student replied, “I am not very sure...But I think they have different meanings.” In another chat, a group member wrote, “Hi guys, I need to understand the difference between macro and micro educational objectives.”

The study also found that pre-service teachers used WhatsApp to seek guidance and support from their peers and lecturers on various academic issues. They mentioned that WhatsApp enabled pre-service teachers to receive constructive feedback from both peers and lecturers on assessments and academic projects they were working on. Some of them valued the practical guidance received from their lecturers via WhatsApp. One second-year pre-service teacher said:

I like the ICT lecturer because she often provides us with feedback when we answer questions on WhatsApp. She also praises us when we get the correct answers and corrects our mistakes immediately when we are wrong. I feel comfortable learning from her. (Interview with a pre-service teacher, 2025)

Results further indicated that the use of WhatsApp can help pre-service teachers focus their attention on any information received in the discussion group; thus making it easier for them to integrate different issues into their learning. This finding regarding pre-service teachers' positive views on using WhatsApp in their learning aligns with other research findings (Alubthane & Alyoussef, 2021). WhatsApp technology provides students at various levels with opportunities to engage in collaborative interaction and learning (Ajani, 2021). In online discussions, collaborative practices are crucial, as participants work together and

employ different strategies to build knowledge and skills collectively, which are imparted easily and enjoyably. From a social learning perspective, it can be argued that social interactions form the foundation through which individuals learn within communities and groups (Rahaded et al., 2020). As pre-service teachers interact with their peers, lecturers, learning materials, objects, and activities are collaboratively co-created, shared, and disseminated through WhatsApp groups, creating opportunities for social learning. Additionally, social media has been found to support social learning by facilitating collaboration (Nsabayezu *et al.*, 2020), fostering knowledge creation, aiding students' deep understanding (Annamalai, 2019), and providing flexibility of time and space (Alsen & Augustino, 2021). Therefore, through ongoing communication and interaction, students develop confidence in self-expression and reflection, which promotes deep learning. Moreover, question-based interactions can facilitate Socratic dialogues that enhance students' intellectual development.

### **Challenges of Using WhatsApp as a Learning Tool**

Findings from the interviews revealed that pre-service teachers participating in this study faced five main challenges when using WhatsApp as a learning tool. These included misuse of WhatsApp, exclusion of students without smartphones, lack of privacy due to limited options, and issues with internet access being unavailable or costly. During the interviews, many participants expressed concern that the WhatsApp group was being misused because of the absence of strict group rules. They pointed out that some pre-service teachers posted too many messages that were not academically related, such as business adverts and football match news. However, learning is a social process where students need to discuss social matters, even if these are not directly related to their academic goals for which the group was created. One third-year pre-service teacher explained, "Some students are not serious. They sometimes post irrelevant stuff in the class group, for example, a person posts a topic about the results of a football match instead of presenting academic issues that can be relevant to the intention of the group." Additionally, a second-year pre-service teacher said, "This is an uncontrolled media and anyone can post anything they feel like." A first-year pre-service teacher also reflected on the risk of posting numerous jokes that might cause important topics to be overlooked, saying, "Too many jokes may result in a person ignoring an important post and thinking that it is just a joke. This is because, at the initiation stage of the group, there were no rules in place about what should or shouldn't be shared through the WhatsApp group and what actions would be taken against someone

sharing content contrary to the group's goals." During one of the focus group discussions, a participant said:

What I have observed is that initiators of groups usually do not establish any rules to guide members, such as what to do if someone misuses the platform. This does not mean they are ignoring the rules, but rather that they are unaware of the rules that promote proper use of the platform (FGD, in University B, 2025).

Another third-year pre-service teacher narrated:

When working on an assignment, irrelevant arguments sometimes arise, with someone introducing an unrelated idea and another person adding a different one altogether. It is much better to communicate the rules up front. Some students, when they start using voice notes, will send about four or more recorded clips in succession. Then, someone else will send theirs, resulting in a long list of voice notes to listen to (FGD, in University B, 2025).

Such a problem diverted pre-service teachers' attention and negatively impacted the quality of their intended academic interactions. Similar findings were reported in a study by Alsen and Augustino (2021), where participants considered the misuse of WhatsApp groups to be one of the most significant challenges affecting students' interactions on WhatsApp. To prevent distractions and issues caused by irrelevant messages, initiators should enforce some rules, including principles and foundations that WhatsApp group members must follow to organise their interactions and determine the types of messages to share on such platforms. Furthermore, pre-service teachers should be informed beforehand about the rules they need to observe when sharing information with colleagues or instructors. Their interactions and adherence to these predetermined rules should be monitored by group administrators or supervisors appointed by their lecturers. Azizur Rahman et al. (2020) have noted that "ground rules help identify formal issues that students can interpret as a guide to identify how to behave appropriately in course-related activities in both the synchronous and asynchronous platforms.

The findings also indicated that excluding pre-service teachers without smartphones from WhatsApp group activities was another challenge faced by the study participants. The participants warned that those who did not own smartphones were almost entirely left out of the information shared in their WhatsApp groups. This is because the group can only be accessed by pre-service teachers who own smartphones. In practice, one needs a smartphone and an internet connection to be online almost all the time. This challenge was highlighted by a first-year pre-service teacher who said: "Our fellow students without phones will miss important class

information, such as assignments. They can even miss meeting some deadlines due to not accessing information.” Another second-year pre-service teacher said:

Frankly speaking, if you do not have a smartphone or an internet bundle, you will not be able to keep up with others. You will be isolated and miss access to many important things; for example, you may go to the university campus only to find out that a lecture has been rescheduled or even cancelled. Sometimes, you may find yourself missing a class (Interview with a second-year pre-service teacher, 2025).

The findings also showed that a lack of privacy due to limited options was another challenge faced by pre-service teachers using WhatsApp groups. They complained that whenever someone sent a message, everyone could see it. This was because it was not possible to send a message to specific individuals within the group unless done through a different channel outside the group. This was illustrated by one interviewee’s comment: “Some students are shy and may have difficulties answering a question, but they would like to ask a specific person. They feel shy to expose their problem to everyone in the group and sometimes they are afraid of being ignored.” The participants suggested it would be more convenient if there were an option for people within the same group to communicate privately with only one person or a small group, such as just the course coordinator, without needing a separate group. This idea was reflected in a comment from another interviewee who said, “If you want to post something to specific people in a group, one finds that such an option is not available in the same group.” This finding contrasts with earlier research by Annamalai (2019), who compared privacy issues across email, SMS, Facebook groups, and WhatsApp platforms. Their study rated the privacy of WhatsApp, email, and SMS as relatively high. This aligns with what was expressed by one participant during the focus group discussion, who argued:

WhatsApp offers many benefits, but it also brings distractions. For example, a class representative might share assignment instructions from the facilitator, but some users could be making jokes through the group chat. However, many students may still be following such information. Sometimes, someone may even send a video picture to distract group members from a meaningful discussion. So, WhatsApp is useful but can also be distracting. (FGD, University A)

The study also found that some of the pre-service teachers complained about technical problems that limited their ability to use mobile phones for learning. Regarding third-year students, they expressed their dissatisfaction:

To utilise WhatsApp for learning, one needs internet access to send and receive information. This involves costs for data or reliance on university Wi-Fi, which

is often unavailable. Even when accessible, it is usually restricted to the university premises. Additionally, WhatsApp can be a waste of time, like any other social media platform. Its easy accessibility allows users to read information anywhere, which can be time-consuming. It also entails spending more time typing messages to send to group recipients. Moreover, it can be wasteful of internet bundles and personal credit, especially when discussions involve irrelevant issues. (Interview with a pre-service teacher, 2025)

The sentiments expressed by the participants indicate that, for them to be able to use WhatsApp effectively, they need internet bundles or access to Wi-Fi connectivity, which may sometimes be unavailable. This finding aligns with (Alsen *et al.*, 2021), who found that not all students have access to smartphones or the internet, which can create a barrier to participating in WhatsApp-based learning activities.

### **Conclusion and Recommendations**

The findings of this study have shown that the use of WhatsApp allowed pre-service teachers to access learning and educational materials outside of the sessions held during physical lectures. It revealed that the social media platform could enhance communication between pre-service teachers and their lecturers, thereby promoting collaborative learning through the formation of electronic groups. The study provides evidence that chatting and learning simultaneously make the learning process more motivating and enjoyable. It also has the potential to help pre-service teachers learn from each other, as each student presents their unique style and experience, which may help others learn something new. This conclusion does not imply that classroom learning is unnecessary, but highlights that WhatsApp can be effectively used as a learning tool to support a variety of learning styles and strategies that enable collaborative learning among pre-service teachers. The study recommends that systematic research be conducted to improve WhatsApp as a means to facilitate more efficient teaching and learning. Additionally, it suggests establishing guidelines or ground rules for group members to foster best practices when using WhatsApp for educational purposes in Tanzanian universities. It also advises that students receive appropriate guidance on how to utilise WhatsApp to enhance their academic outcomes. Furthermore, further research is needed to examine the long-term impacts of WhatsApp on the communication and collaboration skills of both students and lecturers.

## References

- Abualrob, M. (2020). Using WhatsApp in teaching Chemistry and Biology to tenth graders. *Contemporary Educational Technology, 11*(1), 79–100.
- Adomi, E. (2019). Work-related WhatsApp groups as knowledge-sharing platforms among librarians in selected federal universities in Nigeria. *Journal of ICT Development, Applications and Research, 1*, 11–19.
- Aizenkot, D., & Kashy-Rosenbaum, G. (2021). Cyberbullying victimisation in WhatsApp classmate groups among Israeli elementary, middle, and high school students. *Journal of Violence, 36*, 15–16. <https://doi.org/10.1177/0886260519842860>
- Ajani O.A. (2021). Teachers' use of WhatsApp platforms as online communities of practice for professional development. *Journal of African Films & Diaspora Studies (JAFDIS), 4*(1), 103-129. DOI: <https://doi.org/10.31920/2516-2713/2021/4n1a6>
- Aljabri, N., & Bhutoria, A. (2020). Access to educational technology and its implications on learning outcomes of 15-year-olds in Saudi Arabia: Empirical evidence from OECD PISA.
- Alsen, F. K. & Augustino S. M. (2021). Mobile technology usage for enhancing teaching and learning at College of Business Education, Tanzania: An exploratory study. *Business Education Journal (BEJ), Volume 10* (II).
- Alubthane, F., & Alyoussef, I. (2021). Pre-Service Teachers' views about effective use of the WhatsApp application in online classrooms. *The Turkish Online Journal of Educational Technology, 20*(1), 44–52. <https://eric.ed.gov/?id=EJ1290794>
- Annamalai, N. (2019). Using WhatsApp to extend learning in a blended classroom environment. *Teaching English with Technology, 19*(1), 3–20. <https://eric.ed.gov/?id=EJ1204549>
- Azizur Rahman, S., Al Marzouqi, A., Variyath, S., Rahman, S., Rabbani, M., & Iqbal Ahamed, S. (2020). Effects of social media use on health and academic performance among students at the University of Sharjah. Proceedings - 2020 IEEE 44th Annual Computers, Software, and Applications Conference, COMPSAC 2020, 711–716. <https://doi.org/10.1109/COMPSAC48688.2020.0-176>
- Broadbent, J., & Lodge, J. (2021). Use of live chat in higher education to support self-regulated help-seeking behaviours: a comparison of online and blended learner perspectives. *International Journal of Educational Technology in Higher Education, 18*(1), 1–20. <https://doi.org/10.1186/s41239-021-00253-2>
- Bruguera, C., Guitert, M., & Romeu, T. (2019). Social media and professional development: A systematic review. *Research in Learning Technology, 27*, 1–18.

- Cetinkaya, L. (2017). The impact of WhatsApp use on success in the education process. *International Review of Research in Open and Distance Learning*, 18(7), 59–74
- Creswell, W. J. (2014). *Educational research: planning, conducting and evaluating quantitative and qualitative research. (3rd ed)*. Merrill Prentice Hall.
- Darkwa, B. F., & Antwi, S. (2021). From classroom to online: Comparing the effectiveness and student academic performance of classroom learning and online learning. *Open Access Library Journal*, 8, 1-22
- Dawson, R., Hancock, H., & Algozzine, B. (2017). *Doing case study research: A practical guide for beginning researchers. (3<sup>rd</sup>ed)*. Teachers College Press.
- Dhahir, D. F. (2020). The usability of WhatsApp messenger as online teaching-learning media. *Journal of Information Technology and Its Utilisation*, 3(2), 48–52.
- Djamdjuri, D. S., & Kamilah, A. (2020). WhatsApp media in online learning during the COVID-19 Pandemic. *English Journal*, 14(2), 69–74.
- Flick, U. (2018). *Introduction to qualitative research. (5<sup>th</sup> ed)*. SAGE Publications.
- Gaur, M., & Bohra, R. (2019). Efficacy of new media-based video lectures in the open and distance education system of India. *Asian Journal of Distance Education*, 14(2), 144-160.
- Gon, S., & Rawekar, A. (2017). Effectiveness of E-learning through WhatsApp as a teaching and learning tool. *MVP J Med Sci.*, 4(1):19–25.
- Hershkovitz, A., Elhija, M. A., & Zedan, D. (2019). WhatsApp is a message: out-of-class communication, student-teacher relationship. *Journal of Information*, 2(1), 38-49.
- Hoq, M. Z. (2020). E-learning during the period of pandemic (COVID-19) in the Kingdom of Saudi Arabia: An empirical study. *American Journal of Educational Research*, 8(7), 457-464. <https://doi.org/10.12691/education-8-7-2>
- Irfan M., Dhimmar S. (2019). Impact of WhatsApp messenger on the university-level students: A psychological study. *International Journal of Research and Analytical Reviews (IJRAR)*, Volume 6, (1), 572- 586.
- Jimmy E. & Mgata F. (2022). Mathematics teachers' use of WhatsApp groups as a platform for continuous professional development in Tanzania. *African Journal of Teacher Education*. [journal.lib.uoguelph.ca](http://journal.lib.uoguelph.ca)
- Madge, C., Breines, M. R., Dalu, M. T. B., Gunter, A., Mittelmeier, J., Prinsloo, P., & Raghuram, P. (2019). WhatsApp use among African international distance education (IDE) students: transferring, translating and transforming educational experiences. *Learning, Media and Technology*, 44(3), 267–282. <https://doi.org/10.1080/17439884.2019.1628048>

- Masele, J. J., Rwehikiza, D. P. (2021). Application of social media in HLIs. *International Journal of Education and Development using Information and Communication Technology (IJEDICT)*, 17 (2), 37-54.
- Moodley, M. (2019). WhatsApp: Creating a virtual teacher community for supporting and monitoring after a professional development programme. *South African Journal of Education*, 39(2), 1–10. <https://doi.org/10.15700/saje.v39n2a1323>
- Motteram, G., Dawson, S., & Al-Masri, N. (2020). WhatsApp supported language teacher development: A case study in the Zaatari refugee camp. *Education and Information Technologies*, 25, 5731–5751. <https://doi.org/10.1007/s10639-020-10233-0>
- Mtega, W.P. (2021). Using WhatsApp Messenger for improving learners' engagement in teaching and learning: a case of undergraduate students at the Sokoine University of Agriculture, Tanzania. *Library Philosophy and Practice* .4809. <https://digitalcommons.unl.edu/libphilprac/4809>.
- Nsabayezi, E., Iyamuremye, A., de Dieu Kwitonda, J., & Mboniyirivuze, A. (2020). Perceptions towards the utilisation of WhatsApp in supporting teaching and learning of Chemistry during the COVID-19 pandemic in Rwandan secondary schools. *African Journal of Educational Studies in Mathematics and Sciences*, 16(2), 83-96.
- Nursalim, H. A. (2021). *Students' opinion on the use of WhatsApp Application in English teaching department classes during the COVID-19 Pandemic*. Thesis, Faculty of Tarbiyah and Teaching Training. State Institute of Islamic Studies (IAIN)
- Oztok, M., Zingaro, D., Brett, C., & Hewitt, J. (2019). Exploring asynchronous and synchronous tool use in online courses. *Computers & Education*, 60(1), 87-94.
- Rahaded, U., Puspitasari, E., & Hidayati, D. (2020). The impact of WhatsApp on undergraduate behaviour in the learning process. *International Journal of Educational Management and Innovation*, 1(1), 55-68.
- Rambe, P., Chipunza, C. & Ng'ambi, D. (2020). Using WhatsApp for co-creation of learning resources: A case of a South African university. *The Journal for Transdisciplinary Research in Southern Africa*, 16(1): 1-15.
- Shraim, K., & Khlaif, Z. (2018). An e-learning approach to secondary education in Palestine: Opportunities and challenges. *Information Technology for Development*, 16(3), 159-173.
- So, S. (2016). Mobile instant messaging support for teaching and learning in higher education. *The Internet and Higher Education*, 31, 32-42.

- Susilawati, S., & Supriyatno, T. (2020). Online learning through WhatsApp group in improving learning motivation in the era and post pandemic COVID-19. *Jurnal Pendidikan: Teori, Penelitian, dan Pengembangan*, 5(6), 852-859.
- Tracy, S. J. (2019). *Qualitative research methods: Collecting evidence, crafting analysis, communicating impact*. John Wiley & Sons.
- Ujakpa, M.M., Heukelman, D., Lazarus, V.K., Neiss, P., & Rukanda, G.D. (2018). Using WhatsApp to support communication in teaching and learning. IST-Africa 2018 Conference Proceedings Paul Cunningham and Miriam Cunningham (Eds) IIMC International Information Management Corporation, 2018
- Urien, B., Erro-Garcés, A. & Osca, A., (2019). WhatsApp usefulness as a communication tool in an educational context. *Education and Information Technologies*, 24(4): 2585- 2602.
- Urien, B., Erro-Garcés, A., & Osca, A. (2019). WhatsApp's usefulness as a communication tool in an educational Education and <https://doi.org/10.1007/s10639-019-09876-5>. *Information Technologies*, 24(4), 2585– 2602.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.
- Xhaferi, G., Farizi, A., & Bahiti, R. (2018). Teacher's attitude towards e-learning in higher education in Macedonia case study of: University of Tetovo. *European Journal of Electrical Engineering and Computer Science*, 2(5), 14-17.
- Yeboah, J., & Ewur, G. D. (2020). The impact of WhatsApp messenger usage on students' performance in Tertiary Institutions in Ghana. *Journal of Education and Practice*, 5(6), 157-164.
- Yin, R. K. (2011). *Qualitative research from start to finish*. The Guilford Press.



## **Challenges and Opportunities in Teachers' Action Research: Secondary School Teachers' Perspectives in Tanzania**

*Modesta Antony Kaluwa & Yuanyue Wu*

*Institute of Adult Education & Central China Normal University*

*Email: [modeka005@gmail.com](mailto:modeka005@gmail.com) & [Wuyuanyue2708@163.com](mailto:Wuyuanyue2708@163.com)*

### **Abstract**

*Teachers' action research (TAR) is a significant practice for self-directed professional learning among educators. However, in low-resource educational contexts, systemic challenges negatively affect its implementation. This qualitative study examined teachers' perspectives on the challenges and opportunities in TAR in Tanzania. Six qualified teachers from two secondary schools (three from each school) were purposively recruited as key informants. Additionally, two heads of the two schools were included for data triangulation. Data were collected through semi-structured interviews and were analysed thematically. The findings revealed multi-level challenges: teacher-related (limited research skills, lack of confidence, weak collaboration, poor networking) and institutional (lack of funds, lack of motivation, administrative disregard, assessment-driven culture, excessive workloads, limited professional training, and policy ambiguities in guiding TAR practices). Furthermore, the findings revealed that university partnerships, new education policy, frameworks, digital tools, and communities of learning are the existing opportunities for improving TAR in Tanzania. The study underscores the need to formalise TAR through structured administrative support, teacher autonomy in technology use, and transforming sporadic inquiries into systematic research, which can cultivate a sustainable culture of teacher-led professional learning through TAR and enhance educational outcomes.*

**Keywords:** *teachers' action research, challenges, opportunities, teacher-led professional learning, Tanzania*

## Introduction

Teachers' action research (TAR), also known as classroom-based action research, is an internationally recognised methodology for addressing classroom challenges and guiding teachers' in-service professional learning, with the ultimate goal of improving instructional practices (Al-Mahdi, 2019). The necessity for teachers to integrate action research into their classrooms stems from the evolution of science, technology, and sociocultural dimensions in the contemporary era, characterised by rapid and uncontrollable changes, particularly in education (World Economic Forum, 2015). The new epoch of the 21<sup>st</sup> Century has brought new needs in education, particularly, what and how teachers can learn, re-learn, and unlearn, as well as how students can be taught across space and time (Darling-Hammond, 2006; HakiElimu, 2021; MoEST, 2017; Zhao & Watterston, 2021). Over the decades, schools have been recognised as a social learning context not only for students but also for teachers as adult learners (Elliott, 1991; Knowles, 1984; Lewin, 1946, 1958; Zhao & Watterston, 2021). Empirical evidence indicates that when teachers are in the classroom, they learn alongside students as they improve their pedagogical practices by bringing solutions to problems they have identified (Garcés & Granada, 2016; Hairon, 2017; Mwakabenga, 2021; Tindowen et al., 2019). In this case, a classroom context for teachers is not only a platform for teaching but also for self-guiding their professional learning and thriving professionally. As such, TAR is necessary for achieving self-directed professional learning.

Research points out that TAR offers an opportunity for teachers as adult learners to execute their autonomy from identifying classroom challenges (learning problems), deciding how to address them (action), who and what is to be involved (planning), analyse the findings, and make use of them to improve their practice (Hairon, 2017). It is argued that TAR supersedes the sporadic traditional approaches to in-service teacher professional learning, such as workshops and seminars, which are periodic, planned by others, and not directly focused on solving immediate problems, often conducted outside the classroom context (Dadi, 2015; Komba & Mwakabenga, 2019).

In this regard, TAR has emerged as a strategy for improving teaching and learning, and is extensively used in many countries, including the Netherlands, Singapore, Spain, China, the USA, and Canada (Chen, 2022; Darling-Hammond et al., 2009; Hairon, 2017). A study from Singapore revealed that teachers who engaged in action research regularly improved their curriculum at the institutional level and enhanced their problem-solving skills (Hairon, 2017). On the other hand, Garcés

and Granada (2016) found that teachers who collaborated with other colleagues or students in research strengthened collegiality and mutual relationships with students. Thus, teachers' action research is a valuable tool for teachers to improve the teaching and learning process, increase their pedagogical and instructional knowledge, and positively impact students' learning (Tindowen et al., 2019). Furthermore, a study in Tanzania reported that teachers developed new ways of teaching when they were supported by organising participatory TAR as an intervention to enhance their classroom-based research skills (Mwakabenga, 2021).

Regardless of the benefits and obligations of TAR for teachers, literature indicates several challenges, including teachers' insufficient research skills, unreliable in-service professional learning, lack of motivation and administrative support, time constraints, and poor collaboration (Kunje & Stuart, 2006; Mwakabenga, 2021). These challenges collectively impact teachers' priorities, particularly in low- and middle-income countries like Tanzania. In Singapore, teachers have achieved tremendous success in adapting the new curriculum through extensive use of action research; however, challenges such as a hierarchical work culture, overloaded roles and responsibilities for teachers, and time constraints are notable (Hairon, 2017). In investigating why teachers in the Philippines were unable to conduct action research, Tindowen et al. (2019) summarised four major challenges, including additional workload, writing anxiety, lack of time, and inadequate knowledge and skills. Furthermore, willingness, trust, critical relationships, and autonomy are often lacking in many schools, resulting in teachers' limited engagement in action research (James & Augustin, 2017). Additionally, in some cases, teachers perceived action research as a one-time project rather than part of their regular job routine, while at the same time, they demonstrate limited knowledge and skills, especially in distinguishing TAR and traditional research (Albalawi & Johnson, 2022; Hairon, 2017).

Empirical evidence reveals that the challenges of TAR across countries are highly influenced by the lack of school administrative support because leaders have limited knowledge and skills about the importance of action research and the steps involved (Kunje & Stuart, 2006). As such, they give less priority and little support to teachers who conduct action research in schools. Hancock (1997) argues that with the appropriate backing, more teachers are likely to engage in classroom-based action research to inform students' learning. Similarly, the National Framework for Teachers' Continuous Professional Development in Tanzania documents that "in communities of learning, teachers should be encouraged to move towards analysing pupil/student results, and their teaching through collective or individual action

research (MoEST 2017). Also, analyse student work and conduct inquiry or action research projects" (p. 8) and "head of schools and ward education coordinators should encourage teachers to present their action research projects at district level or ward cluster PD meetings" (p. 10).

In Tanzania, TAR is recognised in education policy (URT, 2023) and curriculum frameworks (MoEST, 2015, 2017, 2019) as a significant strategy and mandatory for teachers' self-led professional development. However, research indicates limited normalisation and institutionalisation in secondary schools (Losioki, 2020; Mwakabenga, 2021). While some studies suggest teachers engage in informal classroom-based action research (Mwakabenga, 2018; Mwakabenga et al., 2022), others reveal critical gaps: Komba and Mwakabenga (2019) found teachers unaware of classroom-based action research as a school-based professional learning activity, while Mwakabenga (2021) reported that teachers and school leaders lacked knowledge, time, resources, and had weak collaboration to enhance the implementation. Similarly, Losioki's (2020) study identified TAR as one of the least practised professional learning activities due to teachers' insufficient skills.

These consistent findings across multiple studies suggest a policy-practice mismatch. The problem is especially relevant given Tanzania's shift to Competence-Based Curriculum (CBC), where teachers face increasing classroom challenges at the expense of limited administrative backing and sporadic workshops and seminars (Chacha & Onyango, 2022; Komba & Mwakabenga, 2019). While TAR could offer a sustainable alternative solution to contemporary challenges faced by teachers in Tanzania, its potential remains untapped due to systemic barriers. Existing studies highlight three gaps: scarcity of empirical studies related to TAR, a predominant focus on individual-level challenges, and minimal exploration of opportunities to promote TAR in secondary schools. Additionally, there is limited attention given to school-level and systemic policy-practice challenges, as existing studies have deviated from this line of investigation. Other studies have explored TAR as a sub-element or emerging theme in the context of studying CBC-related issues, teacher professional development, and other related topics (Chacha & Onyango, 2022; Komba & Mwakabenga, 2019; Losioki, 2020). Few studies, such as Mwakabenga (2021), directly examine TAR experiences, but in their localised scope (e.g., one school, four teachers) which limits broader insights. Generally, existing studies seldom examine available opportunities to enhance TAR in Tanzania. These gaps, cumulatively, underscore the necessity for this qualitative case study in Tanzania to investigate teachers' perspectives on the

challenges and opportunities associated with TAR at both the teacher and institutional levels.

The overarching goal of this study is to use teachers' perspectives to provide detailed insights on the challenges and opportunities in TAR in Tanzania that may further be used to offer contextual, realistic recommendations for educational stakeholders at different levels, including policymakers, to bridge the policy-practice gap. By doing so, this research is expected to contribute to the understanding of existing challenges that secondary school teachers encounter in TAR while self-guiding their professional learning as adult learners and the available opportunities to mitigate the identified challenges in Tanzania. Furthermore, this study may provide insights into how teachers translate knowledge into practice, offering information that could inform future models of teacher-led professional development. Also, the practical insights that teachers generate through inquiry may inform localised theories of practice. Therefore, this study addresses a key gap and supports Tanzania's efforts to strengthen teacher-led professional learning. Consequently, we set two objectives to guide this study: To examine the challenges that hinder secondary school teachers in Tanzania from conducting TAR. To explore the opportunities that teachers identify as essential to mitigate challenges in conducting TAR.

## **Methodology**

This study employed a qualitative case study design to explore teachers' perspectives on the challenges and opportunities they experienced in TAR. Under this design, a case of six teachers who have at least conducted TAR during their teaching experience was the centre of focus in this study. The design aimed to explore in-depth information and understand the challenges and opportunities that teachers encountered in conducting classroom-based action research.

The study was conducted in the Ubungu Municipality of Dar es Salaam, Tanzania. We purposely chose two secondary schools only – Juhudi and Maarifa (pseudonyms) to narrow the scope of the study for in-depth interviews with the intended sample. We applied two criteria to select participants, including being currently employed as secondary school teachers with at least five years of teaching experience, and having engaged in or having knowledge of TAR. Before recruiting participants, we provided teachers with the necessary information about the study, and their informed consent was subsequently requested and obtained. Six qualified teachers were purposively sampled, three from each school. The six teachers were the key informants in this study because they were identified as having experience

with TAR, while school heads from their schools were included to supplement the information from an administrative point of view. The two heads of these schools were included based on their leadership positions. Therefore, the study comprised a total of eight participants, aged between 25 and 55 years, of whom five were female and three were male. The participants' demographic information is delineated in Table 1.

**Table 1: Participants Information**

Participant pseudonyms	School	Gender	Teaching subject	Academic qualification	Working experience	Action research report
Gara-Head1	Juhudi	Female	English	Bachelor	16 years	Absent
Nepa-CT1	Juhudi	Male	Physics	Bachelor	13 years	Absent
Dola-CT2	Juhudi	Female	Geography	Masters	10 years	Absent
Uda-CT3	Juhudi	Female	History	Diploma	06 years	Absent
Kai-Head2	Maarifa	Male	Chemistry	Bachelor	20 years	Absent
Zoa-CT4	Maarifa	Female	Kiswahili	Diploma	09 years	Absent
Lola-CT5	Maarifa	Female	Geography	Diploma	11 years	Absent
Bozi-CT6	Maarifa	Male	History	Bachelor	19 years	Absent

Data were collected using semi-structured interviews. The interview guide was developed based on the research questions that guided the study. It was intended to capture detailed information with diverse perspectives from teachers regarding the challenges and opportunities in conducting TAR in Tanzania. The instrument was flexible, allowing for prompting and probing as the researcher navigated to gain deeper insights from participants (Christensen et al., 2015). The interview guide was prepared in both Kiswahili and English. During data collection, all participants were comfortable using Kiswahili, although code-switching and code-mixing with English were allowed.

The thematic data analysis, as recommended by Braun and Clarke (2023), guided the analysis of data in this study. The analysis involved familiarisation with the data, coding, identifying patterns across the data, and analysing and interpreting the identified patterns. The audio records were thoroughly studied and transcribed in Kiswahili, and then the transcripts were translated verbatim into English. The researcher reviewed each translated transcript by reading and re-reading for familiarisation with the data. The commonalities from participants' responses were identified, themes established, and all related responses further clustered into their respective themes. Thereafter, all themes were presented in the form of challenges and opportunities that teachers encounter in classroom research. Finally, the

findings were presented using the identified themes, supported by quotes, which were validated for consistency and grammar by a language expert proficient in Kiswahili and English.

This study received ethical approval from Central China Normal University (CCNU), and the authorities in the Ubungo Municipality of Dar es Salaam, Tanzania, authorised data collection from the selected schools. The study ensured that the rights of participants were protected, informed consent was obtained, and no participant was compelled to participate in the study. Information about the purpose of the study was shared with participants before data collection. Throughout the study, the researcher observed confidentiality, privacy, and non-traceability of participants. Pseudonyms were used for schools and participants as presented in this study. Interviews were audio-recorded to facilitate subsequent data analysis, following the acquisition of explicit and informed consent from each participant.

## **Findings and Discussion**

This section presents the findings and discusses them accordingly. Generally, the findings revealed challenges in TAR in two main categories: teacher-related and institutional-related. On the other hand, the findings revealed opportunities available within and beyond the school context that can enhance regular and effective utilisation of TAR practices and develop a self-led professional learning culture.

### **Challenges in Teachers' Action Research**

This section presents the emerging challenges in TAR, as revealed in public secondary schools in Tanzania, based on the perspectives and experiences of teachers. However, the difficulties revealed fell into two main categories: teacher-related challenges and institutional-related challenges.

#### **Teacher-Related Challenges**

It was revealed that, in conducting TAR, teachers experienced several challenges as follows:

##### ***Limited skills in TAR***

Like any other research activity, TAR adheres to a systematic and consistent approach to stages and activities, requiring teachers to possess fundamental research skills to effectively complete the process, from reflection and problem identification to data analysis and reporting. The study revealed that regardless of

teachers' engagement in the inquiry process, the majority of them encountered difficulties in achieving effective and regular TAR practices because they had limited research skills. Furthermore, there was a shared viewpoint among themselves that they faced various limitations during the inquiry process. Detailed information was acquired when teachers were required to "Briefly describe how you conduct teachers' action research in their classrooms". In light of that question, the findings revealed a significant deficiency in skills in TAR relative to all teachers. It was evident that most of them encounter substantial challenges in building research questions, designing the experimental part of the research plan, analysing and interpreting data, and writing reports. It was also noted that teachers had similar experiences based on their initial professional training, which highlighted a lack of sufficient training in formal research methodology in education, particularly in TAR. Commenting on this, teachers from Juhudi and Maarifa had the following to say:

Most of us conduct action research in our classrooms, but we often lack competence, especially when it comes to the stages that follow after identifying the problem. It is challenging to set a precise research question, design the entire research structure, analyse, and interpret the data. As you have seen, none of us has written a report of what we did because writing is also very challenging, especially when you want to document something you are not very clear about. At least data collection is a bit smoother, but we struggle until we get things done [Uda-CT3].

I recall the first time I began conducting action research in my class. It was challenging for me to master the process because action research was not particularly taught or emphasised when I was in College. I also came to realise that even my senior colleagues from the University faced the same challenge. Until now, I cannot say that I am competent, though I try based on what I can do [Lola-CT5].

Based on the findings, it appears that most educational institutions in Tanzania that train teachers focus their programmes on teacher practices and subject expertise, but provide limited practical instruction about TAR as a professional learning method. Correspondingly, studies conducted by Mgaiwa (2018) and Mkumbo (2012) found that majority of teachers in Tanzania are underprepared and lack essential professional skills, including inquiry and problem-solving, necessary for them to engage in TAR effectively. The findings from both studies further suggest that, during initial teacher training, student-teachers are less or negatively exposed to research theory and practice, particularly in TAR. As a result, the challenge amplified during in-service teaching as reported in numerous studies (Albalawi & Johnson, 2022; HakiElimu, 2021; Chacha & Onyango, 2022). On the other hand,

the shortage of basic research competencies is identified as having adverse effects on teachers' academic writing protocols, as indicated in the extract of [Uda-CT3] and the Table. 1 (p. 7), that action research reports were missing from all participants.

Significantly, the study found that due to limited TAR skills, all six teachers involved in the study failed to achieve effective and regular inquiry practices, which further impacted their professional development and students' outcomes. Likewise, Albalawi and Johnson (2022) and Hairon (2017) found that some teachers perceived action research as a one-time project rather than a regular part of their job routine. In contrast, studies from Singapore, the Philippines, China, and other countries report that teachers regularly undertake action research and develop their vast experience (Chen, 2022; Hairon, 2017; Tindowen et al., 2019).

### ***Lack of confidence, collaboration, and networking in TAR***

Other challenges that emerged from the findings stemmed from a lack of self-confidence, collaboration, and networking in TAR practices. Nearly all teachers investigated declared a lack of self-confidence, especially when they saw a need to share their inquiry experience and the findings they obtained, so that others could learn from them. The practice of teachers was because they felt uncertain about their ability to conduct TAR. Other teachers preferred that TAR not reinforce the sharing pattern to avoid contradictions, since every teacher has their way of dealing with classroom problems. Teachers appeared fearful that their research work may not be "academic enough" or worried about making mistakes that will be known to others, as commented:

I would prefer that the sharing part not be necessary to avoid contradictions among us, since we know our skills vary. Some are complicated, such as writing dissertations, while others, like me, use simple methods. However, we all get what we are searching for [Bozi-CT6].

The extract from Bozi-CT6 suggests that a lack of self-confidence stems from teachers' insufficient exposure to research methodologies and negative past experiences with academic writing. Additionally, the findings also revealed that the majority of teachers in Tanzania are working in isolation when conducting TAR, as opposed to collaboration being emphasised as a supportive measure to enhance their collegiality in a school-based professional learning culture. The findings are related to what James and Augustin (2017) found in their study, which revealed that factors such as willingness, trust, critical relationships, and autonomy are often lacking in many schools. Platforms such as collaborative inquiry, peer support, and

student engagement in TAR research were hardly exhibited by teachers. In contrast, Garcés and Granada (2016) comment that teacher researchers who collaborate with other colleagues or students are likely to strengthen their collegiality and mutual relationship with their students.

Therefore, it is fundamental for teachers in support of their school leaders to establish those platforms in secondary schools and strengthen teachers' networking through online platforms such as "WhatsApp" groups, forming teacher research groups, co-author studies, joint classroom-based action research, etc. These initiatives can be significant for teachers to receive intervention and other related support in TAR.

### **Institutional-Related Challenges**

Apart from teacher-related challenges, several specific institutional-related challenges were also identified, affecting the TAR processes in secondary schools. The following sub-sections further present the revealed challenges:

#### ***Lack of funds and administrative support***

Funds and administrative support are among the crucial factors that ensure the smooth running of various activities in schools, including TAR; however, this balance is disrupted when they are lacking. According to the findings from interviews with school heads, it was revealed that no specific funds had been allocated from Ubungu Municipality to support TAR activities in their schools. This challenge was further explained, as it was difficult for them to reallocate funds and support teachers when needs arose, to avoid auditing queries. During the interview in Juhudi, the head of school had the following to say:

I know I have to support teachers, mainly when they are engaged in activities related to teaching and learning at school, because our goal is to improve students' performance. However, the major challenge we currently face in our school is the lack of funds for these activities, and it has been this way for a long time. The funds we receive come with directives; strict adherence is required, as violation may lead to queries in audit reports [Gara-Head1].

The findings imply that school heads were willing to support teachers if funds were available. However, the exclusion of allocating funds for TAR activities in secondary schools underscores the fact that TAR is highly acknowledged externally but less invested and prioritised internally. The argument corroborates Hancock (1997) and Kunje and Stuart (2006), who suggest that in many schools, TAR fails to thrive due to a lack of administrative support and reliable funding to support teacher researchers.

Additionally, Mwakabenga (2021) found that due to the lack of funds needed by teachers to photocopy and purchase other materials required for the effective accomplishment of their research inquiry, teachers had to contribute money from their own pockets. It implies that teachers understand the benefits of TAR and are willing to make changes by overcoming barriers (Mwakabenga et al., 2022). However, the majority of them might be discouraged if they see that their money is being used in school-wide activities. Support provision for teacher researchers is necessary and mandatory from school heads. This is because the National Framework for Teachers' Continuous Professional Development articulates that *head of schools and ward education coordinators should encourage and support teachers to engage in action research* (MoEST, 2017). However, this role appeared to be unfulfilling to the school head. Similarly, as noted by Chen (2022), with appropriate support, more teachers are likely to engage in research-like activities, thereby enabling a wider dissemination of their findings to inform students' learning.

### ***Absence of school-based framework for professional learning and guidelines for supervising TAR activities***

Another significant challenge among school-wide challenges was the absence of a School-Based framework for guiding professional learning, as well as guidelines to ensure adequate supervision of TAR Activities. During the interviews, the school heads confirmed the absence of clear directives and school-based policies from their leaders that describe their roles as school administrators on how they should supervise and support TAR activities in their schools. The school heads further explained that it has become so challenging for them to support, promote, or integrate TAR activities in the school's annual action plans. They further declared that it was difficult for them to break down the related activities to be accomplished by teachers, and those to be monitored and evaluated by the school administration. It was also noted that this challenge further raised doubts among the school heads on whether TAR was mandatory for teachers in secondary schools. One respondent had this to say:

Even if I decide to promote action research in my school, I'm unsure of where to begin. Neither directives nor guidelines have been made available to us by our leaders. At least there could be something like a framework or model to guide. We have KPIs (Key Performance Indicators) as our guide, but they don't spell out teachers' action research. Sometimes we tend to think that perhaps our leaders have not made it a priority in our schools [Kai-Head2].

The above findings suggest that, despite the recognition of TAR in the new Education and Training Policy (ETP) (URT, 2023) and the emphasis in subsequent curriculum frameworks (MoEST, 2019; 2017; 2015), institutionalisation has remained a problem in Tanzania. The presented findings highlight a significant discrepancy between what is being reinforced in the documents and the actual practice of TAR in schools. A similar case is reported in the Philippines and Singapore, where the government introduced action research to enhance teachers' skills in adapting to new curriculum reforms; however, complex bureaucratic structures still hindered teachers from smoothly implementing the process (Tindowen et al., 2019; Soh, 2011). This observation calls for serious government interventions to bridge the gap by ensuring that TAR is institutionalised in secondary schools in Tanzania, and necessary directives and guidelines are provided to school managers.

### ***Lack of motivation and appreciation***

In the interviews, all six teachers declared that their morale in TAR was weakened since motivation and appreciation were lacking in their schools. It was further found that, regardless of intrinsic motivation, a positive mindset towards change, and self-directed skills acknowledged by teachers as key factors that influenced the majority of them to conduct TAR, a lack of motivation and appreciation was mentioned as affecting their consistency. Some participants expressed that, apart from the complex working environment and the efforts they are making to minimise classroom challenges by integrating action research, nobody appreciates their efforts. A History teacher from Maarifa Secondary School expressed that:

Every human being needs to be appreciated, especially when they do something good. From what I have learned from my colleagues, it is not that teachers do not want to conduct classroom-based action research often. We can achieve wonders compared to what we are doing now, but the challenge is that we are not motivated. We are trying our best, but in the end, we receive no appreciation; we are often blamed as a cause for students' failure [Bozi-CT6].

Based on the presented extract, the findings imply that there is often little recognition or reward for teachers who engage in TAR. This challenge has led some teachers to perceive TAR as an unnecessary burden rather than a professional development opportunity for them to thrive (Albalawi and Johnson, 2022). This occurrence may continue to exacerbate predicaments in limiting teachers' initiatives in TAR activities, particularly when teachers discuss what they do and the direct benefits they receive from the school (as individuals) and the broader community. Correspondingly, Hathorn and Dillon (2018) note that when motivation and

appreciation are lacking for TAR in secondary schools, it increases the likelihood that teachers' enthusiasm will decline. Hence, schools and educational stakeholders must create an environment that values and rewards teachers-researchers in the secondary schools. Support such as mentorship programmes, encouragement for teachers to present at school forums, and rewards, including opportunities or grants, may serve not only as motivation but also as recognition for their impactful efforts.

### ***Overloaded school timetable within time constraints***

It was revealed from interviews that all participants shared a concern about having overloaded responsibilities within the limited time, while simultaneously trying to incorporate TAR into their daily routine activities. The school heads reported having too many office responsibilities, both within and outside the school, in addition to their regular classroom teaching routine. At Juhudi, teachers shared a similar view that their journey of undertaking TAR was very challenging, as it involved not only teaching, which was demanding, but also supervising students in extracurricular activities such as clubs, sports, and cleanliness. Achieving effective and regular TAR appeared to be difficult for teachers, as the majority of them held additional leadership roles, ranging from class to departmental levels.

Integrating classroom-based research into our timetable is like pressing a button to burst. Most of us use extra time during weekends and holidays to plan for research-related activities because time is often insufficient even for current formalised activities. We are spending extra working hours at school, on average, every day, at least to accomplish marking students' written assignments and supervising remedials [Uda-CT3].

While utilising time during the weekend was mentioned to help teachers in Juhudi address the challenge of time constraints, teachers in Maarifa had a contrasting perspective, stating that using weekend days to plan for TAR activities was still challenging for them due to family responsibilities. Consistent with the extant literature, Tindowen et al. (2019) revealed that additional workload and lack of time were among the challenges hindering teachers from fully engaging in TAR. The implication is that, while teachers in some contexts share similar challenges, the case is opposite in other contexts, as found by Hairon (2017) and Garcés and Granada (2016), who revealed that teachers regularly engaged in action research to improve curriculum at the institutional level and enhanced their skills in problem-solving.

### ***Limited in-service professional development opportunities***

Teacher professional development is a continuous process that enables teachers to maintain up-to-date professional knowledge and pedagogy, achieve expected student outcomes, and enjoy autonomy within the teaching profession. However, the findings revealed a significant gap in in-service teacher professional development for secondary school teachers. It was further noted that participants considered the traditional approach to be dominant in in-service professional development, where workshops and seminars were the most commonly known opportunities to teachers, unlike other alternatives found in schools, including TAR. Regardless of this dominance, all participants declared that they were less beneficial for them, as they are minimal, unpredictable, and focus on the minority. Zoa from Maarifa narrated that:

Some of the challenges we face in conducting classroom-based research could have been resolved if we had been given opportunities such as workshops and seminars. I must say, the majority of us have not attended most of those workshops in years. If the opportunity arises, only a few are chosen; others are told to wait for their feedback, which doesn't happen in many cases. At least Science and Mathematics teachers somehow attend [Zoa-CT4].

While it seemed Science and Mathematics teachers in both schools benefit from the limited in-service teacher professional development, a Physics teacher from Juhudi commented that:

Let me clarify: even though science teachers are attending these workshops, it should not be taken as a regular occurrence. Most of the projects I attended were externally funded; once the project finished, it was over, and we were not taught about classroom-based action research [Nepa-CT1].

Due to the vital role of continuity in teachers' professional learning, the limited in-service teacher professional learning in Tanzania contradicts this fundamental narrative, thereby establishing a paradox. While cascade mode has been effectively utilised in other countries, it appears to be inactive and poorly managed in Tanzania. Since the effective use of TAR can also address the challenge of inadequate workshops and seminars, it's high time for education stakeholders to promote it in secondary schools in Tanzania. Schools should establish and strengthen professional learning communities to enhance teachers' collaboration, the sharing of research ideas, and learning from one another. Additionally, there should be a balance in teacher recruitment based on their specialities and across urban and rural areas, with a focus on attending workshops where TAR is integrated into their training manuals.

### *Assessment-driven culture*

Teachers and school heads from both schools shared similar viewpoints on the ongoing assessment-driven culture prevalent in secondary schools in Tanzania. The primary concern revealed by the findings is that Tanzania's education system places a heavy emphasis on evaluation, particularly national examinations, unlike the learning process from which TAR emanated. During the interview, the school head from Juhudi was quoted:

It is very challenging to accommodate every activity in our formal school routine it is obvious that our leaders, parents, and the society in general are interested with students' high performance in national examinations this culture affects our priorities as school managers as well as teachers to the extent of focusing much on achieving results unlike the teaching and learning in the classroom [Gara-Head1].

Similarly, the school head from Maarifa also said:

Our school culture is very complex. As you observed, teachers are now very busy with invigilation, especially those who are teaching Form II, III, and IV, because our leaders have set the outcome level that our students need to achieve. Under this pressure, I usually tell teachers to focus on student assessment, and then they can do other activities when they are done [Kai-Head2].

In light of these findings, it appears that the existing culture in Tanzanian secondary schools prioritises preparing students for standardised tests rather than focusing on experimental or reflective teaching methods. This culture seemed to be challenging for teachers and school heads, especially when they strive to improve their teaching practices through engaging in TAR within the complex school culture. Teachers perceived that the existing school culture negatively influenced their choices, decisions, and practices of TAR. This reason was declared to weaken their engagement in implementing TAR. Although an assessment-driven culture may appear to meet the expectations of various groups in Tanzanian society, including the government, this study found that it negatively affects the practical orientation of both teachers and students, particularly concerning the CBC. The above implication calls for policymakers to balance examination-driven education with research-informed teaching practices to achieve impactful student outcomes and support teachers' professional development.

### **Opportunities for Promoting Teachers' Action Research in Tanzania**

Despite the numerous challenges facing teachers in conducting action research in secondary schools in Tanzania, TAR has remained fundamental for teachers' self-

led professional learning and improving students' outcomes. More teachers can develop the interest, skills, and readiness to conduct classroom-based action research effectively and regularly if the government, under the Ministry of Education, properly utilises the following opportunities.

### ***Availability of universities around the schools***

The availability of higher institutions, such as Universities, around secondary schools can be used as an opportunity to collaborate and negotiate for the support of research experts. The vast experience that experts from Universities have in research can be translated to teachers in secondary schools. School heads can find an appropriate time in the school timetable when teachers can meet face-to-face with their mentor in intervals that they can agree on. This method has been used in many countries, including Tanzania, where Mwakabenga (2021; 2018) conducted interventions to support teachers who were not engaging in TAR. Through these interventions, the findings revealed that teachers were able to complete the research circle and develop new teaching methods. At the same time, teachers strengthened their teamwork and collegiality, while their communication and interaction with students were enhanced to have a positive impact.

### ***Availability of the new education and training policy and curriculum framework***

The current practice and status of teachers' action research among teachers in secondary schools in Tanzania is attributed to the former ETP of 1995, which has less prioritised TAR. Although professional development of teachers was part of the emphasis in the 1995 ETP, the focus was not clearly on subjecting teachers to engage in TAR, as it is spelt and emphasised in the new edition of the 2023 ETP. In the new ETP, TAR is highly emphasised for teachers to align with the new focus of education, which emphasises evidence-based and outcome-based learning (URT, 2023). Additionally, with the use of subsequent curriculum and teacher professional development frameworks, the agenda of promoting TAR in secondary schools through institutionalisation and bridging the gap between theory, literature, and practice will also enhance the development of competencies among students. Hence, TAR in secondary schools will form a strong foundation for transforming the existing school-based professional learning culture in Tanzania. School leaders at the District and Regional levels should ensure that policy and framework documents are easily accessible to teachers and engage them in translating these documents to enhance their understanding of their roles and ownership of what they are expected to implement.

### ***Availability of communities of learning in schools***

Communities of learning are a platform for teachers to initiate action research activities (Chen, 2022; Mjege et al., 2019). Since teachers meet for learning, they share challenges, experiences, values, and methods for dealing with problems; hence, TAR activities can emerge. The collaboration, trust, and sense of sharing that teachers develop in communities of learning are vital for their inquiry process to flourish. This strategy has also been suggested in the National Framework for Teachers Continuous Professional Development in Tanzania which states "in communities of learning, teachers should be encouraged to move towards analysing pupil/student results, and their teaching through collective or individual action research"..... "teachers should also analyse student work and conducting inquiry or action research projects" (MoEST, 2017 p. 8). Similarly, lessons are evident in countries such as China, which has also utilised professional learning communities to promote TAR experiences for many years, yielding tremendous results (Chen, 2022; Mjege et al., 2019). Since communities of learning shape the school's professional learning culture, teachers can adopt a lifelong learning approach as part of an emphasis on adult learning. Therefore, the government should establish proper management of communities of learning in secondary schools due to their multi-player effect in promoting TAR practices in Tanzania.

### ***Technological and digital advancement***

The advancement of digital technology plays a significant role in teaching and learning processes. It is fundamental for teachers to acknowledge this profound opportunity for them to utilise it and transform their professional learning in a more rewarding approach, MoEST. (2019). While support provision based on research expertise and resources continues to be challenging, teachers can utilise platforms such as Google Scholar, ResearchGate, and others to access relevant online learning materials necessary for TAR. Moreover, the utilisation of ICT should be extended to support TAR activities. Smart mobile phones, tablets, laptops, and other devices are crucial tools that many teachers have access to, although they may be less or not be considered essential for helping them in research-related activities. Through those devices, teachers can conduct online surveys, mobile interviews, record interviews, and analyse data, which will make research activities easier for them and minimise challenges.

The improvement of ICT infrastructure to support students' learning in secondary schools should go hand in hand with teachers' consideration, as they are also integral to the learning process within their schools. Since ICT is acknowledged to

enhance curiosity and interest in learning, it can also play a similar role in TAR, attracting more teachers to engage in the inquiry process. For example, watching classroom-based action research videos and tutorials from YouTube may arouse teachers' interest and readiness to try.

## **Conclusion and Recommendations**

This study presents detailed findings based on the perspectives of teachers in Tanzania as revealed by eight teachers from two secondary schools. The findings are presented in two main categories: challenges in TAR and opportunities available in Tanzania that can promote the adoption of TAR. The findings revealed challenges in two sub-categories: teacher-related and institutional-related, as well as the available opportunities within and beyond the school context. Teacher-related challenges include limited research skills, lack of confidence, weak collaboration, poor networking, and institutional (lack of funds, lack of motivation, administrative disregard, assessment-driven culture, excessive workloads, limited professional training, and policy ambiguities in guiding TAR practices).

Despite the numerous challenges prevalent in Tanzania's TAR, this study identified opportunities that can be implemented to improve the current situation. The availability of opportunities, such as higher learning institutions near schools, the new ETP of 2023, frameworks, digital tools, and communities of learning, has been revealed to promote TAR in Tanzania. This study further advocates for formalising TAR through structured administrative support, strengthening teacher autonomy in technology use, and transforming sporadic inquiries into systematic research.

The above findings establish a strong need for national initiatives to ensure policy implementation through institutionalising TAR, as well as teachers' engagement in translating the current ETP 2023 and subsequent curriculum frameworks, which strongly emphasise evidence-based and outcome-based teaching. Together with promoting policy implementation on TAR, there is a need to ensure that communities of learning are actively established in secondary schools, providing teachers with a formal platform that fosters their knowledge sharing and professional development through TAR. It is strongly believed that, if educational leaders at all levels implement their willpower towards addressing the identified challenges through the proper utilisation of available opportunities, more teachers will be able to engage in classroom research and embrace lifelong learning. Regardless of the detailed profundity of the findings in this study, they cannot be generalised because of the varying nature of schools, leadership styles, teachers' attributes, and other factors. Further studies can be conducted in the same area to

expand the scope, increase the sample size, and refine the methodology for broader and in-depth triangulation of the findings.

With a declaration of account for this study, the following recommendations are made available for further actions;

First, Tanzanian government under the Ministry of Education, Science and Technology (MoEST), Universities, Tanzania Institute of Education (TIE), and the Institute of Adult Education (IAE) should review the teacher education curriculum to evaluate whether TAR has been integrated and well captures in terms of scope and methodology that teacher educators at all levels will use to deliver to novice and upgrading teachers. To achieve this, it also requires strong initiative on the part of the government to allocate sufficient funds, enabling MoEST and its sub-sectors to accomplish the goal.

Second, Institutional support for TAR should be offered by Ward, District, and Regional Educational Officers, who should also facilitate school heads in establishing structured support mechanisms to promote TAR at the school, ward, and district levels. The initiatives include fostering collaboration with nearby universities to provide expert guidance and enhance research capacity among teachers.

Third, School heads and teachers should utilise online platforms (e.g., YouTube tutorials, academic websites, etc.) to learn about TAR. This interim measure can help transition from irregular to regular and informal inquiry to formal research practices while awaiting institutionalised training programmes.

Fourth, Teachers should consider their role as adult learners responsible for self-guiding their professional learning. Their intrinsic motivation needs to be developed so that they can take challenges as opportunities rather than limitations. An adult learner needs to clear the path while walking it, as reflection, experience, creativity, and determination are crucial tools that adult learners are expected to possess. Since TAR provides immediate answers to teachers' daily challenges, it has established the primary motive for teachers to step in and improve their classroom practices while embracing the inquiry process, rather than escaping it.

## References

- Albalawi, A., & Johnson, L. N. (2022). Action research skills among public school teachers: A cross-cultural study. *International Journal of Research in Education Science*, 8(2), 286-310. <https://doi.org/10.46328/ijres.2548>

- Al-Mahdi, O. (2019). Action research and teachers' professional development: Examples and reflections. *International Educational Research*, 2(3), 37-p37. <https://doi.org/https://doi.org/10.30560/ier.v2n3p37>
- Anangisyse, W. A. (2010). "Revisiting the alternative responses to the perceived quality 'decline' in basic education" in Tanzania. *KEDI Journal of Educational Policy*, 7(1), 115-183.
- Anderson, J. (2016). Inquiry-based learnin. In *Teaching Secondary Mathematics* (pp. 117-45). Cambridge University Press.
- Banegas, D., Pavese, A., Velázquez, A., & Vélez, S. M. (2013). Teacher professional development through collaborative action research: Impact on foreign English language teaching and learning. *Educational Action Research*, 21(2), 185-201. <http://dx.doi.org/10.1080/09650792.2013.789717>
- Borko, H., Jacobs, J., & Koellner, K. (2010). Contemporary approaches to teacher professional development. In P. Peterson, E. Baker, & B. McGaw, *International Encyclopaedia of Education* (Vol. 7, pp. 548-556). Elsevier.
- Braun, V., & Clarke, V. (2023). Toward good practice in thematic analysis: Avoiding common problems and be(com)ing a knowing researcher. *International Journal of Transgender Health*, 24(1), 1-6. doi:<https://doi.org/10.1080/26895269.2022.2129597>
- Chacha, J., & Onyango, D. (2022). Challenges faced by teachers in implementing competence-based Chemistry curriculum in Public secondary schools in Nyamagana District, Mwanza, Tanzania. *Journal of Research Innovation and Implications in Education*, 6(1), 346-358.
- Chen, L. (2022). Facilitating teacher learning in professional learning communities through action research: A qualitative case study in China. *Teaching and Teacher Education*, 1-11. <https://doi.org/10.1016/j.tate.2022.103875>
- Christensen, L. B., Johnson, R. B., & Turner, L. A. (2015). *Research methods, design, and analysis* (12th ed.). Pearson Education.
- Craft, A. (2000). *Continuing professional development: A practical guide for teachers and schools*. Routledge Flamer.
- Dadi, H. (2015). Teacher professional development: Experiences of three selected African countries and the lessons based on Chinese Practices. *International Journal of African and Asian Studies*, 6, 63-72.
- Darling-Hammond, L. (2006). Constructing 21st-Century teacher education. *Journal of Teacher Education*, 57, 300-314.

- Darling-Hammond, L., Wei, R. C., Andree, A., Richardson, N., & Orphanos, S. (2009). Professional learning in the learning profession: A status report on teacher development in the United States and abroad. *Dallas, TX: National Staff Development Council*. <http://learningforward.org/docs/pdf/nsdcstudy2009.pdf>.
- Elliott, J. (1991). *Action research for educational change*. Open University Press.
- Falk, B., & Blumenreich, M. (2005). *The power of questions: A guide to teacher and student research*. Heinemann Educational Books.
- Garcés, A. Y., & Granada, L. M. (2016). The role of collaborative action research in teachers' professional development. *Profile Issue in Teachers Professional Development*, 18(1), 39-54. doi:<https://doi.org/10.15446/profile.v18n1.49148>
- Guskey, T. R. (2002). Professional development and teacher change. *Teachers and Teaching: Theory and Practice*, 8(3/4), 381-391.
- Hairon, S. (2017). Action research in Singapore: Where are we now? *Asia-Pacific Science Education*, 3(5). <https://doi.org/10.1186/s41029-017-0016-x>.
- Haiyan, Q., & Allan, W. (2021). Creating conditions for professional learning communities (PLCs) in schools in China: The role of school principals. *Professional Development in Education*, 47(4), 586-598. doi:<https://doi.org/10.1080/19415257.2020.1770839>
- HakiElimu. (2021). *The educationee want: A critical analysis of Education and Training Policy (2014), issues, and recommendations*. HakiElimu.
- Halliday, A. J., Kern, M. L., Garrett, D. K., & Turnbull, D. A. (2019). The student voice in well-being: A case study of participatory action research in positive education. *Educational Action Research*, 27(2), 173-196. doi:[10.1080/09650792.2018.1436079](https://doi.org/10.1080/09650792.2018.1436079)
- Hancock, R. (1997). Why are class teachers reluctant to become researchers? *British Journal of In-service Education*, 23(1), 85-99. <https://doi.org/10.1080/13674589700200009>
- Hardman, J. (2017). School-based teacher professional development in Africa: Emerging lessons from Kenya and Tanzania. In A. Matoko & G. LeTendre, *International handbook of teacher quality and policy* (pp. 517-527). Routledge. doi:[orcid.org/0000-0001-6404-8837](https://doi.org/10.1080/0000-0001-6404-8837)
- Hathorn, C., & Dillon, A. M. (2018). Action research as professional development: Its role in education reform in the United Arab Emirates. *Issues in Education Research*, 28(1), 99-119.
- Hine, G. S. (2013). The importance of action research in teacher education programs. *Issues in Education Research*, 23(2), 151-163.

- Hyun, H. (2014). *How to design and evaluate research in education*. Education-Europe.
- James, F., & Augustin, D. S. (2017). Improving teachers' pedagogical and instructional practice through action research: potential and problems. *Educational Action Research, 26*(2), 333-348. doi:10.1080/09650792.2017.1332655
- Jovanova-Mitkovska, S. (2010). The need for continuous professional teacher development. *Procedia Social and Behavioural Sciences, 2*, 2921–2926.
- Kafyulilo, A. C. (2013). Professional development through teacher collaboration: An approach to enhance teaching and learning in Science and Mathematics in Tanzania. *Africa Education Review, 10*(4), 671-688.
- Kemmis, S. (2009). Action research as a practice-based practice. *Educational Action Research, 17*(3), 463-474.
- Knowles, M. (1984). *The adult learner: A neglected species (3rd Ed.)*. Gulf Publishing.
- Komba, S. C., & Mwakabenga, R. J. (2019). Teacher professional development in Tanzania: Challenges and opportunities. *Educational Leadership*.
- Kunje, D., & Stuart, J. (2006). Action research in developing African education systems: Is the glass half full or half empty? *Educational Action Research, 6*(3), 377-393. <https://doi.org/10.1080/09650799800200071>
- Lewin, K. (1946). Action research and minority problem. *Journal of Social Issues, 2*(4), 34-98.
- Lewin, K. (1958). *Group decision and social change*. Holk, Rinehart and Winston.
- Losioki, B. E. (2020). Professional development and empowerment among secondary school teachers in Mkuranga District, Tanzania. *Journal of Education and Practice, 11*, 92-98.
- Mgaiwa, J. S. (2018). Emerging fundamental issues of teacher education in Tanzania: A reflection of practices. *Educational Process: International Journal, 7*(4), 246-264.
- Mizell, H. (2010). Why professional development matters. *Learning Forward: Advancing professional learning for student success*, 1-28. <https://learningforward.org/wp-content/uploads/2017/08/professional-development-matters.pdf>
- Mjege, K., Kavenuke, P. S., & Mwakabenga, R. J. (2019). Promoting teacher professional learning in Tanzanian schools: Lessons from Chinese school-based professional learning communities. *Research Gate, 8*(1), 47-63.
- Mkumbo, K. (2012). Teachers' commitment to, and experiences of, the teaching profession in Tanzania: Findings of focus group research.. *International Education Studies, 5*(3), 222-227.

- MoEST. (2017). *National framework for teachers' continuous professional development*. Ministry of Education, Science, and Technology.
- MoEST. (2019). *National curriculum framework for basic education and teacher education*. Tanzania Institute of Education.
- Morales, M. P., Abulon, E. L., Soriano, P. R., David, A. P., Victoria, M. C., Hermosisima, & Gerund, M. G. (2016). Examining teachers' conceptions of and needs on action research. *Issues in Educational Research*, 26(15), 464-489.
- Mwakabenga, R. J. (2018). *Developing teacher-led professional learning in a Tanzanian secondary school (thesis)*. Massey University.
- Mwakabenga, R. J. (2021). Secondary school teachers' experience of using action research in classroom practices. *African Journal Online (AJOL)*, 39(2), 119-139.
- Mwakabenga, R. J., Hansen, S., & Sewell, A. (2022). Teachers' efforts to overcome barriers in their professional learning activities: A case of teacher professional programs in Tanzania. *Journal of African Education*, 3(1), 11.
- Tindowen, D. J., Guzman, J., & Macanang, D. (2019). Teachers' Conception of difficulties in doing action research. *Universal Journal of Education Research*, 7(8), 1787-1794.
- UNESCO. (2014). *UNESCO Education Strategy 2014-2021*. The United Nations Educational, Scientific and Cultural Organisation.
- URT. (2023). *Education and Training Policy 2014 (Edition 2023)*. Ministry of Education, Science, and Technology.
- World Economic Forum. (2015). *New Vision for Education: Unlocking the potential of technology*. World Economic Forum.
- Zhao, Y., & Watterston, J. (2021). The changes we need: Education post-COVID-19. *Journal of Educational Change*, 22(1), 3–12. <https://doi.org/10.1007/s10833-021-09417-3>



## **Limitations of Access to Assistive Technologies Among Visually Impaired Distance Learners: Evidence from The Open University of Tanzania**

***Bahati Johnson Kibona & Philipo Lonati Sanga***

*Institute of Adult Education*

**Email:** [kibonabahati@gmail.com](mailto:kibonabahati@gmail.com) & [philipolonati@gmail.com](mailto:philipolonati@gmail.com)

### ***Abstract***

*This paper examines the limitations faced by visually impaired learners in accessing assistive technologies (ATs) at the Open University of Tanzania (OUT). Despite inclusive policies, visually impaired learners face substantial barriers to accessing ATs. Using the Students, Environment, Task, and Tool (SETT) framework by Zabala 1990 this study adopted a qualitative approach with a single-case study design. The study included 18 participants who were purposively selected. Data were obtained through interviews, documentary reviews, and observations, and analysed using inductive thematic analysis. The findings revealed various limitations, including difficulties in comprehending robotic acoustic output, insufficient assistive technology devices (ATDs), the absence of dedicated assistive technology units and facilitators at regional centres, and financial constraints. These limitations impede visually impaired learners' engagement with educational content and navigation of distance learning environments. The study recommends that the Open University of Tanzania enhance AT availability by addressing financial barriers to foster inclusive distance learning environments and improve visually impaired learners' participation.*

**Keywords:** *assistive technologies, visually impaired distance learners, open university of Tanzania*

### **Introduction**

Visual impairment, affecting over 2.2 billion individuals globally, encompasses a spectrum from partial to complete vision loss, classified by visual acuity and field of vision (Sahli & Idil, 2019; WHO, 2020, 2022). This increasing prevalence has driven the development of assistive technologies (ATs) to enhance the quality of

life of affected individuals (Senjam, 2019). Recognising the critical need for equitable educational access, the United Nations urged member states to ensure that assistive technologies are available across all educational formats, including DL systems (Senjam, 2021). Distance learning (DL) has emerged as a preferred educational approach for visually impaired individuals because of its flexibility and accessibility (Alamri & Tayler-Wood, 2017), enabling remote access to resources and narrowing the gap between students and instructors (Gu, 2022; Saykili, 2018). This model empowers visually impaired learners to study independently at their own pace with the support of ATs (Alabi & Mutula, 2020; Hagman, 2021; Tuttle & Carter, 2023). ATs play a crucial role in facilitating active participation of visually impaired learners in DL environments (Majid, 2020), bridging disability-related gaps, enhancing accessibility, and providing unprecedented access to educational materials and resources (WHO, 2020; Huff, 2022).

As established by Zabala in 1990, the Students, Environment, Tasks and Tools (SETT) framework serves as a guide for selecting and implementing ATs for individuals with disabilities to enhance AT accessibility (Zabala, 2020). This framework addresses the needs of students, the learning environments, the tasks required, and the tools available to ensure that ATs are both accessible and advantageous for visually impaired learners. WHO (2022) indicates that academic success and progress of visually impaired learners are profoundly reliant on the availability and accessibility of suitable assistive technologies. It is essential to emphasise that the effectiveness of assistive technologies depends on the provision of relevant tools and necessary services specifically tailored to the characteristics, needs, and diverse situations of visually impaired learners. Williams et al. (2024) underscore the fact that thoughtful matching of assistive technologies to learners is crucial for maximising their potential. Conversely, if educational institutions provide assistive technologies without closely adhering to the principles outlined in the SETT framework, there can be deleterious consequences, such as the emergence of inaccessible technologies.

The implementation of assistive technologies for visually impaired learners presents substantial challenges, despite their potential advantages. These challenges arise from a complex interplay of causative factors, including inequitable resource distribution, pervasive poverty, and ineffective policy implementation (WHO, 2022; Addis et al., 2020). Moreover, these challenges are further exacerbated by a shortage of service providers and insufficient training, leading many institutions to depend on outdated technologies that inadequately address user needs in the digital age (Assie, 2021; Nasiforo & Ntawiha, 2021;

Pitsaone & Matjila, 2021; Ndlovu, 2021; Dabi & Golga, 2024). Although various policies and legislations supporting individuals with special needs are in place, their implementation is impeded by persistent obstacles, including insufficient funding, inadequate ICT skills, and a lack of properly trained personnel, as is the case in Tanzania (Kisanga & Kisanga, 2020; CIPESA, 2021; Ngonyani & Mnyanyi, 2021; Mnyanyi, 2022). These interconnected issues create a challenging environment for the effective adoption and utilisation of ATs in educational contexts, underscoring the need for comprehensive strategies to address these multifaceted barriers.

In Tanzania, the 2022 census revealed a substantial proportion of individuals with visual impairments who require ATs to maintain autonomy in daily activities (United Republic of Tanzania (URT). This demographic group constitutes a larger cohort than those with other forms of disability (URT, 2024). Tanzania has implemented a range of policies, legislations, and standards to support individuals with special needs, including those with visual impairment. Significant legal measures encompass the 2010 Act against discrimination of people with special needs, the 1994 Vocational Education and Training Act, the 1982 Disabled Persons Empowerment Act, the 1982 Disabled Care and Maintenance Act, the 2004 National Policy on Disability, the 2004 Zanzibar Education Policy, the 2006 Zanzibar Persons with Disabilities (Rights and Privileges) Act No. 9, the National Disability Advisory Council, and the National Disability Mainstreaming Strategy 2010-2015 (URT, 2024). Notwithstanding these initiatives, several obstacles persist, including inadequate funding, insufficient Information and Communication Technology (ICT) skills, a paucity of properly trained personnel to support students with special needs, and a lack of assistive technology experts. These barriers impede the advancement towards equitable educational opportunities for learners with visual impairment (Kisanga & Kisanga, 2020; Ngonyani & Mnyanyi, 2021).

The Open University of Tanzania (OUT) is an inclusive higher education institution that functions in 27 regional centres in the country. These centres are dedicated to offering education through DL (OUT, 2018b; Ali, 2020). Its commitment to inclusivity is particularly evident in OUT's proactive measures to support visually impaired learners, as demonstrated by a specialised unit at the university headquarters. This Assistive Special Technology Unit (ASTU) provides essential resources, including assistive technology services (ATs), Information and Communication Technology (ICT) training, and customised support mechanisms (Mnyanyi, 2022). By effectively integrating these services into its educational framework, OUT not only enhances the learning experiences of visually impaired learners but also establishes a standard for accessible and inclusive higher

education. It offers a diverse range of instructional methods and services that address the unique needs of all learners (OUT, 2018b; OUT, 2024a).

The increasing significance of ATs for visually impaired learners in distance learning underscores the critical need to comprehend the specific limitations of access to ATs encountered by such learners in Tanzania, particularly at OUT. Although previous studies have documented the challenges faced by visually impaired learners in conventional educational settings (Kisanga & Kisanga, 2020; Ngonyani & Mnyanyi, 2021), knowledge regarding the unique access limitations encountered by visually impaired learners in distance learning environments is limited, even though their learning process depends on accessible technologies. Consequently, this study sought to address this knowledge gap by examining limitations of access to ATs encountered by visually impaired distance learners at OUT, thereby contributing to a more comprehensive understanding of ATs in distance learning and potentially informing strategies to enhance accessibility for these learners.

## **Methodology**

The interpretivist philosophical paradigm guided this qualitative single-case study, enabling a thorough examination of the experiences of 15 visually impaired learners, the Head of the Assistive Special Technology Unit (ASTU), and two AT facilitators within the context of DL systems at the OUT. A criterion-purposive sampling technique was used to select these 18 participants from the OUT's regional centres and headquarters, where visually impaired learners were registered from 2022/2023 to 2024/2025. Data for this study were collected from the OUT regional centres, including Mbeya, Kinondoni, Iringa, Dodoma, Songwe, Kigoma, and the OUT headquarters. The visually impaired learners were identified as information-rich cases because their effective learning in DL depended on accessible ATs. Two AT facilitators and the head of ASTU were selected for their experience in supporting visually impaired learners with ATs. Additionally, OUT was chosen as the study site because it is the only standalone DL institution in Tanzania, representing a noteworthy area of enquiry due to its promotion of inclusive, accessible, and lifelong higher education. The study employed semi-structured interviews, document analyses, and non-participant observations to gather data, enabling a comprehensive exploration of the limitations to accessing assistive technology. Inductive thematic analysis, as described by Braun and Clarke (2022), was used to identify recurring themes within the dataset. The analysis followed six phases: (1) familiarising with the data through transcript reading, (2)

initial coding via open coding, (3) theme identification by grouping similar codes, (4) reviewing themes for coherence, (5) defining and naming, and (6) producing the final report. The process included peer debriefing and iterative discussions to enhance coding reliability. While recognising the subjectivity inherent in qualitative interpretation, these procedures ensured analytical rigour. This approach provided insights into limitations faced by visually impaired learners in accessing ATs, thereby informing potential interventions in DL environments.

## **Results and Discussion**

### **Challenges in comprehending robotic acoustics**

Interviews with visually impaired learners and the Head of ASTU revealed that synthetic speech in screen reader software significantly limited students' interaction with digital content. The findings showed that individuals with visual impairment faced difficulties in comprehending artificial voice output on accessible computers and mobile devices. This impediment was so critical that some learners experienced challenges using screen reader software. The inability to comprehend auditory output hindered their educational advancement and restricted their engagement with technology, which is crucial for academic progress. One of the visually impaired learners revealed:

I remember one of the significant challenges I faced when I was trying to use computers was the robotic acoustics produced by screen readers. The synthetic quality of the voice made it difficult for me to comprehend the information conveyed. In fact, it took me quite a bit of time and effort to fully understand and become accustomed to the sound. I recall that during the initial stages, it was particularly frustrating as I struggled to grasp what was being said.

The findings indicate that the robotic acoustic screen reader is a hindrance to visually impaired learners as it obstructs their understanding of the educational materials. Some learners have reverted to analogue-based assistive technology devices (ATDs), like Perkins Braille typewriters, underscoring the need for effective acoustic information comprehension in academics. The World Health Organisation (WHO) (2022) stresses that education institutions should ensure that learners with special needs can access appropriate ATs. World Health Organisation (WHO) intentions align with Zabala's 1990 framework, which emphasises assessing individual capacities before implementing ATDs (Zabala, 2020). These insights highlight the need for institutions to provide accessible, practical, and tailored technological solutions that accommodate each visually impaired learner's

unique capabilities, fostering a more personalised and effective educational experience.

### **Financial constraints**

The study findings revealed that financial constraints significantly impede the Open University of Tanzania (OUT) from smoothly implementing inclusive education, thus affecting the visually impaired learners. Economic limitations have hindered their ability to access assistive technology devices (ATDs) effectively. These difficulties prevented OUT from acquiring advanced assistive technology devices, such as Braille Sense, Seika Version 3 (V3Pro), and BrailleNote Touch, which restricted educational opportunities and exacerbated study challenges. One of the AT facilitators opined:

OUT is unable to provide high-technology assistive devices such as Perkins braille writers, embossers, braille sense equipment, and Seika due to their substantial cost for visually impaired learners. The university is awaiting governmental support. In view of this, we encourage learners to acquire personal computers, which enable visually impaired individuals to access essential educational resources and tools that can significantly enhance their academic pursuits.

This quote highlights that financial limitation hinders access to assistive technologies at the Open University of Tanzania, transferring the burden to learners and potentially causing disparities among economically disadvantaged individuals. Based on these findings, OUT should explore alternative strategies to support visually impaired learners, such as enhancing advocacy for additional government funding for inclusive education and ATs. Kisanga and Kisanga (2020) found that financial limitations significantly impede institutions and learners from acquiring ATDs. This lack of funding hinders the establishment of support systems and learners' procurement of assistive devices. Financial constraints were also noted by Mnyanyi (2022) as a prominent barrier to the adoption of ICT-based ATs for the visually impaired, highlighting the need to address financial challenges.

### **Inadequacy of appropriate assistive technology devices**

Interviews conducted with visually impaired learners, assistive technology facilitators, and the Head of the Assistive Special Technology Unit (ASTU), along with documentation analysis, highlighted a significant deficiency in the availability of appropriate assistive technology devices (ATDs). The study found that visually impaired learners at OUT are deprived of advanced ATDs, such as Braille Sense, Braille Touch, and OrCam MyEye, which considerably hinders their educational

experience. The primary challenges identified included limited access to educational materials, reduced engagement in online learning environments, and increased reliance on others, all of which collectively contribute to suboptimal academic performance and diminished autonomy. One of the visually impaired learners disclosed:

Honestly, using a computer with a screen reader hasn't made things easier for me. The screen reader reads what is on the screen, but the keyboard lacks Braille features. I must memorise each letter, number, and symbol in each key. This is similar to walking through a maze in the dark.

The excerpt highlights one of the challenges faced by visually impaired learners when using screen-reader software. A major access issue involved the lack of braille functionality on keyboards, which hindered navigation. These findings show an implementation gap between OUT objectives and the experiences of visually impaired learners. While computer proficiency was being emphasised, many faced difficulties with standard keyboards, which potentially hindered their engagement with technology meant to support their education, which affected their learning experiences. Another visually impaired learner added:

I wish the OUT could include Braille Sense assistive tools. These tools are specifically designed for individuals with visual impairment and function similarly to computers to enhance learning. Using the Perkins Braille layout, we can easily compose and convert Braille text into a standard print, making it possible for one to have documents in either format.

The excerpt indicates OUT's lack of advanced ATs, such as Braille Sense, which is beneficial for visually impaired learners. The findings underscore Braille Sense's suitability for effective academic use. Providing devices such as Braille Sense to visually impaired learners can address this disparity, thus fostering a more equitable learning environment and augmenting learner autonomy. Moreover, the head of the Unit supported this assertion and said:

The university currently has a limited supply of braille-based assistive devices, including brailleNote, braille displays, and embossers. As a result, we primarily encourage visually impaired learners to utilise computers and smartphones equipped with screen reader software, such as NVDA or TalkBack. However, due to the geographical dispersion of our learners, only a small number of learners were able to attend training sessions provided on the use of screen readers.

The quotation underscores a notable deficiency in the provision of assistive technologies (ATs) at the Open University of Tanzania (OUT), where essential braille-based devices such as BrailleNote and braille displays are inadequate.

Consequently, visually impaired learners are encouraged to rely on screen reader software, including NVDA or TalkBack. This situation highlights a critical gap in resources, indicating that the current AT strategies at the Open University of Tanzania (OUT) do not sufficiently address the diverse needs of visually impaired learners. This finding contradicts the Open University of Tanzania's 2018 ICT policy page 5, which outlines OUT's objective of enhancing the learning environment for individuals with special needs through ICT facilities (OUT, 2018a). OUT aims to facilitate learning experiences for visually impaired learners. The ICT-Master plan from 2019/2020 to 2023/2024 included a strategic initiative to procure appropriate technologies for individuals with special needs (OUT, 2019). Moreover, findings from observations revealed significant inadequacies in technological resources at the OUT headquarters, particularly for visually impaired learners. Specifically, only eight computers were available at the ASTU office for use by visually impaired learners and students with other disabilities. The inadequacy of accessible technology raises concerns regarding institutions' ability to provide adequate support and equitable learning opportunities for students with diverse needs, including those with visual impairment.

Nasiforo and Ntawiha's (2021) study on ATDS among visually impaired learners at the University of Rwanda College revealed a significant shortage of and non-functional equipment, thereby questioning the adequacy of the support provided to visually impaired learners. Senjam et al. (2019) investigated the awareness and utilisation of ATs among blind learners in Delhi, highlighting a reliance on unsuitable tactile-based technologies due to difficulties in accessing high-tech devices. The SETT Framework highlights institutional shortcomings in addressing special needs where inadequate AT provision results from a lack of attention, poor assessment, and flawed implementation strategies (Zabala, 2020). To enhance the adequacy, availability, affordability, and accessibility of ATDs for visually impaired distance learners in e-learning, the US government implemented supportive measures, including providing funds to visually impaired learners to procure ATDs (Alabi & Mutula, 2020). In Canada, the Tetra Society of North America, comprising engineers, students, health professionals, and volunteers, designed and constructed assistive technology devices tailored to specific needs (Tuttle & Carter, 2023).

### **Absence of assistive technology facilitators at the regional centres**

Interviews with visually impaired learners, the assistive special technology unit (ASTU) Head, and assistive technology facilitators revealed that assistive

technology specialists were located only at the OUT headquarters, and no regional centres had any of them to serve these learners. This shortage impedes access to essential ATs that are crucial for learning. The findings indicated that visually impaired learners were limited to communicating only with facilitators at the OUT main office, thus creating a support barrier. The situation was worsened by the requirement for learners to travel to OUT headquarters for technical guidance. This poses logistical challenges, hence hindering timely assistance. One of the visually impaired learners complained:

Frankly speaking, our regional centre completely lacks an assistive technology facilitator, as these facilitators are only available at the OUT headquarters. This situation is particularly problematic because when we encounter challenges related to assistive technology, we are compelled to seek help from specialists, but these are located at the OUT headquarters in Dar es Salaam. This arrangement significantly hinders our learning process and poses a substantial obstacle to our academic pursuits (Visually Impaired Learner 5)

An AT facilitator corroborated:

We are the only two AT facilitators employed at our institution, both stationed at headquarters to support visually impaired learners. While we offer online assistance for straightforward issues, such as NVDA screen-reader updates, the lack of AT facilitators at regional centres limits consistent access to support.

The findings indicate a lack of assistive technology facilitators at OUT regional centres, depriving visually impaired learners of timely support. This is a significant obstacle in the OUT-DL framework, as learners at the regional centres rely on an assistive technology facilitator at OUT headquarters, and sometimes travel there for help. Document review of the 2014 Student Affairs Policy intentions contradicts these findings. The policy emphasises OUT's need to establish training programmes for individuals with special needs, including visual impairments, and to provide appropriate equipment and facilities across centres (OUT, 2014). The findings also did not align with the SETT framework's emphasis on planning and implementing assistive technology, including comprehensive ATs for learners with special needs. Zabala (2020) asserts that effective ATs ensure successful integration, enabling academic and personal success. Therefore, assistive facilitators located at the headquarters could not significantly enhance support to these learners. Ngonyani and Mnyanyi (2021) noted the inadequate AT facilitators in Tanzanian higher learning institutions, emphasising that the lack of qualified personnel hinders disabled learners from optimising educational resources. Similarly, Dabi and Dolga (2024) observed challenges at Haramaya University, where visually impaired learners were struggling to utilise campus ATDs due to insufficient expert

training. This scarcity of specialised personnel affects the availability and usability of ATs and impedes learners' ability to leverage academic support resources, thereby compromising their access experience.

### **Lack of dedicated assistive special technology activities at the regional centres**

Interviews with visually impaired learners and assistive technology specialists revealed an absence of dedicated assistive technology activities at regional centres, which was identified as a primary concern for learners and instructors. The sole assistive special technology unit activities associated with the OUT are at its headquarters office, creating accessibility challenges for regional centres. A visually impaired learner reported:

In our regional centres, there is no dedicated assistive technology unit where we can receive training and support. This becomes challenging when we encounter issues with assistive technologies. Typically, we are referred to a specialist at the headquarters.

The study revealed that the OUT regional centre lacked a dedicated assistive technology unit, which impedes learners' access to assistive technology services. Centralisation of assistive technology units at the OUT main office creates accessibility barriers for learners at regional centres, causing educational disparities. This situation has led to reduced learning opportunities for visually impaired distance learners. This calls for the need for OUT to establish assistive technology units in regional centres. As the SETT framework underscores, educational institutions should prioritise learners' learning environments to ensure equitable access to education for all learners (Zabala, 2020).

Moreover, the review of the Open University of Tanzania 2023/2024 prospectus on page 165 indicated that the university's ASTU unit was exclusively located at OUT Headquarters (OUT, 2024a). This has not realised what the 2018 rolling strategic plan indicated, which indicated that OUT was committed to implementing support systems for individuals with special needs in all regional centres (OUT, 2018a). Such discrepancies raise concerns regarding the efficacy and accessibility of OUT's promised support, particularly for learners with visual impairments.

The findings underscore the importance of providing adequate assistive technology at OUT regional centres to align with the study by Kisanga and Kisanga (2020). This support provision is essential for a suitable learning environment for the visually impaired learners. Pitsaone and Matjila (2021) revealed that the absence of a dedicated support unit significantly impedes educational progress, leading to higher attrition rates and extended study duration. The interplay between

inadequate assistive technology and a lack of specialised support creates a compounded challenge, thus highlighting the urgent need for comprehensive interventions. These findings emphasise the need for OUT to implement strategies that combine technological resources and dedicated support to create a more inclusive and effective learning environment.

### **Limited awareness of the available assistive technologies**

Interviews with visually impaired learners and an examination of pertinent documents revealed that a significant proportion of visually impaired learners were unaware of the range of assistive technologies available to them at the OUT. The investigation demonstrated that this lack of awareness regarding accessible technologies stemmed from insufficient information dissemination during the orientation. Inadequate communication about these supportive tools during these crucial introductory periods impedes learners from timely and sufficient utilisation of the resources designed to enhance their academic experience. One of the visually impaired learners claimed:

It is noteworthy that during our September orientation session at the centre, none of the instructors provided any information regarding the ATs available at the OUT.

The quotation demonstrates that visually impaired learners at OUT lack a comprehensive understanding of accessible ATs, partly due to inadequate orientation programmes. This insufficient information causes difficulties in accessing and utilising available ATs, which consequently lowers their ability to employ resources to support their academic pursuits. To that, Nganyani and Mnyanyi (2021) observed that visually impaired learners' lack of AT awareness hindered effective utilisation and restricted access to essential resources, thereby impacting their learning experience. Conversely, in Ethiopia, Dabi and Golga (2024) reported high AT awareness among visually impaired learners, instructors, and programme managers, enhancing the effectiveness of these tools in supporting such learners. The SETT framework posits that educational institutions prioritising inclusivity and emphasising ATs observe greater awareness among learners (Zabala, 2020). Inclusive learning environments can encourage recognition of assistive technologies' accessibility and their benefits for diverse learners.

An analysis of the 2023/2024 Prospectus has identified a significant lack of information concerning special needs, particularly in relation to the availability of assistive technologies (ATs) at the Open University of Tanzania (OUT) (OUT, 2024a). These findings are consistent with the findings of the Students Affairs

Policy, which also indicated inadequate documentation of enrolled learners with special needs, as noted in the Open University of Tanzania Fact and Figure (OUT, 2014). These informational deficiencies underscore a potential area for enhancement in addressing the needs of students with disabilities, including visually impaired learners, at OUT. This impedes the stakeholders' ability to access data and support these learners. A review of orientation speeches by Deans from 2020/2021 to 2023/2024 indicated the absence of information on support for visually impaired learners and available ATs. This absence suggests insufficiency in support giving to enhance learners' experiences, which consequently hinders their academic engagement. Without adequate knowledge about assistive technology, visually impaired learners face greater challenges in achieving academic objectives.

### **Inadequate training on the utilisation of diverse assistive technology devices**

The study revealed that the OUT does not provide adequate ATDs training and accessibility support for visually impaired learners. Most visually impaired learners reported insufficient ATDs usage training due to a lack of assistive technology specialists at their centres, which adversely affects the learning process and their academic performance. The following response was obtained:

When I joined the OUT, I was informed that screen readers like NVDA would greatly assist me in my studies. However, the absence of an AT facilitator here meant that I had to learn on my own through trial and error while also seeking help from others. Often, I find myself stuck, unsure which keys to press or how to properly access my materials.

Similarly, the Head of ASTU added:

We recognise that visually impaired learners at regional centres encounter challenges with assistive technologies, such as screen readers. Unfortunately, due to staffing limitations, we were unable to assign dedicated assistive facilitators to regional centres. This shortfall has evidently impacted the level of hands-on training that our learners receive, and we are actively working to resolve this issue.

These quotations reveal that the OUT inadequately trains learners with visual impairment, especially those located outside Dar es Salaam, where the headquarters is located, leading to deficiencies in essential computer skills. This finding highlights the need for autonomous learning, which can be challenging without guidance. Specialised programmes for visually impaired learners are crucial, especially in rapidly evolving fields, such as ATs. The SETT framework stresses the importance of accessible ATs to those with special needs to improve their

quality of life (Zabala, 2020). The lack of training indicates inadequate access to assistive technologies at OUT. Implementing the necessary training will help reduce this skill deficit and promote inclusion in distance learning. Similarly, Nganyani and Mnyanyi (2021) highlighted that insufficient training on using ATs among visually impaired learners limits their educational efficacy. Huff (2022) also found a significant need for training to enhance accessibility to educational computing applications. These findings underscore the need for effective training to ensure the efficient use of ATs, which can significantly enhance the learning experiences of visually impaired learners.

## **Conclusion and Recommendations**

It can be concluded that the accessibility of ATs to visually impaired learners at the OUT faces significant limitations owing to a combination of interrelated factors. The absence of adequately trained assistive technology facilitators, who can effectively implement and support these technologies, hinders the widespread adoption and optimal use. Financial constraints further worsen the situation, thus limiting the acquisition and maintenance of up-to-date ATs, which could greatly benefit visually impaired learners. Additionally, the centralisation of these technologies and the facilitators at OUT headquarters creates access barriers for learners in remote or underserved areas. These combined inadequacies result in a systemic issue that restricts the potential of ATs to enhance educational experiences and outcomes for visually impaired learners, ultimately affecting their ability to fully engage and benefit from educational opportunities.

One recommendation requires OUT to establish an assistive technology unit at regional centres responsible for providing support to the visually impaired learners. Additionally, we suggest that OUT increase the number of qualified assistive technology facilitators and improve awareness programmes of available ATs. Furthermore, we recommend that the OUT develop a training strategy to equip learners with the skills needed to use ATs effectively and address financial limitations by securing increased funding or forming partnerships.

## **References**

- Addis, K. (2020). Discrepancies between support provided and accessed in UK for disabled students. *Asia Pacific Journal of Developmental Differences*, 7(1), 99-111.
- Alabi, A. O., & Mutula, S. M. (2020). Digital inclusion for visually impaired students through assistive technologies in academic libraries. *Library Hi Tech News*, 37(2), 14-17. <https://doi.org/10.1108/LHTN-11-2019-0081>.

- Alamri, A., & Tayler-Wood, T. (2017). Factors affecting learners with disabilities-instructor interaction in online learning. *Journal of Special Education Technology*, 32(2), 59-69. <https://doi.org/10.1177/01626434416681497>.
- Assie, R. A. (2021). Availability of assistive technology devices for students with visual impairment: Evidence from the University of Cape Coast. *Global Scientific Journals*, 9(2), 413-434. [https://www.globalscientificjournal.com/researchpaper/Availability\\_of\\_Assistive\\_Technology\\_Devices\\_for\\_Students\\_with\\_Visual\\_Impairment\\_Evidence\\_from\\_the\\_University\\_of\\_Cape\\_Coast.pdf](https://www.globalscientificjournal.com/researchpaper/Availability_of_Assistive_Technology_Devices_for_Students_with_Visual_Impairment_Evidence_from_the_University_of_Cape_Coast.pdf).
- Braun, V., & Clarke, V. (2022). Can I use TA? Should I not use TA? A comparing reflexive thematic analysis and other pattern-based qualitative analytic approaches. *Counselling and Psychotherapy Research*, 21(1), 37-47. <https://doi.org/10.1002/capr.12360>.
- CIPESA. (2021). *Assessing the barriers to accessing ICT by the people with disabilities in Tanzania*. CIPESA.
- Creswell, J. W., & Creswell, J. D. (2022). *Qualitative, quantitative and mixed method approaches* (6<sup>th</sup> ed.). SAGE Publication.
- Dabi, G., & Golga, D. N. (2024). Availability, awareness and utilization of assistive technologies among students with visual impairment: The case of Haramaya University Ethiopia. *British Journal of Visual Impairment*. 42(1), 177-192. <https://doi.org/10.3390/socialsci4020025>.
- Gu, J. (2022). Development history and theoretical basis of distance education: A discussion on teachers' information literacy based on the TPACK Model. In proceedings of the 2022 2nd international conference on education, Information Management and Service Science (EIMSS 2022), Changsha, China, 22–24 July 2022; pp. 1024–1033.
- Hagman, E. R. (2021). *Blind accessibility in college and university: Is online learning accessible to all?* EWU Master's Thesis Collection. 683. <https://dc.ewu.edu/theses/683>.
- Huff, E. W. (2022). *Designing and evaluating accessible e-learning for students with visual impairments in K-12 Computing Education*. All Dissertations. 2996. [https://tigerprints.clemson.edu/all\\_dissertations/2996](https://tigerprints.clemson.edu/all_dissertations/2996).
- Kisanga, D. H., & Kisanga, S. E. (2020). Access to assistive technology among students with visual impairment in higher education institutions in Tanzania: Challenges and coping mechanisms. *University of Dar es Salaam Library Journal*, 15(2), 137-151. <https://journals.udsm.ac.tz/index.php/lj/article/view/3992>.

- Kocdar, S., & Bozkurt, A. (2022). Supporting learners with special needs in open, distance, and digital education. In O. Zawack-Richter & I. Jung (Eds.). *Handbook of open, distance and digital education*, (pp.1-16). Springer. [https://doi.org/10.1007/978-981-19-0351-9\\_49-1](https://doi.org/10.1007/978-981-19-0351-9_49-1)
- Matter, R. A., & Eide, A. H. (2018). Access to assistive technology in two Southern African countries. *BMC Health Services Research*, 18(1), 1-10. DOI: [10.1186/s12913-018-3605-9](https://doi.org/10.1186/s12913-018-3605-9)
- Mnyanyi, C. B. (2022). ICT-Based technology for empowering persons with visual impairments. *Journal of Issues and Practice in Education*, 14(2), 35-49. <https://doi.org/10.61538/jipe.v14i2.1214>.
- Nasifaro, B. M., & Ntawiha. P. (2021). Provision of assistive resources for learners with visual impairment in Colleges of the University of Rwanda. *Rwanda Journal of Education*, 5(1), 21-30. <https://www.ajol.info/index.php/rje/article/view/202585>.
- Ndlovu, S. (2021). Provision of assistive technology for students with disabilities in South African Higher Education.] *International Journal of Environmental Research and Public Health*, 8(18), 1-19. DOI: [10.3390/ijerph18083892](https://doi.org/10.3390/ijerph18083892)
- Nkonyani, J., & Mnyanyi, C. (2021). The accessibility of assistive technology for students with disabilities in higher learning institutions: A case of the University of Dar-es-Salaam in Tanzania. *International Journal of Research and Innovation in Applied Science (IJRIAS)*, 6(9),103-110. <https://www.rsisinternational.org/journals/ijrias/digital-library/volume-6-issue-9/103-110.pdf>.
- Open University of Tanzania (OUT) (2014). *Students' affairs policy*. OUT
- Open University of Tanzania (OUT) (2018a). *Rolling Strategic Plan 2018/2019*. OUT.
- Open University of Tanzania (OUT) (2018b). *IEMT newsletter*. OUT.
- Open University of Tanzania (OUT) (2019). *Information and Communication Technology Master Plan 2019/20-2023/24*. OUT
- Open University of Tanzania (OUT) (2024a). *Prospectus*. OUT
- Open University of Tanzania (OUT) (2024b). *Number of Students with Disability*. OUT
- Pitsaone, E. M., & Matjila, T. N. (2021). Experiences of students with visual impairments at an Open Distance and e-learning University in South Africa: Counselling perspective. *Journal of Students Affairs in Africa*, 9(2), 123-138. <https://upjournals.up.ac.ac.za/index.php/jsaa>.
- Sahil. E., & Idil, A. (2019). A common approach to low vision: Examination and Rehabilitation of the patient with low vision. *Turkish Journal of Ophthalmology*, 42(2), 89-98. <https://doi.org/10.4274/tjo.galenos.2018.65928>.

- Saykili, A. (2018). Distance educations, generations, key concepts and future directions. *International Journal of Contemporary Educational Research*, 5(1), 2-17. <https://doi.org/10.33200/ijcer.405820>.
- Senjam, S. S. (2019). Assistive technology for students with visual disability: Classification matters. *Kerala Journal of Ophthalmology*, 31(2), 86-91. [https://doi.org/10.4103/kjo.kjo\\_36\\_19](https://doi.org/10.4103/kjo.kjo_36_19).
- Senjam, S. S. (2021). Smartphones as assistive technology for visual impairment, *Eye*, 35(8), 2078-2080. <https://doi.org/10.1038/s41433-021-01499-w>.
- Tuttle, M., & Carter, E. W. (2023). Assistive technology use among students with visual impairments in academic classes. *Journal of Special Education Technology*, 39(4), 270–281. <https://doi.org/10.1177/01626434231217050>.
- United Republic of Tanzania (URT). (2024). *National assistive technology strategy of 2024-2027*. Dodoma
- Viner, M., Singh, A., & Shaughnessy, M. (2020). Assistive technology to help students with disabilities. *Special Education Design and Development Tools for School Rehabilitation Professional* (pp.240-267), DOI: 10.4018/978-1-7998-1431-3.ch012.
- WHO. (2020). *Disability and rehabilitation: Assistive devices and technologies*. World Health Organisation. <https://www.who.int/disabilities/technology/en/>.
- WHO. (2022). *Global report on assistive technology*. World Health Organisation <https://apps.who.int/iris/handle/10665/354357>.
- Williams, M. K., Zhang, L., Patterson, M., Hunt, T., Yang, S., Brewer, J., & Carter, R. A. Jr. (2024). Purposeful integration of assistive technology for diverse learner needs in educator preparation programs. *Computers in the Schools*, 41(2), 235–255. <https://doi.org/10.1080/07380569.2024.2322165>.
- Zabala, J. S. (2020). The SETT Framework: A Model for Selection and Use of Assistive Technology Tool and More, Chambers, D. (Ed.) *Assistive Technology to Support Inclusive Education, Vol. 14*, Emerald Publishing Limited, pp. 17-36. <https://doi.org/10.1108/S1479-3636200000014005>.



## **Understanding Pre-Service Teachers' Mental Health Problems and Resilience Mechanisms during Teaching Practice at Mzumbe University**

*Jimmy Ezekiel Kihwele, Gladness Mmbando & Caleb Mwego*

*Mzumbe University*

*Email: [jimmy.kihwele@mu.ac.tz](mailto:jimmy.kihwele@mu.ac.tz)*

### **Abstract**

*The world is experiencing the proliferation of mental health problem that affects productivity in many aspects. Pre-service teachers also experience mental health problems due to various contextual and work environments. Using Bowlby's attachment theory, the study explored pre-service teachers' resilience to mental health problems during teaching practices. The study adopted a cross-sectional survey design with a sample size of 96 respondents who were randomly selected from pre-service teachers studying at Mzumbe University. The data collection method used a questionnaire. The findings reveal that pre-service teachers experienced mental health problems during teaching practice caused by a lack of mental health literacy (60%) and anxiety about evaluations (65%). However, RII (0.579) indicates that most factors moderately caused mental health problems. Mental health problems affect pre-service teachers, as 61% contemplated leaving the teaching profession and 61% faced challenges in engagement with students in teaching practices, and the RII (0.4873) indicates a low importance level. Further, findings show that pre-service teachers devised resilience mechanisms, such as 75% used stress-relief techniques like exercise and being calm and 73% made self-reflection and adjustment, where the RII (0.0.7451) indicates these mechanisms provided moderate support in coping with causes of mental health problems. Findings imply the need to devise mental health support systems for pre-service teachers to ensure their well-being and career success. The study recommends that teacher training institutions integrate mental health training into curricula and devise mentorship programs to equip pre-service teachers with the knowledge and skills to identify and manage mental health problems in their work environment.*

**Keywords:** *mental health problem; pre-service teachers; teaching practice, resilience*

## **Introduction**

Mental health problems among pre-service teachers (PST) during teaching practice have become a significant concern in education as they transit from theoretical knowledge to practical application (Ressler et al., 2022). Research highlights that pre-service teachers frequently experience heightened levels of anxiety, depression, and stress, which can adversely affect their classroom performance and ability to support students' needs (Bautista et al., 2024; Gorospe, 2022; Huang, 2024). While teaching practice offers them essential opportunities for developing pedagogical skills through merging theories and practice, PSTs encounter challenges such as lesson planning pressures and classroom management expectations that contribute to emotional distress (Mpate et al., 2023). Additionally, the lack of training in mental health literacy leaves pre-service teachers feeling unprepared to address their own mental health needs and those of their students (Gunawardena et al., 2024; Gilham et al., 2021). A lack of a systematic approach to mental health training in pre-service programs underlines the need for evidence-based strategies to prepare future educators to recognise and respond to mental health problems effectively (Rahmi, 2024). Understanding mental challenges is crucial for creating effective support systems within teacher education programs. Therefore, this study sought to explore pre-service teachers' mental health problems and resilience mechanisms during teaching practice.

Mental health is a state of mental well-being that enables people to cope with the stresses of life, realise their abilities, and function productively in contributing to their community (Charlson et al., 2019; Fusar-Poli et al., 2020; Gorczynski et al., 2023). It affects how people react to stressors, engage with others, make choices, and use their abilities in harmony with the universal values of society. According to the Mental Health Atlas (2020), a mental health problem is a state characterised by a clinically significant disturbance in an individual's cognition, emotional regulation, or behaviour. Studies indicate that, due to various factors causing mental health problems, such as excessive workload, inadequate resources, and poor working conditions, teachers have been increasingly susceptible to stress, anxiety, and depression, resulting in declining mental health (Sáez-Delgado et al., 2022).

Diverse factors are causing mental health problems among teachers, ranging from historical background to social and work-environment issues. Work environment, leadership, and workload were the leading causes of stress (Mwakasangula &

Mwita, 2020; Rahmi, 2024). Alvites-Huamaní (2019) shows that excessive administrative duties, overcrowded classrooms, long working hours, inadequate infrastructure, role ambiguity, uncertainty, lack of professional growth, student behaviour challenges, and government pressure also led to mental health problems. The relationship between teachers and leadership is related to demand and expected output, such as having more periods and demanding students' performance without adequate resources, which affects teachers. Moreover, Singh and Gautam (2024) identified factors such as gender, job happiness, and teaching experience as determinants of mental health problems depending on how they are communicated to teachers. Inadequacy and insufficient mental health training during teacher preparation further complicate their experiences (McDonough, 2024). Schonfeld et al. (2017) describe factors responsible for mental health problems among teachers. These factors include insufficient preparation time for teaching, challenges with managing disruptive student behaviour, the rise of tension among workers, negative perception of the teaching profession, and job insecurity. Alvites-Huamaní (2019) further considers the elements that contribute to teachers' mental health problems and stress, such as their pay, in-service training, poor community cooperation, and student misbehaviour. Fang et al. (2023) say the cause of teachers' stress is frequently a change in the education system and emotional exhaustion. Teachers often face excessive workloads, including lesson planning, grading, and administrative tasks, leading to burnout and decreased job satisfaction. These demands during teaching practice also increase the level of anxiety, burnout and depression among pre-service teachers (Bautista et al., 2024; Méndez-López, 2020). Mental health problems are also associated with stress due to low income, a lack of advancement, a lack of participation in decision-making and improper communication (Alvites-Huamaní, 2019; Mbata, 2018). Asa and Lasebikan (2016) found that males were more likely than females to experience stress, be single, and be older than 29. These stressors can lead to severe mental health issues such as anxiety, depression, and burnout, with studies indicating that teachers have one of the lowest levels of psychological well-being compared to other professions.

The effects of persistent mental health problems on in-service teachers due to challenging work environments resulted in negative emotions such as fatigue and anxiety, which made them less committed and probably look for other opportunities elsewhere (Singh & Gautam, 2024). Mbata (2018) found that mental health problems emanating from pressures at work developed physical disturbances like back pain, difficulty sleeping, stomach upset, and muscle aches from work strains, which exhausted their energy and affected their productivity in school. Alvites-

Huamaní (2019) and Fang et al. (2023) found that stress harms teaching morale, increases absenteeism and burnout, and increases psychological and mental health diseases like depression, anxiety, and emotional fatigue. Schonfeld et al. (2017) report a decline in teaching quality, an increase in turnover and absenteeism among teachers due to declining job satisfaction and performance in the classroom. Mental health problems significantly affect teachers' effectiveness and their teaching practices. Teachers experiencing high levels of mental health problems often show decreased productivity and effectiveness in the classroom, which can negatively influence student learning outcomes.

Addressing these mental health problems requires integrating mental health training into teacher preparation curricula and establishing mentorship programs for guidance and emotional support (Shanks et al., 2022; Zito et al., 2024). Studies have shown strategies that teachers use to address mental health problems, but also recommend some other approaches that could be helpful. Proper time management, work-life balance, regular physical exercises and sharing problems with colleagues are pivotal in reducing mental health problems (Mwakasangula & Mwita, 2020). Some scholars suggest developing mental health literacy training, continuous professional development, establishing supportive school environments, training that emphasises understanding mental health problems and social support from colleagues and the broader community (Fang et al., 2023; Rahmi, 2024). These approaches are ideal; however, their implementation depends on the availability of time, financial and human resources. Asa and Lasebikan (2016) suggested that school health services, including mental health services, should be adopted so teachers can be periodically screened and evaluated for mental health problems. Those identified will receive support and monitoring over time to assess their well-being. Also, Singh and Gautam (2024) advised educational officials to create regulations that put teachers' well-being first, particularly in emergencies. This entails addressing issues influencing job happiness and implementing policies to assist educators' mental health. In many schools, the health services for staff are lacking, making these recommendations critical for the administration to consider their establishment. Education authorities should promote reducing non-teaching, simplifying administrative tasks for educators, establishing mental health resources to promote teachers' mental well-being, and enhancing the working environment (Adkins-Cartee et al., 2019). Alvites-Huamani (2019) suggests that besides stress management training and promoting interaction, infrastructural improvement to reduce workload and overcrowding and providing necessary materials for teachers for a supportive working environment is crucial. Schonfeld et al. (2017) suggest a

holistic approach to getting rid of anxiety, depression, and burnout, which inversely promotes well-being.

The study draws its theoretical framework from Bowlby's Attachment Theory (AT), developed in 1969, emphasising the importance of safe attachments for emotional regulation and overall well-being (Goswami, 2024). This implies that attachment depends on emotional adjustment to fit a new position or place, and failure to adjust emotions can lead to feeling detached. Although the initial development of the AT focused on how infants develop attachment bonds with people around them, the construct of the theory has been widely used to study attachment in workplaces in various aspects, including teachers and their consequences. Teachers with secure emotional attachments to their work environment, like feeling safe, valued, respected, engaged, and supported, tend to develop good well-being free from stress, anxiety, and fear. Simpson et al. (2021) show principles of the AT that relate to teacher management of mental health problems. These principles are; i) the proximity of engaging with important others who show care is for safety and survival, ii) type of attachments, secure or insecure, shape internal working models of the self and others, and iii) attachment security is an inner resource that can facilitate resilience, whereas attachment insecurity is a vulnerability often associated with poorer life outcomes. Teachers who experience high workloads, pressures to achieve outcomes, an unfriendly or hostile work environment that promotes fear and anxiety and a lack of work-life balance develop insecure feelings. The theory reflects the question regarding understanding the causes and resilience of pre-service teachers in attaching themselves to the working environment. The design collected data from pre-service teachers who had attended teaching practice for 16 weeks to understand their perceptions and behavioural attitudes regarding the misconducts they observed.

Despite studies researching on the presence of mental health problems, highlighting factors causing, including depression and stress from huge workload, scarce resources, poor mental health literacy and administrative issues (Bautista et al., 2024; Mpate et al., 2023; Gunawardena et al., 2024), there is still a gap concerning systemic interventions integrated in teacher education programs that prepares pre-service teachers. Limited studies have focused on how pre-service teachers are resilient to mental health problems after being trained in these programs in determining the long-term effectiveness of strategies of mental health literacy and mentorship support in improving teaching practices (Rahmi, 2024; Shanks et al., 2022). Although the study focuses on the resilient mechanism, it is vital to understand the contextual causes and effects of mental health problems to make the

adjustment strategies more effective. Therefore, this study sought to answer the following questions: a) What causes mental health problems among pre-service teachers during teaching practice? b) How do those mental health problems affect pre-service teachers' teaching practices? and c) How are pre-service teachers resilient to factors causing mental health problems during teaching practice?

## **Methodology**

This descriptive study explored mental health problems among pre-service teachers. The descriptive design systematically collects and describes the behaviours, opinions, or attitudes of a particular population or group of interest for analysis, as Leavy (2022) describes. It involves using statistical, mathematical, or computational techniques to interpret and derive conclusions that can be generalised to a broader population (Ghanad, 2023). The study was conducted at Mzumbe University, where the population was 126 third-year pre-service teachers who conducted their teaching practice twice, in 2023 during their first year and 2024 during their second year. The respondents attended 16 weeks of teaching practices; hence, they were able to share their valuable practical experience regarding mental health problems during their teaching practices. The university offers a core course on educational careers, guidance and counselling to pre-service teachers that prepares them to manage the working environment, avoid mental health problems, and advise and counsel their students. In this regard, the university and the selected provided the right context for conducting this study. Researchers used Yamane's formula to determine sample size and obtained a sample of 96 respondents who filled in a questionnaire. The respondents were randomly selected, and those who came first to submit their teaching practice reports were given a questionnaire to fill in. We stopped collecting after reaching the required number.

The study used a questionnaire with five-point Likert statements to collect data regarding mental health experiences, particularly with the variables of causes of mental health problems among pre-service teachers, their effect on teaching practices, and mitigation strategies. The scale ranged from 1 = (SD) Strongly Disagree to 5 = (SA) Strongly Agree. Using IBM SPSS software version 29, researchers analysed data in descriptive statistics (frequency and percentage) and presented them in tables. To ensure validity and reliability of the study, researchers reviewed the instrument and compared it with the set objectives, ensuring it contained all the information that answered the set questions and addressed the objectives, as Coleman (2022) and Rusticus (2024) opine. The draft tools were shared with experienced faculty researchers for review and improvement before

conducting a pilot test with 13 second-year pre-service teachers to identify any ambiguity and clarity of items before administering them to the targeted population. The analysis also employed frequencies, percentages and the Relative Importance Index (RII) to determine the strongest factor causing mental health problems among pre-service teachers. The RII analysis interpreted factors' score as 0.0-0.25 (No Importance = **NI**), 0.26 - 0.50 (Low Importance = **LI**), 0.51 - 0.75 (Moderate Importance = **MI**) and 0.76 - 1.0 (High Importance = **HI**). The study adhered to research ethics that scholars recommend, such as getting approval from management, informing participants of the research purpose, obtaining their consent and right to withdraw, and ensuring confidentiality and anonymity of information collected (Auerbach & Silverstein, 2003; Creswell & Creswell, 2023; Rana et al., 2023). Researchers also refrained from data fabrication, plagiarism, and misinterpreting the obtained information.

## **Results and Discussion**

This study explored pre-service teachers' mental health problems and resilience mechanisms during teaching practice. Specifically, it researched the causes of mental health problems among pre-service teachers during teaching practice and their impact on their teaching practices, and it devised resilient mechanisms for persevering in such situations.

### **The Causes of Mental Health Problems Among Pre-service Teachers**

The RII analysis shows six out of ten factors (with an average of 0.579 = **MI**) indicate moderate importance (See Table 1). However, the individual findings suggest that the most potent cause of pre-service teachers' mental health problems during teaching practice includes experiencing anxiety during the preparation of lesson plans and teaching aids for my classes and the weak support they receive from the experienced teachers and peers. Also, the pressure came from the struggle of integrating technology in teaching, fearing that university supervisors might award them low scores during assessment. These observations are similar to Mwakasangula and Mwita (2020), Singh and Gautam (2024), Fernández-Batanero et al. (2021) and Çoklar and Yurdakul (2017), who found that weak support and collaborative partnership with experienced colleagues contribute to stress. The findings contradict the Attachment Theory, which posits that the proximity of engaging with experienced teachers signifies safety and career-long anticipation. Hence, when these pre-service teachers feel devalued and disrespected due to a lack of cooperation, their working intentions are jeopardised, and their teaching practices are influenced negatively. The findings imply that pre-service teachers

have low self-efficacy, requiring close mentorship and support to develop into experienced and confident teachers. Feeling unprepared to deal with unexpected events in the classroom did not worry them, and they believe teacher education programs have adequately prepared them for managing some of the mental health problems in the classroom.

Most pre-service teachers (60.4%) do not doubt their teaching abilities, suggesting their self-confidence is relatively strong. However, 20.9% of those who agree with experiencing doubts indicate a significant minority that may struggle with self-efficacy, which can contribute to stress during teaching practice. Over half (53.1%) of the respondents feel they receive adequate support from peers and mentors, a positive indicator of their social support systems during teaching practice. The observation is in line with Alvites-Huamaní (2019), who found that a lack of cooperation leads to stress and mental health problems. When there is cooperation, teachers develop self-efficacy in teaching practices. However, a notable percentage (34.4%) disagree, highlighting that some pre-service teachers may feel isolated or unsupported, potentially exacerbating their stress levels. Most pre-service teachers (55.2%) feel their workload is manageable, suggesting they are coping well with their teaching responsibilities. However, 31.2% of those who disagree indicate that workload management remains a concern for some, which could lead to increased stress if not addressed. The findings resonate with Mwakasangula and Mwita (2020) and Singh and Gautam (2024), who reported that the workload increases teachers' stress, which ultimately causes mental health problems among teachers and affects their productivity.

A significant portion (43.8%) of respondents do not feel they struggle with integrating technology into their teaching due to limited skills, indicating that many are comfortable with technology use in education. However, the fact that 36.5% agree they struggle suggests that technology integration is still a challenge for many pre-service teachers. A substantial majority (62.5%) report receiving sufficient support from experienced teachers during their practicum, which is crucial for their development and mental well-being as future educators. The lower disagreement percentage (21.9%) indicates that, while most feel supported, some lack adequate mentorship. More than half of the respondents (51%) do not experience anxiety when preparing lesson plans and teaching aids, suggesting effective coping strategies or confidence in their planning abilities among many pre-service teachers. However, the significant percentage agreeing with anxiety (32.3%) highlights an area where additional support may be beneficial (See Table 1). Teacher's stressful experience in integrating technology in classroom echoes the

study by Fernández-Batanero et al. (2021), and Çoklar and Yurdakul (2017) who reported that teachers face hardship and have high level of anxiety or stress due to their use of educational technology in the classroom, particularly when they cannot have access to facilities and technology literacy. Call for scaffolding measures at workplaces, such as school-based professional development programs.

**Table 1: Causes of Mental Health Problems**

SN	Statement	SD	D	N	A	SA	Total	RII	Rank	Status
		f (%)	f (%)	f (%)	f (%)	f (%)	f (%)			
	I often doubted my teaching abilities, which contributed to my stress during teaching practice	43 (44.8)	15 (15.6)	18 (18.8)	11 (11.5)	9 (9.4)	96 (100)	0.45	8	LI
	I have adequate support from my peers and mentors during my teaching practice	21 (21.9)	12 (12.5)	12 (12.5)	12 (12.5)	39 (40.6)	96 (100)	0.675	3	MI
	I had a manageable number of periods that did not overwhelm me during my teaching practice.	25 (26.0)	5 (5.2)	13 (13.5)	15 (15.6)	38 (39.6)	96 (100)	0.675	4	MI
	During teaching practice, I struggled with integrating technology into my teaching practice due to limited skills.	30 (31.3)	12 (12.5)	19 (19.8)	14 (14.6)	21 (21.9)	96 (100)	0.567	5	MI
	I got sufficient support from experienced teachers during my practicum.	16 (16.7)	6 (6.3)	14 (14.6)	12 (12.5)	48 (50.5)	96 (100)	0.742	2	MI
	I experience anxiety when preparing lesson plans and teaching aids for my classes.	41 (42.7)	8 (8.3)	16 (16.7)	11 (11.5)	20 (20.8)	96 (100)	0.773	1	HI
	I always fear receiving feedback from my mentor teachers	37 (38.5)	9 (9.4)	21 (21.9)	7 (7.3)	22 (22.9)	96 (100)	0.533	6	MI
	I feel unprepared to deal with unexpected events in the classroom, which makes me feel worried	54 (56.3)	14 (14.6)	11 (11.5)	4 (4.2)	13 (13.5)	96 (100)	0.408	10	LI
	The teacher education program adequately prepares me for managing mental health problems in the classroom.	50 (51.2)	10 (10.4)	14 (14.6)	7 (7.3)	15 (15.6)	96 (100)	0.448	9	LI
	I experience anxiety on being evaluated by my supervisors during my teaching practice	12 (12.5)	4 (4.2)	15 (15.6)	19 (19.8)	46 (47.9)	96 (100)	0.519	7	MI
	Average							0.579		MI

**Source:** Field data

While nearly half of the respondents (47.9%) do not fear feedback from mentor teachers, a considerable portion (30.2%) does express fear regarding feedback, indicating that anxiety related to evaluation may affect their performance and mental health. An overwhelming majority (70.9%) feel prepared to handle unexpected events in the classroom, suggesting strong confidence in classroom management skills among most pre-service teachers; however, the smaller percentage (17.7%) agreeing with feeling unprepared indicates that some may require additional training in crisis management. The findings indicate that many pre-service (62%) teachers do not believe their education program adequately prepares them for managing mental health problems in the classroom, highlighting a critical gap in teacher training programs that could affect their well-being and ability to support students effectively. The majority of pre-service teachers experience anxiety about being evaluated by supervisors during their teaching practice, as indicated by approximately 69%. These findings align with Kihwele and Kihwele (2023), who asserted that teacher preparation programs, provided briefly, were insufficient to equip teachers in content and pedagogy, requiring continuous practices to enhance their professional competencies. Therefore, developing a fear of assessment and developing a grip of managing classrooms (i.e., behaviours, learning activities, and preparations) will gradually dwindle, allowing self-efficacy development. This suggests that the evaluation process needs to provide constructive feedback in a friendly and co-operative manner to reduce anxiety.

### **Effects of Mental Stress on the Pre-service Teachers**

Most (49.9%) of pre-service teachers disagree that having many periods per week affects their preparation for lesson plans and teaching aids, suggesting that many feel capable of managing their workload. However, a notable portion (24%) agrees that it does affect their preparation, indicating that workload can still be a stressor for some and affect their teaching from preparation to classroom delivery. Similar to the study of Mwakasangula and Mwita (2020), Singh and Gautam (2024) found that a considerable workload affects teachers' productivity. Most respondents (56.2%) disagreed that they find it hard to concentrate due to technology integration challenges, suggesting that many can manage these issues effectively. However, 26% agreed, which still indicates that a significant minority struggles with technology-related stress, potentially affecting their focus and teaching performance. These observations reflect Fernández-Batanero et al. (2021) and Çoklar and Yurdakul (2017) 's studies, which show that teachers fail to effectively teach due to the requirements of integrating technology, where the majority fail as

they lack facilities or pedagogical content knowledge. Over half of the respondents (52.1%) disagreed that time constraints significantly affect their ability to prepare practical lessons, indicating they feel capable of managing their schedules. However, nearly one-third (29.2%) agreed, highlighting that time management remains challenging for a notable portion of pre-service teachers, as indicated in Table 2. Although the RII analysis shows that the score of seven factors indicates these effects are less important (LI) to most respondents. This indicates that most of the factors do not affect the majority of respondents.

**Table 2: Effects of Mental Health Problems**

SN	Statement	SD	A	N	D	SA	Total	RII	Rank	Status
		<i>f</i> (%)	<i>f</i> (%)	<i>f</i> (%)	<i>f</i> (%)	<i>f</i> (%)	<i>f</i> (%)			
	I had many periods per week that affected my preparation of lesson plans and teaching aids	30 (31.3)	18 (18.8)	18 (18.8)	7 (7.3)	23 (24.0)	96 (100)	0.548	1	MI
	I find it hard to concentrate on my teaching responsibilities when overwhelmed by Technology integration challenges.	39 (40.6)	15 (15.6)	17 (17.7)	10 (10.4)	15 (15.6)	96 (100)	0.49	4	LI
	Stress from time constraints affects my ability to prepare practical lessons for my students	34 (35.4)	16 (16.7)	18 (18.8)	12 (12.5)	16 (16.7)	96 (100)	0.517	3	MI
	I have experienced physical symptoms (e.g., headaches, fatigue) related to anxiety about being evaluated during practicum.	36 (37.5)	13 (13.5)	17 (17.4)	9 (9.4)	21 (21.9)	96 (100)	0.529	2	MI
	High levels of stress from feeling isolated from my peers make me consider leaving the teaching profession altogether	42 (43.8)	19 (19.8)	12 (12.5)	7 (7.3)	16 (16.7)	96 (100)	0.467	7	LI
	Lack of support from experienced teachers affected my overall satisfaction with my teaching practice	45 (46.9)	14 (14.6)	16 (16.7)	7 (7.4)	13 (13.7)	95 (99)	0.451	9	LI
	The strict requirements of the head of school and mentor teachers to prepare a lesson plan and teaching aid made me hate teaching.	44 (45.8)	10 (10.4)	17 (17.7)	10 (10.4)	15 (15.6)	96 (100)	0.479	5	LI
	I find it difficult to engage with my students when I am struggling with classroom management challenges	46 (47.9)	15 (15.6)	13 (13.5)	9 (9.4)	13 (13.5)	96 (100)	0.45	10	LI
	My confidence in my teaching abilities has decreased due to unpreparedness during the practicum.	41 (42.7)	14 (14.6)	20 (20.8)	8 (8.3)	12 (12.5)	95 (100)	0.465	8	LI
	Sometimes I left the classroom before time due to the unfriendly behaviours of students, such as asking difficult questions and not respecting me	42 (43.8)	15 (15.6)	13 (13.5)	12 (12.5)	14 (14.6)	96 (100)	0.477	6	LI
	Average							0.4873		LI

**Source:** Field data

While a majority (51%) disagreed with experiencing physical symptoms like headaches or fatigue due to anxiety about evaluations, a substantial minority

(31.3%) reported such symptoms, indicating that evaluation-related stress is a significant issue for some pre-service teachers and can manifest physically. These findings are similar to those of Singh and Gautam (2024), Mbata (2018) and Alvites-Huamani (2019), who found that stress has negatively affected teaching and increased psychological and mental health problems like depression, anxiety, and emotional fatigue. Again, a large majority (63.6%) disagreed with the statement about isolation, which made them consider leaving the profession, suggesting that most pre-service teachers feel resilient. However, nearly one-quarter (24%) agreed it is concerning, as it suggests that feelings of isolation could lead some to question their career choice. Most respondents (61.5%) disagreed that a lack of support from experienced teachers affected their satisfaction, indicating that many feel supported during their practicum. However, 21.1% of those who agreed pointed to gaps in mentorship and support systems for some pre-service teachers.

A majority of respondents (56.2%) disagreed that strict requirements for lesson planning made them dislike teaching, showing resilience among most pre-service teachers in handling these expectations. Most respondents (63.5%) disagreed with finding it difficult to engage students due to classroom management challenges, suggesting confidence in handling classroom dynamics for most pre-service teachers; however, the quarter who agreed highlights an area needing attention in teacher training programs. The data indicate that many pre-service teachers feel their confidence in teaching abilities has decreased due to unpreparedness during practicum, highlighting a critical area where additional training and support may be necessary. Nearly half of the respondents express having left the classroom early due to unfriendly behaviours from students, suggesting significant challenges in managing student interactions and classroom dynamics. These findings resonate with Schonfeld et al. (2017), who found that due to persistent stress in teaching, they have capitulated to mental health problems, where some teachers contemplate turning away from the teaching profession.

Regarding the effects of mental health problems on pre-service teachers, the RII ranks the following top four factors as;

1. It affected their preparation of lesson plans and teaching aids for other periods;
2. They experienced physical symptoms such as headaches and fatigue due to anxiety about the university instructors' assessment during the practicum;
3. They experienced stress as time constraints affect my ability to prepare practical lessons for my students; and

4. They felt overwhelmed by teaching responsibilities, particularly the challenge of integrating technology into teaching.

These effects have a severe impact not only on teachers but also on students' learning if not controlled. However, the mental health problems they experienced did not affect their engagement with students and managing their learning behaviours, lack of support did not affect their teaching activities and their self-efficacy in classroom situations, though they contributed to mounting mental health problems due to stress and feeling isolated. The findings indicate that these effects, though managed to some extent, and their persistence and longevity might critically affect teachers, teaching, and the learning process. These factors echo the findings of other scholars. For instance, mental health problems such as persistent or chronic stress affect lesson preparation, delivery and classroom management practices (Mwakasangula & Mwita, 2020; Singh & Gautam, 2024). Pre-service teachers have experienced physical symptoms such as headaches and fatigue, which affected their preparations and interests in teaching (Alvites-Huamani, 2019; Mbata, 2018), and poor lesson delivery due to the requirements of integrating technology, where some teachers still struggle (Fernández-Batanero et al., 2021; Çoklar & Yurdakul, 2017). As per the attachment theory, pre-service teachers feel insecure due to huge workloads, fear of using technology, being assessed, and a lack of cooperation. These premises affect the internal working model of these teachers and hence affect their working standards.

### **Pre-service Teachers' Resilience Mechanisms to Cope with Mental Health Problems**

The data provide insights into the analysis of coping strategies employed by pre-service teachers to manage challenges during their teaching practice. Although six factors scored HI in the RII ranking (See Table 3), the findings show that the top three mainly used approach in coping with mental health problems among pre-service teachers were (1) a reflection to their teaching experiences for identifying areas for improvement, (2) maintaining positive attitude even when faced with difficult classroom situations and (3) setting realistic goals and manage expectations which helped reduce stress. The findings indicate pre-service teachers used self-tailored techniques in managing stress because they admitted to receiving little cooperation from experienced teachers on matters related to classroom teaching. The low-ranked factors included (10) seeking feedback from mentors or supervisors for improving teaching skills, (9) utilising stress-relief techniques before teaching, and (8) participating in professional development workshops or

training sessions during my practicum. The findings show that all factors in the school environments, such as inadequate collaboration and partnership between host teachers, student teachers and limited learning opportunities for teachers, had little support in reducing mental health problems. The attachment theory assumes that secure attachment is an inner resource that facilitates resilience, while insecure attachment causes vulnerability. This assumption implies that pre-service teachers who received supportive collaboration with experienced teachers and working environments tend to devise coping strategies for mental health resilience and vice versa.

Most (73%) of pre-service teachers do not actively seek feedback from their mentors or supervisors to improve their teaching skills, indicating a reluctance or lack of initiative. Only 16.7% agree with seeking feedback, suggesting that many may feel uncertain about approaching mentors or may not prioritise feedback as a coping strategy. A substantial majority (73.9%) engage in collaborative planning with fellow pre-service teachers to share resources, highlighting the importance of teamwork and peer support in managing challenges. The low disagreement percentage (12.5%) indicates that collaboration is a widely accepted and utilised strategy among pre-service teachers. These findings resonate with Mok and Staub (2021), who reported that coaching, mentoring and supervision matter for pre-service teachers to develop appropriate classroom instruction skills, including constructive feedback and collaborative lesson planning and teaching. In this context, lacking feedback and collaborative planning implies that pre-service teachers inadequately develop classroom instructional skills during teaching practice. Also, Mena et al. (2017) assert that mentorship is an encouraging role in absorbing shocks and stress these pre-service teachers encounter and ensures continued support that results in professional knowledge. Approximately 44.7% of respondents utilise stress-relief techniques such as deep breathing and mindfulness before teaching, suggesting that many recognise the importance of managing stress proactively. However, about one-third (33%) disagree, indicating that a significant number may not be familiar with or do not practice these techniques.

A majority (59.4%) prepare thoroughly for their lessons to feel more confident, indicating that preparation is a key coping strategy for many pre-service teachers to enhance their self-efficacy in the classroom. The low disagreement percentage (16.7%) suggests that respondents widely practice thorough preparation. An overwhelming majority (78.1%) maintain a positive attitude even when faced with difficult classroom situations, reflecting resilience and an optimistic approach to challenges among pre-service teachers. A significant majority (76%) reflect on

their teaching experiences to identify areas for improvement, indicating a strong commitment to self-assessment and growth among pre-service teachers. About half of the respondents (47.9%) reach out to friends or family for emotional support during challenging times, suggesting that social support networks play a crucial role in managing stress; however, nearly one-third disagree, indicating that some may not utilise these resources effectively, as shown in Table 3.

**Table 3: Strategies for Enduring Mental Health Problems**

SN	Statement	SD	A	N	D	SA	Total	RII	Rank	Status
		<i>f (%)</i>	<i>f (%)</i>	<i>f (%)</i>	<i>f (%)</i>	<i>f (%)</i>	<i>f (%)</i>			
	I actively seek feedback from my mentor or supervisor to improve my teaching skills	61 (63.5)	9 (9.4)	10 (10.4)	11 (11.4)	5 (5.2)	96 (100)	0.371	10	LI
	I engage in collaborative planning with fellow pre-service teachers to share resources	7 (7.3)	5 (5.2)	13 (13.5)	18 (18.8)	53 (55.2)	96 (100)	0.819	4	HI
	I utilise stress-relief techniques (e.g., deep breathing, mindfulness) before teaching	14 (14.6)	11 (11.4)	21 (21.9)	18 (18.8)	32 (33.3)	96 (100)	0.690	9	MI
	I prepare thoroughly for my lessons to feel more confident in front of my students.	10 (10.4)	6 (6.3)	11 (11.4)	18 (18.8)	51 (53.1)	96 (100)	0.796	5	HI
	I maintain a positive attitude even when faced with difficult classroom situations	5 (5.2)	4 (4.2)	12 (12.5)	17 (17.7)	58 (60.4)	96 (100)	0.848	2	HI
	I reflect on my teaching experiences to identify areas for improvement	3 (3.1)	4 (4.2)	16 (16.7)	16 (16.7)	57 (59.4)	96 (100)	0.85	1	HI
	I reach out to friends or family for emotional support during challenging times	11 (11.4)	8 (8.3)	15 (15.6)	24 (25.0)	38 (39.6)	96 (100)	0.746	7	MI
	I participate in professional development workshops or training sessions during my practicum.	9 (9.4)	6 (6.3)	22 (22.9)	27 (28.1)	32 (33.3)	96 (100)	0.739	8	MI
	I set realistic goals for myself to manage expectations and reduce stress	6 (6.3)	2 (2.1)	16 (16.7)	21 (21.9)	51 (53.1)	96 (100)	0.827	3	HI
	I use technology and online resources to enhance my teaching methods and strategies	15 (15.6)	5 (5.2)	9 (9.4)	20 (20.8)	47 (49.0)	96 (100)	0.765	6	HI
	Average							0.7451		MI

Source: Field data

Participation in professional development workshops is relatively low, with approximately equal percentages of agreement and disagreement around participation rates, indicating an area where more engagement could benefit skill enhancement and coping strategies. More than half of the respondents (approximately 53%) set realistic goals to manage expectations and reduce stress, demonstrating an effective coping strategy that helps maintain focus and reduces performance-related anxiety. Nearly half of the respondents (approximately 49%) use technology and online resources to enhance their teaching methods, indicating a proactive approach to leveraging available tools for effective teaching; however, about one-third express disagreement, suggesting some may struggle with technology integration. These observations are similar to Fernández-Batanero et al. (2021) and Çoklar and Yurdakul (2017), who found that novice teachers integrate technology in teaching to access materials, seek support or clarification that they could have received from experienced teachers. Nevertheless, due to poor cooperation, they rely on technology, though some have trouble due to a lack of enabling conditions like skills, internet access and devices.

## **Conclusion and Recommendations**

This study explored pre-service teachers' mental health problems and resilience mechanisms during teaching practice. The findings indicate an average of 20% of pre-service teachers experienced mental health problems that resulted from several factors, such as limited mentorship support from experienced teachers, inadequate teaching skills, fear of integrating technology in teaching and workload. These affected teachers' preparations and confidence in teaching, negatively influencing the teaching and learning process, leading to poor performance. These factors contribute to feelings of doubt and low self-efficacy, underscoring the need for enhanced training programs that focus on skill development and confidence building. The effects of this stress are multifaceted, leading to decreased concentration, ineffective lesson preparation, anxiety, and negative attitudes toward teaching. Such outcomes not only hinder the personal growth of pre-service teachers but also have implications for their future effectiveness as educators. Despite pre-service teachers devising a range of coping strategies, including collaboration with peers, engaging in stress-relieving techniques like exercise, intensive lesson preparation, and seeking emotional support, some teachers still experience mental health problems. These proactive measures reflect their efforts to navigate the complexities of their training environment and enhance their resilience. Linking these findings to attachment theory illustrates the

interconnectedness of personal beliefs, environmental influences, and behaviour. The findings imply that teacher-training institutions should strengthen microteaching and teaching practices, incorporating mental health support systems for pre-service teachers. This will ensure their well-being and career success by equipping them with coping strategies and resources to manage stress, anxiety, and other mental health problems encountered during teaching practice. In addition, the study supports the application of Attachment Theory (AT) in understanding pre-service teachers' mental health. Secure emotional attachments within the work environment (feeling safe, valued, and supported) correlate with better well-being. Further research can explore how fostering secure attachments in educational settings can improve resilience and reduce mental health problems among teachers.

The study recommends that teacher-training institutions integrate mental health training into teacher education curricula and devise mentorship programs to equip pre-service teachers with the knowledge and skills to identify and manage mental health problems in their work environment. Again, these institutions should develop clear guidelines and procedures that prioritise pre-service teachers' mental health during emergencies or crises. Regarding recommendations for practices, teacher-training institutions should strengthen microteaching sessions to allow pre-service teachers to experiment with lesson delivery and classroom management techniques and boost their self-confidence. They should also encourage pre-service teachers to collaborate with their peers and experienced teachers to share experiences, challenges, and coping strategies. To help pre-service teachers manage their stress levels, teacher-training institutions should organise sessions on stress management techniques such as exercise, meditation, and mindfulness.

## References

- Auerbach, C. F., & Silverstein, L. B. (2003). *Qualitative data: an introduction to coding and analysis*. New York University Press.
- Adkins-Cartee, M. R., Cohen Lissman, D., Rosiek, J., Donley, K., & DeRosia, N. (2023). Teacher mental health and well-being in a global pandemic. *Teacher Educators' Journal*, 16(1), 1-49.
- Alvites-Huamaní, C. G. (2019). Teacher stress and psychosocial factors in teachers from Latin America, North America and Europe. *Propositos y Representaciones*, 7(3), 141-178. <http://dx.doi.org/10.20511/pyr2019.v7n3.393>
- Asa, F. T., & Lasebikan, V. O. (2016). Mental health of teachers: teachers' stress, anxiety and depression among secondary schools in Nigeria. *Int Neuropsychiatric Dis J*, 7(4), 1-10. <https://doi.org/10.9734/INDJ/2016/27039>

- Bautista, M., Apostol, J. N., Malibiran, R., Obispo, K. P., & Asio, J. M. (2024). Emotional state of the pre-service teachers prior to field study: basis for support and monitoring program. *Formosa Journal of Multidisciplinary Research*, 3(3), 288-300. <http://dx.doi.org/10.55927/fjmr.v3i3.7598>
- Charlson, F., van Ommeren, M., Flaxman, A., Cornett, J., Whiteford, H., & Saxena, S. (2019). New WHO prevalence estimates of mental disorders in conflict settings: a systematic review and meta-analysis. *Lancet*, 394, 240-248. [https://doi.org/10.1016/s0140-6736\(19\)30934-1](https://doi.org/10.1016/s0140-6736(19)30934-1)
- Çoklar, A. N. & Yurdakul, I. K. (2017). Technology integration experiences of teachers. *Discourse and communication for sustainable education*, 8(1), 19-31. <https://doi.org/10.1515/dcse-2017-0002>
- Coleman, P. (2022). Validity and reliability within qualitative research for the caring sciences. *International Journal of Caring Sciences*, 14(3), 2041-2045.
- Creswell, J. W., & Creswell, J. D. (2023). *Research design: qualitative, quantitative and mixed methods approaches (6th Ed.)*. SAGE Publications, Inc.
- Fang, G., Zhou, X., Xin, Y., Li, M., Li, F., Zhang, W & Wang, Y. (2023). Mental health of primary and secondary school teachers in the remote mountain areas. *Medicina*, 59(5), 971. <https://doi.org/10.3390/medicina59050971>
- Fernández-Batanero, J. M., Román-Graván, P., Reyes-Rebollo, M. M. & Montenegro-Rueda, M. (2021). Impact of educational technology on teacher stress and anxiety: a literature review. *International Journal of Environmental Research and Public Health*, 18, 548. <https://doi.org/10.3390/ijerph18020548>
- Fusar-Poli, P., de Pablo, G. S., De Micheli, A., Nieman, D. H., Correll, C. U., Kessing, L. V., & van Amelsvoort, T. (2020). What is good mental health? A scoping review. *European neuropsychopharmacology*, 31, 33-46. <https://doi.org/10.1016/j.euroneuro.2019.12.105>
- Ghanad, A. (2023). An overview of quantitative research methods. *International journal of multidisciplinary research and analysis*, 6(8), 3794-3803. <http://dx.doi.org/10.47191/ijmra/v6-i8-52>
- Gilham, C., Neville-MacLean, S., & Atkinson, E. (2021). Effect of online modules on pre-service teacher mental health literacy and efficacy toward inclusive practices. *Canadian Journal of Education*, 44(2), 559-599. <https://doi.org/10.53967/cje-rce.v44i2.4601>
- Gorczyński, P., Aron, C. M., Moore, M., & Reardon, C. L. (2023). The epidemiology of mental health symptoms and disorders among elite athletes and the evolution of mental health literacy. *Clinics in Sports Medicine*, 43(1), 1-11. <https://doi.org/10.1016/j.csm.2023.06.001>

- Gorospe, J. D. (2022). Pre-service teachers' teaching anxiety, teaching self-efficacy, and problems encountered during the practice teaching course. *Journal of Education and Learning*, 11(4), 84-91. <https://doi.org/10.5539/jel.v11n4p84>
- Goswami, P. (2024). Understanding teachers' awareness of mental health and student well-being: a theoretical perspective. *International Journal for Multidisciplinary Research*, 6(2), 1-8. <https://doi.org/10.36948/ijfmr.2024.v06i02.14571>
- Gunawardena, H., Leontini, R., Nair, S., Cross, S., & Hickie, I. (2024). Teachers as first responders: classroom experiences and mental health training needs of Australian schoolteachers. *BMC Public Health*, 24(1), 268. <https://doi.org/10.1186/s12889-023-17599-z>
- Huang, F. (2024). The relationship between trait mindfulness and depression in elementary pre-service teachers: the sequential mediating role of flow experience and learning engagement. *Psychology Research and Behavior Management*, 17(1), 1689-1702. <https://doi.org/10.2147/PRBM.S450594>
- Kihwele, R. E. & Kihwele, J. E. (2023). Teachers' feelings about the status of the teaching profession and associated factors in Tanzania. *Journal of Teacher Education and Educators*, 12(2), 171-192. <https://dergipark.org.tr/en/pub/jtec/issue/79750/1206460>
- Leavy, P. (2022). *Research design: Quantitative, qualitative, mixed methods, arts-based, and community-based participatory research approaches*. Guilford Publications.
- Mbata, K. K. (2018). Influence of stress on health and productivity of teachers in private primary schools: A case of Nairobi County, Kenya (Doctoral dissertation, University of Nairobi).
- McDonough, R. (2024). *Teachers' perceptions of their role in supporting students' mental health needs*. Master's Thesis, Eastern Illinois University.
- Mena, J., Hennissen, P. & Loughran, J. (2017). Developing pre-service teachers' professional knowledge of teaching: the influence of mentoring. *Teaching and Teacher Education*, 66, 47-59. <http://dx.doi.org/10.1016/j.tate.2017.03.024>
- Méndez-López, M. G. (2020). Emotions attributions of ELT pre-service teachers and their effects on teaching practice. *Profile: Issues in Teachers Professional Development*, 22(1), 25-28. <http://dx.doi.org/10.15446/profile.v22n1.78613>
- Mok, S. Y. & Staub, F. C. (2021). Does coaching, mentoring, and supervision matter for pre-service teachers' planning skills and clarity of instruction? A meta-analysis of (quasi) experimental studies. *Teaching and Teacher Education*, 107, 103484. <https://doi.org/10.1016/j.tate.2021.103484>

- Mpate, H., Campbell-Evans, G., & Gray, J. (2023). Pre-service teachers' preparedness to teach during teaching practice in Tanzania. *African Journal of Teacher Education*, 12(1), 95-120. <https://doi.org/10.21083/ajote.v12i1.7264>
- Mwakasangula, E., & Mwita, K. (2020). Relationship between occupational stress and job satisfaction among teachers in Tanzanian public primary schools. *Journal of co-operative and business studies*, 5(1), 96-103.
- Rahmi, K. H. (2024). Teachers' mental health and well-being in education: what can be improved for the education system in Indonesia? *Multidisciplinary Reviews*, 7(12), 2024301. <https://doi.org/10.31893/multirev.2024301>
- Rana, J., Dilshad, S., & Ahsan, A. (2023). Ethical issues in research. In *Global Encyclopedia of Public Administration, Public Policy, and Governance* (pp. 4157-4163). Cham: Springer International Publishing.
- Ressler, M. B., Apantenco, C., Wexler, L. & King, K. (2022). Pre-service teachers' mental health: using student voice to inform pedagogical, programmatic, and curricular change. *Action in Teacher Education*, 44(3), 252-268. <https://doi.org/10.1080/01626620.2021.1997832>
- Rusticus, S. (2024). Content validity. In *Encyclopedia of quality of life and well-being research* (pp. 1384-1385). Springer International Publishing.
- Sáez-Delgado, F., López-Angulo, Y., Mella-Norambuena, J., Hartley, K. & Sepúlveda, F. (2022). Mental health in school teachers: An explanatory model with emotional intelligence and coping strategies. *Electronic Journal of Research in Educational Psychology*, 21 (3), 559-586. <http://dx.doi.org/10.25115/ejrep.v21i61.8322>
- Schonfeld, I. S., Bianchi, R., Luehring-Jones, P. (2017). Consequences of job stress for the mental health of teachers. In McIntyre, T., McIntyre, S., Francis, D. (Eds), *Educator Stress. Aligning Perspectives on Health, Safety and Well-Being*. Springer, Cham. [https://doi.org/10.1007/978-3-319-53053-6\\_3](https://doi.org/10.1007/978-3-319-53053-6_3)
- Shanks, R., Attard-Tonna, M., Krøjgaard, F., Annette Paaske, K., Robson, D., & Bjerkholt, E. (2022). A comparative study of mentoring for new teachers. *Professional development in education*, 48(5), 751-765. <https://doi.org/10.1080/19415257.2020.1744684>
- Simpson, J. A., Rholes, W. S., Eller, J., & Paetzold, R. L. (2021). Major principles of attachment theory: overview, hypotheses, and research ideas. In P. A. M. Van Lange, E. T. Higgins, & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (3rd ed., pp. 222–239). The Guilford Press.
- Singh, Y. K., & Gautam, D. N. S. (2024). The impact of job satisfaction on teacher mental health: a call to action for educational policymakers. *Open Education Studies*, 6(1), 20240008. <http://dx.doi.org/10.1515/edu-2024-0008>

Zito, S., Petrovic, J., Böke, B. N., Sadowski, I., Carsley, D., & Heath, N. L. (2024). Exploring the stress management and well-being needs of pre-service teachers. *Teaching and Teacher Education*, *152*, 104805. <https://doi.org/10.1016/j.tate.2024.104805>.



## **Community Perceptions of the Alternative Secondary Education Pathway Programme for Girls Affected by Early Pregnancies: A Case of Momba District, Tanzania**

*Camillus Abel Mwila*

*Institute of Adult Education*

*Email: [mwilacamilius@yahoo.com](mailto:mwilacamilius@yahoo.com)*

### **Abstract**

*This study aimed to assess the community's perceptions of the Alternative Secondary Education Pathway Programme (ASEP) among girl victims of early pregnancies in Tanzania. The study was carried out in Momba District, Songwe Region. Qualitative approaches with descriptive design were used. The target population involved the Regional ASEP Coordinator, ASEP girls' students, ASEP teachers and community members. Hence, the sample size of this study comprised 10 out-of-school girls, 1 Regional ASEP Coordinator, 5 ASEP teachers, 10 parents of the ASEP students, as well as 10 ASEP girls. Hence, making a total of 36 participants. Purposive and snowball sampling techniques were used to obtain the sample. The interviews and focus group discussions were employed to obtain data from the participants. Findings revealed that the community has little knowledge about ASEP. It is therefore recommended that the Ministry of Education and Science and Technology provide education about ASEP to community members and establish mobilization strategies to help adolescents, especially girls victimised by early pregnancies, enrol in ASEP.*

**Keywords:** *community, perception, alternative secondary education pathway, early pregnancies, Tanzania*

### **Introduction**

Adolescent fertility remains high in many regions of the world, with particularly elevated rates across Africa, where about one-fifth of adolescent girls become pregnant under the age of 19 (Kassa et al., 2018; Mori *et al.*, 2017; United Nations,

2020). Early motherhood can negatively impact health, educational, and socioeconomic outcomes for adolescent mothers and their children. Supporting adolescent mothers' educational attainment and timely return to school may be key to interrupting intergenerational cycles of adversity. ASEP is facilitating access to secondary schools and bringing schools closer to communities. In 2022–2023, using force account construction methods, the Institute of Adult Education (IAE) completed eight newly constructed buildings across eight regions of the coast: Iringa, Songwe, Rukwa, Manyara, Mtwara, Kigoma, and Geita. 8 renovated buildings in eight other regions: Dar es Salaam, Morogoro, Dodoma, Ruvuma, Kilimanjaro, Mwanza, Mbeya, and Tabora. These facilities include hostels to support learners, especially female learners disadvantaged by living conditions, enhancing their retention in AEP programmes (Institute of Adult Education, 2025).

According to the latest Kenya Demographic Health Survey (KDHS), 40 percent of adolescent girls without any education are either pregnant or have already become mothers. This is in spite of the fact that there is a returned to work programme, a policy introduced by the government to allow girls who have already fallen pregnant to return to school. According to the latest survey in Masaba North District, the rate of dropout in public day secondary schools for girls is more alarming than in public boarding secondary schools (GoK, 2016).

UNESCO Global Education Monitoring Report (2024), shows that over 98 million children and youth in Sub-Saharan Africa are out of school. This region has the highest rate of out-of-school youth in the world, where 30% of primary-school-age children, 34% of lower secondary school-age adolescents, and 49% of upper secondary school-age youth are out of school.

A US-based study with 301 adolescent mothers indicates that higher levels of completed education in the years after birth are associated with better community support health (Maslowsky *et al.*, 2021). Despite the importance of effectively promoting adolescent mothers' return to school, evaluated programmes from the US to date show that support programmes for adolescent mothers within the country are not implemented (Callahan *et al.*, 2017; Groves *et al.*, 2018; Toska *et al.*, 2020).

In Pakistan, a girl in the age group 5 to 9 is 14 percent less likely to attend school than boys (Aslam and Kingdom 2017). In both India and Pakistan, while wealthier boys and girls participate in school at similar rates, there is a gender gap of almost 5 years between them at the bottom of the quintile of income distribution. Similar patterns can be observed in the Democratic Republic of Congo, Benin, Gambia and

Togo. In spite of the benefits of education, the problem of gender disparity in education remains in many developing countries.

The study by Ndivo, Mwanja and Mumo (2021) on the socio-economic factors influencing dropout rates among girls in public day secondary schools in Mukaa sub-county, Kenya asserts that dropout from school among girls is a global phenomenon. They also found that there are reasons as to why Latina girls leave high school before graduation and they include pregnancy, marriage, gender roles, stereotyping, family demands and economic status.

Across sub-Saharan Africa, adolescent pregnancies occur against the backdrop of the highest global maternal mortality rates (World Health Organization (WHO), 2019), high levels of HIV (UNAIDS, 2020), violence (Poser and Ritchie, 2019), deprivation (Poser and Ortiz-Ospina, 2019), low service access (Magadi *et al.*, 2007; Mekonnen *et al.*, 2019), and limited support mechanisms (Toska *et al.*, 2020). These conditions pose significant obstacles for adolescent mothers and their children to achieve good health and social outcomes.

In South Africa, about 20% of female school-going adolescents report having ever been pregnant (Jonas *et al.*, 2016) and recent estimates show that approximately 125,000 adolescent girls give birth annually (Maquina, 2015). Supporting these girls to return to school after childbirth is critical, especially because prolonged absence can increase the risk of a permanent school dropout (Ardington *et al.*, 2015; Pandey *et al.*, 2009). Like many countries across the African Union, which increasingly aim to provide an enabling policy environment (Martinez & Odhiambo, 2018), the South African Department of Education established a national policy that supports young mothers' school return (South African Department of Education, 2007). However, evidence shows that only between 30% to 50% of young mothers manage to continue their education (Grant & Hallman, 2008; Groves *et al.*, 2021; Marteleto *et al.*, 2006).

A study by Grant and Hallman (2017) utilizing a cross-sectional sample of female adolescents from two districts in KwaZulu-Natal found that the community had positive perceptions and was aware of returning adolescent mothers to school. Returning to school was associated with good school performance prior to pregnancy, co-residency with a female household member, fewer years since birth, and adolescent mothers' higher age at the time of the interview. Another study by Groves *et al.* (2021) found that adolescent mothers need to navigate the dual challenge of parenting whilst attending school. Again, they found the importance of instrumental support, showing associations between the return to school and

family assistance with the re-enrolment process, provision of childcare from the family or support to organize external childcare, and financial support. These results align with a small pool of research from Zambia (Zuilkowski et al., 2019), Kenya (Birung *et al.*, 2015; Lwanga *et al.*, 2016; Kruger et al., 2009; Ngabaza and Shefer, 2013; Ntambo and Malvin, 2017), and Mozambique (Salvi, 2019), indicating that lacking financial means and the need for childcare are the main barriers to school return for young mothers.

According to the Republic of Kenya (2017), the national educational system has been characterized by gender disparities at the national level and between the various regions in favour of males. In spite of the government's efforts to provide free primary education, by subsidizing secondary education, the girls dropping out of school in Masaba North District have been an issue of concern in the recent past. The stakeholders' efforts to provide education to the girl child in the district have not been very successful because a large percentage drop before completing the full circle of four years in secondary education. In Masaba North District, Educational support (2016) claims that between 2008 and 2013, there were dropout rates of 10% for girls and 7% for boys. High wastage rates associated with dropping out, repetition in schools, and low transition render the education system inefficient.

In Tanzania, ASEP is vested in secondary schools by the Ministry of Education, Science and Technology (MoEST) and the President's Office, Regional Administration and Local Government (PO-RALG) in collaboration with the World Bank in an effort to take girls back to school after birth. ASEP was taken to be a five-year' programme plan (2020/2021 – 2024/2025) whereby the donors of this programme provide financial support to increase access to secondary education for adolescent mothers across the country. The Institutes of Adult Education (IAE) has enrolled 3,111 girls per year, as they start the implementation of the World Bank-funded ASEP. The programme specifically aims to: (i) create a safe, gender sensitive and learner-friendly school environment, (ii) provide good quality alternative education opportunities for secondary school drop-outs including young mothers (iii) improve the quality of secondary education by improving teacher skills, reducing huge class sizes and providing adequate teaching and learning materials (iv) provide financial support to increase access to secondary education across the country (v) increase access to secondary education, provide responsive learning environment for girl (vi) use innovative digital technology to improve mathematics and science teaching and (vii) increase access to secondary education by providing more schools closer to the homes of children particularly girls. Over the programme's lifetime, 6.5 million children (3.1 million girls) are expected to

benefit from the programme's interventions and an additional 900,000 children are expected to successfully complete their secondary education (Mseke, 2020).

It was the Tanzanian government's intention to increase total enrolment in secondary school by 1.8 million students and increase the number of girls graduating from both secondary schools and alternative secondary education pathways (Ndalichako, 2021). Therefore, ASEP helps girls transition from lower to upper secondary education, including girls who had to leave lower secondary government schools due to pregnancy (URT, 2020). The *Mwananchi* newspaper of 19 May 2024 reports that in the Momba District, 194 adolescent girls aged 15 to 17 have been impregnated while schooling, and hence have been expelled from school. Among those girls victimized by pregnancy, only nine enrolled in ASEP, leaving their counterparts in the streets.

URT (2020), the programme focuses on enabling young girls, especially young mothers, to continue their secondary education despite the social and economic barriers they face. Such challenges include: economic challenges, child labour, as well as cultural beliefs and traditions. The government's target was to enrol at least 3,000 girls to access the secondary education provided. As of 2023, the government has enrolled over 6,949 girls across AEP learning centres nationwide. By 2024, World Bank project reports show that 9,661 female AEP learners had been reached, with the goal of enrolling 6,000 by March 2025 (World Bank Report, 2024)

## **Methodology**

This study was conducted at Momba District in Songwe Region, Tanzania, since it is among the districts with the highest rate of early pregnancies that keep young girls out of schools and deny them their basic right to education (The *Mwananchi* newspaper of 19 May 2024).

The study employed the qualitative research approach so as to get an in-depth understanding of human behaviour and the reasons governing their behaviour (Denzin & Lincoln, 2017). Information was collected mainly by interviewing the respondents in their natural settings. Descriptive design with interviews and focus group discussions was employed together with non-probability sampling (purposive sampling). The RAC was selected purposively based on the prerequisite information he had by virtue of his managerial position. In addition, purposive sampling was also used to select teachers who taught in the ASEP classes. Then, snowball sampling was used to get out of the school girls. These also helped to get access to their parents to provide further information for this study.

Basically, snowball sampling operates in such a way that currently enrolled research participants help to locate and recruit new units for a study. Therefore, the sample size of this study comprised 10 out-of-school girls, 1 Regional ASEP Coordinator, 5 ASEP teachers, 10 parents of the ASEP students as well as 10 ASEP girls -, hence making a total of 36 participants. Given the population of the out-of-school girls as a result of early pregnancies, the sample was considered appropriate to provide the relevant information, as suggested by Meriam (2009) that a sample size of not less than 10% of the population is good to provide reliable information for the study. Data was analysed thematically and manually by providing a summary and direct quotations from the respondents with regard to the objectives of the study.

## **Results and Discussion**

### **Community Awareness on the ASEP**

With regard to identifying the community's awareness of the ASEP, the findings revealed that the community had little awareness about the ASEP. The study also found that most of the community members remarked on the ASEP from different perspectives but mostly negatively. During the interview with the participants on how they knew the term '*alternative secondary education pathway*', some parents were not aware of the programme. For example, one of the parents said the following:

I really don't know about the programme. It is my first time hearing about this. Therefore, I also need to know about it. Is it among the ways to improve the quality of education in secondary schools?

Adding to their unawareness of the concept of ASEP, another parent also gave the following comment:

The concept of Alternative Secondary Education Pathway (ASEP) is not that much new to me, but I don't know it well. I think I need to get more information to know it well, especially on how it works.

There were also some parents who had an idea of the ASEP programme. For example, one of them tried to describe the ASEP programme as follows:

Alternative Secondary Education Pathway (ASEP) is a new programme introduced by the government; I think it aims to enhance education performance and administration activities in all secondary schools. What I know is that it is meant to provide a chance for girl students who got pregnant and gave birth to come back to school..." But, friendly speaking, I don't know more about it...

The Regional ASEP Coordinator gave the following explanation about ASEP.

The Alternative Secondary Education Pathway is an alternative pathway for girls who have been victims of early pregnancies and other societal problems, giving them another chance to access secondary education. This programme was introduced in Tanzania as a liberation strategy for these victim girls. After the establishment of the programme, nowadays motherhood enjoys access to education, which may help them to fulfil their dreams.

The information revealed that the community, especially parents, has little understanding of the Alternative Secondary Education Pathway (ASEP). In fact, it seems that the Alternative Secondary Education Pathway (ASEP) is only known to few people especially who at the centre of it in terms of its implementation such the teachers, education officers and coordinators as well as in terms of those who benefit from it such as the students who have been enrolled in it and their close relatives. This might be due to the fact that the programme is too new to be so widely known.

These findings corroborate to the findings by Ardington *et al.* (2015) and Panday *et al.* (2016) that returning these girls to school after childbirth is critical, especially because prolonged absence can increase the risk of a permanent school dropout.

### **Awareness of the Objectives of the ASEP**

Again, the study was also aimed at knowing whether the respondents were aware of the aims and objectives of the ASEP. The results from the interviews and focus group discussion show that some respondents had a satisfactory understanding of the objective of the ASEP. However, the majority of them, especially the parents and the out-of-school girls, did not have a good understanding of the aims and objectives of the Alternative Secondary Education Pathway (ASEP).

This was evidenced when one of the out-of-school girls gave the following opinion:

Of course, I ever heard about the Alternative Secondary Education Pathway (ASEP) program. However, I personally really don't know why it was established and to whom it was targeted. (Interview with out-of-school adolescents.

Another girl who was expelled from school because of being pregnant and was now enrolled in the ASEP program demonstrated a good understanding of the aims and objectives of the programme by saying the following:

ASEP was introduced to save and help the girls who encountered the challenge of dropping out of school, particularly secondary school, to complete their studies. For example, I became pregnant when I was raped by a street boy when

I was in form three. It was not my will to drop out, but as per school rules and regulations, I had to be expelled from school. But now I hope I am going to fulfil my dreams of becoming a lawyer. FGD with out-of-school adolescents.

Similarly, one of the parents said the following concerning what she knew in relation to the aims and objectives of the ASEP.

What I know is that the Alternative Secondary Education Pathway (ASEP) in Tanzania was established for the purpose of helping only girls who were victimized by early pregnancies. Interview with parents.

When give a chance to explain to make the aims and the objectives of the ASEP clear to all the stakeholders, the RAC gave the following explanations:

The Alternative Secondary Education Pathway (ASEP) was introduced in Tanzania with the aim of providing a chance to the girls, especially those who got pregnant before the completion of their studies. The program also targets girls from families with poor economic bases as well as those affected by various negative family and traditional practices: The Alternative Secondary Education Pathway (ASEP) gives them another opportunity to access education and fulfil their dreams...

Based on the data in the verbatim quotes presented above, it is evident that most of the community members do not have a good understanding of the aims of ASEP towards girls who have early pregnancies. Not only that, based on the explanations from the RAC, the beneficiaries of the program are not only the victims of early pregnancies, but also the girls challenged with poor economic backgrounds, as well as other family problems such as early marriages and other negative traditional practices. This corresponds to the study by World Bank reports (2016) that there are reasons as to why Latina girls leave high school before graduation and they include pregnancy, marriage, gender roles, stereotyping, family demands and economic status.

### **Community Perceptions on the Implementation of the ASEP**

Under the aspect of the community's perceptions on the implementation of ASEP, the study found that most of the community members perceived the program negatively, especially when matched with their social morals and values.

In relation to this, recalling his experience of the community's perception of the program, the Regional ASEP Coordinator gave the following complaints:

Most of the community members perceive ASEP negatively. Some say that it is against their social morals and values. This may result in an increase in pregnancy incidents in schools since there is another chance for education.

However, it is encouraging somehow that a few of them have come to understand the program and perceive it positively.

The RAC went on by adding the following comment:

As an educational practitioner as well as a parent, we perceive the Alternative Secondary Education Pathway (ASEP) in a positive way. This program has become a bridge between girls who were pregnant before completing their studies and their dreams that could be fulfilled through education. This means that the program brings hope and success to them...

On the other side, ASEP teachers were interviewed on their experiences and perceptions of ASEP. Various responses were given, in which one of the teachers had the following to say:

There is no doubt that the ASEP is like a backbone to the students who have become mothers. It helps them to fulfil their dream through education. On the other side, it is a source of employment for us since we acquire part-time employment to teach these students....

Another teacher was quoted as saying the following:

Thank you, Samia Suluhu Hassan, the president of the United Republic of Tanzania, you are the hope of victim girls, who were denied their right to education after giving birth. However, under your leadership, there is now this friendly program that gives mothers access to education again. We are very happy, and it is our expectation that the ASEP will continue to support us as well. We are ready to support it.

Data presented in the above quotes indicate that, still, some of the community members have negative perceptions towards the role of the ASEP program, especially on pregnant girls and those who have given birth. There are beliefs that enrolling such girls back to schools through ASEP may negatively affect the behaviours of other students, and that the community members and fellow students will laugh at them. Also, such student mothers will also lack ample time to take care of their children.

The findings, therefore, imply that the implementation of the ASEP on enrolment and retention is adversely affected by such perceptions. This calls for the need to develop appropriate policies on returning these girls to schools. This is similar to the findings by Martinez and Odhiambo (2018) that there is a need to establish a national policy that supports young mothers' school return. Towards the same direction, Groves et al. (2021) found that there is an importance of instrumental support, family assistance, provision of childcare to organize external childcare,

and financial support to girls victimized by early pregnancies so as to assure them comfort in the ASEP programme.

### **Conclusion and Recommendations**

It was found that the community, especially parents, has little understanding of the ASEP. In fact, it seems that the ASEP is only known to a few people, especially those who share different things and ideas with education officers about education matters. It is maybe due to the recent implementation in the country, which most people are not aware of. Again, it was found that most of the community members do not understand the aims of the ASEP towards girls who are persecuted by early pregnancy. But it is shown that not only the victims of early pregnancy benefit well from the programme, but it also benefits those girls challenged with poor economic status, family problems, such as traditional beliefs and other problems, making them drop out. Meanwhile, it was found that the purpose of ASEP in Tanzania brings hope and arouses positive attitudes to the students, community and education stakeholders hence, it gives an access to education for girls victimised enrolling to ASEP will make the community members and students to laugh at them and also losing an ample of time to take care of their children. It therefore implies that a negative perception of the community members affects enrolment in ASEP and also retention in the programme, due to different incidents.

Based on the findings and conclusions of the study, the following recommendations are given:

There is a need for the government to provide education about ASEP. This will broaden people's knowledge and enable them to implement what is well known to them. The implementation of ASEP has different effects, such as fulfilling the education dream by giving access to education for girls who are victimised by early pregnancy, creating and developing valuable people in society, providing a source of income and employment for teachers, reducing poverty and ignorance, and helping in the improvement of formal education. This will help all victims to fulfill their educational needs, because not all girls get pregnant willingly. The government and community members should consider the implementation of ASEP among girls who have been victimised by solving different challenges, such as sensitising the community on ASEP. This may help to diminish traditional belief and lack of family support, building enough infrastructure to enact strict laws to discourage stigma in the community, and to moralise girls victimised by early pregnancy and getting better education.

## References

- Callahan, T., Modi, S., Swanson, J., Ng'eno, B., & Broyles, L. N. (2017). Pregnant adolescents living with HIV: What we know, what we need to know, where we need to go. *Journal of the International AIDS Society*, 20(1), 21858, 1–4
- Government of Kenya - GOK. (2017). *Secondary Education Quality Improvement Programme (SEQUIP)*. <https://www.go.ke/sites/default/files/2022-05/ministry-of-education-vmgf-report-july-2017.pdf>.
- Grant, M. J., & Hallman, K. K. (2008). Pregnancy-related school dropout and prior school performance in KwaZulunatal, *South Africa*. *Studies in Family Planning*, 39(4), 369-382. <https://doi.org/10.1111/j.1728-4465.2008.00181.x>
- Jochim, J., Meinck, F., Toska, E., Roberts, K., Wittesaele, C., Langwenya, N., & Cluver, L. (2022). Who goes back to school after birth? Factors associated with postpartum school return among adolescent mothers in the Eastern Cape. *Journal of South Africa, and Global Public Health*. DOI: 10.1080/17441692.2022.2049846
- Kassa, G. M., Arowojolu, A. O., Odukogbe, A. A., & Yalew, A. W. (2018). Prevalence and determinants of adolescent pregnancy in Africa: A systematic review and meta-analysis. *Reproductive Health*, 15(195), 1–17. <https://doi.org/10.1186/s12978-018-0640-2>
- Magadi, M. A., Agwanda, A. O., & Obare, F. O. (2007). A comparative analysis of the use of maternal health services between teenagers and older mothers in sub-Saharan Africa: Evidence from Demographic and health surveys (DHS). *Social Science & Medicine*, 64(6), 1311–1325. <https://doi.org/10.1016/j.socscimed.2006.11.004>
- Maquina. (2015). Concern as more than 120,000 schoolgirls fall pregnant. [https://www.unescwa.org/sites/www.unescwa.org/files/un\\_resolutions/Ares\\_69\\_315e.pdf](https://www.unescwa.org/sites/www.unescwa.org/files/un_resolutions/Ares_69_315e.pdf)
- Martinez, E., & Odhiambo, A. (2018). Leave no girl behind in Africa: Discrimination in education against pregnant girls and adolescent mothers. Human Rights Watch. [https://www.hrw.org/sites/default/files/report\\_pdf/au\\_0618\\_insert\\_webspreads.pdf](https://www.hrw.org/sites/default/files/report_pdf/au_0618_insert_webspreads.pdf)
- Msese, N. (2020). SEQUIP Secondary Education Quality Improvement Program 2020. Retrieved from <http://uniforumtz.com>
- Ndivo, J. M., Mwania, P. M., & Mumo, R. M. (2021). Socio-economic factors influencing dropout rate among girls in public day secondary schools in Mukaa sub-county, Makueni County, Kenya. *Journal of Popular Education in Africa*. 5(10), 53 – 60.

- Toska, E., Laurenzi, C. A., Roberts, K. J., Cluver, L. D., & Sherr, L. (2020). Adolescent mothers affected by HIV and their children. *A scoping review of evidence and experiences from sub-Saharan Africa. Global Public Health, 15*(11), 1655–1673. <https://doi.org/10.1080/17441692.2020.1775867>
- World Health Organization. (2019). *Trends in maternal mortality 2000 to 2017: Estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division*. [https://www.unfpa.org/sites/default/files/pubpdf/maternal\\_mortality\\_report.pdf](https://www.unfpa.org/sites/default/files/pubpdf/maternal_mortality_report.pdf).



**Impact of Teaching Methods on Stage II Students' Academic Performance in Mathematics: A Case of Alternative Secondary Education Pathway Programme in Mbozi and Momba Districts**

*Simon Michael Moses*

*Institute of Adult Education*

*Email: [simon.moses@iae.ac.tz](mailto:simon.moses@iae.ac.tz)/[simionmorem@gmail.com](mailto:simionmorem@gmail.com)*

**Abstract**

*This study examined the relationship between teaching methods and the academic performance of Stage II students in mathematics within the framework of the Alternative Secondary Education Pathway (ASEP) programme. A mixed-methods approach, incorporating both exploratory and descriptive research designs, was employed. The research was conducted in Mbozi and Momba Districts of the Songwe Region, targeting a population of 156 individuals. A sample of 40 participants was selected using purposive and simple random sampling techniques. Four ASEP centres were purposively chosen from the two districts based on their consistently low academic performance in mathematics. Data collection methods included interviews, observations, and questionnaires. Qualitative data obtained through interviews and observations were coded and analyzed thematically, while quantitative data from questionnaires were presented in tabular form. The findings revealed that active teaching methods such as project-based learning, experiments, educational games, problem-solving, and brainstorming are effective in fostering critical thinking and enhancing students' performance in mathematics. However, these methods are infrequently utilized by teachers. Conversely, teachers demonstrated high proficiency in traditional methods such as lecturing and question-and-answer techniques, but exhibited limited skills in implementing brainstorming and problem-solving strategies, which are crucial for developing critical thinking.*

**Keywords:** *Teaching methodologies, academic performance, Alternative Secondary Education Pathway*

## Introduction

Mathematics has played a significant role in advancing many areas of human activity. It is a vital subject for students, especially those aiming for careers in fields that require strong quantitative skills. Mathematics is closely connected to other subjects, particularly in technical and scientific disciplines. A solid foundation in mathematics gained during secondary education is important for students who plan to study science, technology, or artificial intelligence (AI) at the university level. This strong background helps students succeed in higher education (Gravemeijer et al., 2017).

Despite the important role mathematics plays and the government's efforts to promote mathematics and science subjects, student performance in mathematics at the secondary school level in Tanzania remains low (Mazana et al., 2020). Many students struggle with the subject, resulting in poor academic achievement and fewer opportunities for future success (URT, 2024). A significant number of students continue to have difficulty achieving even a “D” grade in national examinations (Mateya et al, 2016). Furthermore, UNESCO (2022) reported that while a small number of students excel in mathematics across all levels of education, the majority find it challenging and often fail. Several factors have contributed to this persistent underperformance, including inadequate mathematics instruction in schools (Uka & Ezech, 2022).

The widespread failure in mathematics is not limited to regular secondary schools; it also affects students enrolled in the Alternative Secondary Education Pathway (ASEP). ASEP is a programme implemented by Tanzania’s Ministry of Education, Science and Technology (MoEST) as part of the Secondary Education Quality Improvement Project (SEQUIP). Although ASEP is currently recognized under this name, it is not a new initiative in Tanzania. It originated in the early 1970s under the programme formerly known as *Elimu kwa Njia ya Posta*, which was managed by the Institute of Adult Education (IAE) under the Ministry of Education and Culture (MoEC) as part of the government’s broader strategy to provide education for all. In the 1990s, the programme was renamed *Elimu kwa Njia ya Masafa*, and all public primary and secondary schools across the country were instructed to support its implementation. The primary goal of ASEP is to enhance the quality of secondary education through alternative delivery methods (URT, 2023). Mathematics is one of the core subjects offered through SEQUIP–ASEP, yet it remains one of the most challenging for students, consistently recording high failure rates.

Literature indicates that the teacher–student interactive method is the most effective approach to teaching, followed by student-centred methods, while the teacher-centred approach is considered the least effective. Ayeni (2011) emphasizes that teaching involves facilitating meaningful changes in learners through the use of appropriate instructional strategies. Similarly, Adunola (2011) asserts that to achieve desirable learning outcomes, educators must employ teaching methods that are well-suited to the subject matter. Research findings have shown that the implementation of differentiated instruction significantly enhances students’ academic performance. It is therefore recommended that mathematics teachers and other educational stakeholders familiarize themselves with contemporary theories and methodologies related to differentiated instruction in mathematics education.

According to URT (2024), students’ performance in Mathematics within the Alternative Secondary Education Pathway (ASEP) remains poor. Kikomelo (2025) reported that out of the 136,481 students who sat for the Certificate of Secondary Education Examination (CSEE) Mathematics paper in 2022, the pass rate remained below 21%, while the failure rate consistently exceeded 78%. The author recommended regular in-service training for Mathematics teachers, particularly in pedagogical practices. Over time, various teaching methods have been introduced and emphasized to improve the effectiveness of Mathematics instruction and enhance student performance. However, limited research exists on the relationship between teaching methods and the academic performance of Stage II students in Mathematics under the ASEP programme. Therefore, it is essential to conduct this study. Table 1 provides an analysis of Stage II ASEP students’ performance in Mathematics, based on data from Mbozi and Momba Districts in the Songwe Region.

**Table 1: Mathematics Performance of Stage II Students in Mbozi and Momba Districts from 2022 to 2024**

Centre	Students' Performance								
	2022			2023			2024		
	Sat	Pass	%	Sat	Pass	%	Sat	Pass	%
Tunduma	14	2	14	18	3	17	26	4	15
Momba	-	-	-	-	-	-	7	0	0
Mkomba	-	-	-	7	0	0	0	0	0
Nalyelye	-	-	-	-	-	-	9	1	11
New Old Vwawa	-	-	-	33	3	9	36	5	14
Mbozi Club	11	1	9	18	2	11	16	0	0
Nyerere	-	-	-	4	1	25	6	0	0

**Source:** Songwe RRT's Office; March 2025

Table 1 illustrates that only one centre, with 11 students, sat for the Mathematics examination, and only one student passed. In 2023, just 9 out of 73 students who sat for the examination passed. In 2024, only 13 out of 87 students passed. These figures reflect consistently low performance in Mathematics among ASEP students.

Given the significant failure rates revealed, this study aims to evaluate the impact of teaching methods used by ASEP teachers on students' academic performance in Mathematics. According to Kerrigan (2018), student performance in Mathematics can be improved through instructional methods that actively engage learners in the lesson. Goldsmith and Mark (2021) emphasize that active learning involves students interacting with course content beyond traditional lectures—through writing, simulations, applets, games, and other participatory techniques. Mathematics is often taught using conventional approaches, which may contribute to the persistently low performance observed among students.

Research indicates that challenges related to teaching methods are among the key difficulties students face when learning mathematics. According to Abuhasanein et al. (2025), issues such as limited emphasis on modern teaching approaches in teacher training programmes and a lack of focus on innovative instructional strategies contribute to these challenges. Many students find it difficult to engage with Mathematics due to teaching practices that prioritize memorization and repetitive exercises rather than fostering conceptual understanding. This traditional approach can lead to a sense of disconnection from the subject, resulting in decreased motivation and engagement. Furthermore, students often struggle to see

the practical relevance of mathematics in everyday life, which can further reduce their interest and persistence in learning the subject (Boaler, 2016).

Social Cognitive Theory (SCT) is employed in this study to address challenges related to teachers' innovativeness in applying teaching methods. SCT has been extensively utilized across various disciplines, especially in the field of education (Zobai et al., 2021). The theory examines the factors that influence individual behaviour. As Bandura (2001) explains, behaviour is shaped by two main categories of factors: internal and environmental. Internal factors relate to personal engagement, which is linked to innovative practices, while environmental factors include social influences and the conditions that support or hinder behaviour. Drawing on SCT, this study categorizes environmental factors into two groups—facilitating conditions and social influences—and explores how these aspects of teaching methods impact students' performance in mathematics.

Research in the literature highlights that teaching methods that promote active learning are crucial for effective Mathematics instruction. According to Lessani, Yunus, and Bakari (2017), there are three primary teaching approaches: traditional, problem-solving, and discovery learning. Discovery learning involves the teacher acting as a facilitator, guiding students through a variety of activities that encourage them to uncover and construct knowledge independently. Voskoglou (2023) further emphasizes that in the United States, learning occurs when individuals engage socially—discussing and collaborating on shared problems or interests. A similar perspective is presented by Lister, Macdonald, and Shumway (2020), who note that active learning in Mathematics classrooms involves meaningful activities that foster reasoning, critical thinking, and active engagement with mathematical concepts. They advocate for Mathematics teachers to incorporate active learning strategies into their instruction.

Larkana (2025) reported a significant positive impact of group work on students' academic performance, demonstrated by higher average scores in understanding mathematical concepts and problem-solving skills. Similarly, Behlol, Akbar, and Sehrish (2018) found that in India, students taught using the Problem-Solving Approach (PSA) achieved significantly better results compared to those taught through traditional teaching methods. They attributed this improved performance to students' active participation and engagement in self-directed learning.

In Africa, research underscores the effectiveness and critical importance of active learning strategies, student-centred teaching approaches, the integration of ICT, and teacher training as key foundations for enhancing students' performance in

Mathematics. For example, Michael et al. (2023) found that active learning methods play a significant role in mathematics education in Ethiopia. However, they also noted that many teachers lack a clear understanding of how to implement these methods effectively. Similarly, Mbedule (2020) reported that student-centred teaching and learning approaches in secondary school basic mathematics in Tanzania lead to improved academic performance. On the other hand, Mzomwe (2025) revealed that while active learning methods are particularly beneficial for low-achieving students, they have a lesser impact on medium and high achievers.

Most of the existing literature highlights the importance of teaching methods that promote active, interactive, collaborative, and discovery-based learning. However, there is limited information on how these methods specifically impact students' performance in mathematics within the ASEP programme. This gap prompted the current study, which aims to evaluate the effects of teaching methods on the performance of ASEP Stage II students in Mathematics during the years 2023 and 2024. The findings of this study will guide ASEP mathematics teachers in selecting appropriate instructional strategies. Additionally, educational authorities ranging from national to centre levels will be able to identify the training needs of ASEP teachers by comparing the required teaching methods with the teachers' current skill levels. This will enable the provision of targeted professional development to enhance students' performance in Mathematics.

## **Methodology**

This study adopted a mixed-methods approach, integrating both exploratory and descriptive research designs to ensure a comprehensive understanding of the research problem. The combination of qualitative and quantitative techniques facilitated triangulation, thereby enhancing the depth and reliability of the findings. The research was conducted in Mbozi and Momba Districts within the Songwe Region, selected due to consistently low student performance in Mathematics in the ASEP Stage II national examinations over the past three years (2022–2024). The target population comprised 156 individuals, from which a sample of 40 participants was drawn. Three ASEP centres—Tunduma, New Old Vwawa, and Mbozi Club were selected purposively based on their students' academic performance in Mathematics during the specified period. The sample included:

- i) 1 ASEP Centre Coordinator;
- ii) 1 ASEP Centre Manager;
- iii) 8 ASEP Mathematics Teachers; and

- iv) 30 ASEP Students (9 from Tunduma, 11 from New Old Vwawa, and 8 from Mbozi Club).

Purposive sampling was employed to select the centre coordinators and managers, as their administrative roles positioned them to provide relevant insights into teaching practices and institutional support. A simple random sampling technique was used to select mathematics teachers, ensuring representativeness and minimizing selection bias. For student participants, quota sampling was applied to achieve gender balance and ensure demographic representativeness.

Data were collected using a combination of:

- i) Semi-structured interviews (for coordinators and teachers);
- ii) Structured questionnaires (for teachers and students); and
- iii) Non-participant observation (to capture authentic classroom practices).

Interviews enabled an in-depth exploration of participants' perspectives on mathematics teaching methods and their perceived impact on student performance. Questionnaires were designed to ensure anonymity and confidentiality, encouraging honest responses. Observational data provided contextual insights into actual teaching practices within ASEP centres. To ensure content validity, all instruments were carefully constructed with clear and concise questions aligned with the study's objectives. A combination of closed-ended and open-ended items was included to capture both quantitative metrics and qualitative insights. Reliability was assessed using the test-retest method, with correlation analysis conducted to evaluate consistency over time. Qualitative data from interviews were analyzed thematically, guided by predefined coding schemes that reflected the study's conceptual framework. Quantitative data from questionnaires were tabulated and manually analyzed using Microsoft Excel, allowing for descriptive statistical interpretation. Ethical integrity was maintained throughout the study. Participants were fully informed of the purpose and objectives of the research and were invited to participate voluntarily. Informed consent was obtained, and participants were assured of the confidentiality and anonymity of their responses.

## **Results and Discussion**

There was a need to examine methods used by the ASEP teachers in teaching Mathematics so as to determine their effectiveness towards students' performance in the subject. The Likert scale with a list of methods was given to teachers and

instructed to rate the frequency of use of each method. Teachers' responses were as presented in Table 2.

**Table 2: The Frequency with which Teachers use the following Facilitation Methods**

Methods	Responses ( $\Sigma n=8$ )									
	1		2		3		4		5	
	f	%	f	%	f	%	f	%	f	%
Brainstorming	3	37.5	3	37.5	2	25	0	0	0	0
Experiments	7	87.5	1	12.5	0	0	0	0	0	0
Games	4	50	2	25	2	25	0	0	0	0
Demonstration	1	12.5	0	0	2	25	3	37.5	2	25
Group work	1	12.5	2	25	2	25	2	25	1	12.5
Projects	1	12.5	1	12.5	4	50	1	12.5	1	12.5
Problem solving	1	12.5	3	37.5	2	25	1	12.5	1	12.5
Questions and answers	0	0	0	0	3	37.5	2	25	3	37.5

**Source:** Researcher; January, 2025

**Note:** Key: Never      2. Not often      3. Fairly Often      4. Often      5. Very often

Based on the data presented in Table 2, it is evident that most teachers rarely use active learning methods such as brainstorming, experiments, and games. Specifically, 37.5% of teachers reported never using brainstorming, 87.5% never use experiments, and 50% never use games. Additionally, 37% of teachers indicated that they do not often use brainstorming and problem-solving strategies. These findings suggest that many teachers do not employ instructional methods that actively engage students during mathematics lessons. This lack of active learning may contribute to the low performance in Mathematics among ASEP students. As recommended by Lister, Macdonald, and Shumway (2020), mathematics teachers should incorporate active learning techniques such as brainstorming, experiments, problem-solving, and games to enhance student engagement and achievement. Furthermore, the data imply that while these methods are effective in improving students' performance in Mathematics, they are underutilized by most teachers. This aligns with Kerrigan (2018), who emphasized that students' mathematics performance can be improved through active participation in the learning process.

**Table 3: Methods that help Students understand Mathematics more easily**

Methods	Responses ( $\Sigma n=8$ )									
	1		2		3		4		5	
	f	%	f	%	f	%	f	%	f	%
Brainstorming	0	0	1	3	3	10	10	33	16	53
Experiments	0	0	2	7	5	17	11	37	12	40
Games	0	0	0	0	6	20	11	37	13	43
Lecturing	15	50	13	43	2	7	0	0	0	0
Projects	3	10	3	10	7	23	10	33	10	33
Problem solving	1	3	2	7	0	0	10	33	17	57
Questions and Answers	7	23	8	27	6	20	5	17	4	13

**Source:** Researcher; January, 2025

**Note:** Key: 1. Very low 2. Low 3. Fairly low 4. High 5. Very high

According to the data presented in Table 3, the majority of students demonstrated a high level of understanding in Mathematics when taught using active learning methods. Specifically, 57% of students responded positively to problem-solving, 53% to brainstorming, 43% to games, and 40% to experiments. This suggests that problem-solving, brainstorming, games, and experiments significantly enhance students' comprehension of Mathematics and contribute to improved academic performance. These methods are highly effective because they actively engage learners in the learning process. The findings align with the study by Vale and Barbosa (2023), which emphasizes that learning is an active endeavor. Teaching strategies that promote active participation are essential for fostering critical thinking and achieving strong academic outcomes.

Additionally, data were collected to determine whether teachers possess the skills to use various teaching methods particularly those that are effective in creating an active classroom environment. Using a Likert scale, ASEP teachers were asked to rate their level of proficiency in a range of instructional methods. Their responses are summarized in Table 4.

**Table 4: The Level of Teachers' Proficiency in applying the following Facilitation Methods**

Methods	Responses (( $\Sigma n=8$ ))									
	1		2		3		4		5	
	f	%	f	%	f	%	f	%	f	%
Brainstorming	3	37.5	2	25	2	25	1	12.5	0	0
Experiments	4	50	2	25	1	12.5	1	12.5	0	0
Games	2	25	3	37.5	1	12.5	1	12.5	1	12.5
Lecturing	0	0	0	0	4	50	2	25	2	25
Projects	1	12.5	1	12.5	3	37.5	3	37.5	0	0
Problem solving	2	25	2	25	3	37.5	1	12.5	1	12.5
Questions and Answers	0	0	0	0	1	12.5	3	37.5	4	50

**Source:** Researcher; January, 2025

**Note:** Key: 1. Very low 2. Low 3. Fairly low 4. High 5. Very high

The data presented in Table 4 indicate that a majority of teachers have very low skill levels in using certain instructional methods: experiments (4 teachers, 50%), brainstorming (3 teachers, 37.5%), games (2 teachers, 25%), and problem-solving (2 teachers, 25%). The table also shows that many teachers are rated as having low skill levels in using games (3 teachers, 37.5%), experiments (2 teachers, 25%), brainstorming (2 teachers, 25%), and problem-solving (2 teachers, 25%). These findings suggest that most teachers lack proficiency in employing key instructional strategies in mathematics education—specifically, experiments and games.

**Table 5: The Level of Students' Engagement in Lessons facilitated by the following Instructional Methods**

Methods	Responses ( $\Sigma n=30$ )									
	1		2		3		4		5	
	f	%	f	%	f	%	f	%	f	%
Brainstorming	14	47	7	23	6	20	2	7	1	3
Experiments	19	63	11	37	0	3	0	3	0	3
Games	14	47	12	40	3	10	1	3	10	33
Lecturing	1	3	1	3	2	7	10	33	16	53
Projects	3	10	3	10	3	10	11	37	10	33
Problem solving	15	50	12	40	3	10	1	3	1	3
Questions and Answers	0	3	0	3	1	3	13	43	16	53

**Source:** Researcher; January, 2025

**Note:** Key: 1. Not at all 2. Somehow 3. Neutral 4. Greatly 5. Very greatly

The data presented in Table 5 indicate that the majority of students are not actively engaged in instructional methods such as experiments (19 students, 63%), followed by problem-solving (15 students, 50%), brainstorming (14 students, 47%), and educational games (14 students, 47%). These findings suggest that most students are not being engaged through active teaching strategies that could otherwise be employed by their teachers. This lack of engagement negatively impacts their performance in Mathematics. These results align with Voskoglou (2023), who found that in U.S. schools, mathematics learning is most effective when students engage socially—discussing and collaborating on shared problems or interests. The findings are further supported by observational data, which revealed that teachers predominantly relied on question-and-answer techniques. While common, this approach does little to foster active learning or promote the critical thinking skills essential for mathematical success. Consequently, student performance in Mathematics is adversely affected.

Interviews with teachers regarding effective methods for teaching Mathematics revealed the following insights:

In my view, the most effective methods for teaching mathematics are those that actively engage students in the lesson. They foster participation, which is essential for enhancing memory and application of mathematical concepts. Some of these methods include problem-solving, brainstorming, and experiments. (Interview with Centre Coordinator, March 2025).

Another ASEP teacher stated:

There are participatory and non-participatory methods in teaching. However, for mathematics instruction, I recommend participatory methods—especially those that promote critical thinking and reasoning, such as experiments, brainstorming, group work, and problem-solving. (Interview with Centre Coordinator, March 2025).

These responses suggest that teachers advocate for instructional strategies that actively involve students in the learning process. Methods such as brainstorming, experiments, group work, and problem-solving are seen as effective in promoting critical thinking, enhancing memory, and improving students' understanding and performance in mathematics.

Centre coordinators were also interviewed to assess whether teachers were employing engaging methods in mathematics instruction. Their responses revealed concerns:

We occasionally evaluate how teachers apply instructional methods. Unfortunately, the methods currently used are not particularly engaging and

therefore not effective in enhancing the teaching and learning of Mathematics. For instance, the most commonly used methods are question-and-answer sessions and group work. (Interview with Centre Coordinator, March 2025).

Another coordinator added:

Yes, teachers do use these methods, but only rarely. Moreover, the methods employed are not the ones considered most effective for mathematics instruction. Techniques such as problem-solving, experiments, brainstorming, and project-based learning are seldom used, despite their proven effectiveness in teaching Mathematics. (Interview with Centre Coordinator, March 2025).

These findings highlight a disconnect between teachers' understanding of effective pedagogical approaches and their actual classroom practices. While active learning methods are acknowledged as beneficial, their limited implementation may hinder students' mathematical development and overall academic performance.

The findings indicate that although teachers employ instructional methods in Mathematics, the strategies used are generally unengaging and fail to foster students' critical thinking. This suggests that teachers may lack competence in implementing active teaching approaches. As a result, widespread underachievement in Mathematics could be linked to the ineffective use of appropriate pedagogical methods. These findings align with those of Lessani, Yunus, and Bakar (2017), who found that students often experience mathematics anxiety due to the teaching methods applied in classrooms, which in turn contributes to poor performance in the subject. Additionally, observational data collected by the researcher show that most teachers rely primarily on group work and question-and-answer techniques, methods that, while familiar, do not sufficiently promote active learning or critical engagement.

## **Conclusion and Recommendations**

Based on the findings of this study, it can be concluded that most mathematics teachers do not utilize effective active teaching methods, such as projects, experiments, games, problem-solving, and brainstorming, that are essential for fostering critical thinking among learners. Instead, they frequently rely on less engaging strategies such as question-and-answer sessions, demonstrations, and group work. These methods, while commonly used, are less effective in actively involving students in the learning process and may therefore hinder their performance in Mathematics. Additionally, the study reveals that while many teachers demonstrate strong proficiency in traditional methods like lecturing and question-and-answer techniques, they possess limited skills in implementing more

interactive approaches such as brainstorming and problem-solving. These latter methods are identified in this paper as highly effective for mathematics instruction. As a result, the academic performance of ASEP students in Mathematics is adversely affected.

Moreover, both teachers and students recognize methods like problem-solving, brainstorming, projects, and experiments as effective for teaching mathematics. However, these approaches are rarely applied in practice, further contributing to students' underperformance. The study also highlights that ASEP students are generally less engaged during lessons. This lack of active participation negatively impacts their understanding, as active involvement is crucial for deep learning particularly in Mathematics.

Based on the findings and conclusions of this research, the study recommends the following:

- i) It is essential for the management of the Institute of Adult Education (IAE) to develop a structured training framework aimed at equipping ASEP teachers with effective, modern methods for teaching and learning Mathematics. This professional development initiative should emphasize the importance of active instructional strategies that foster critical thinking and student engagement.
- ii) ASEP teachers should cultivate a commitment to continuous learning and professional growth, particularly in the application of diverse mathematics teaching methods. Approaches such as problem-solving, brainstorming, project-based learning, and experimentation should be prioritized for their proven effectiveness in enhancing student understanding and performance. Teachers are also encouraged to demonstrate professional integrity by consistently applying appropriate and effective teaching methods, even under minimal supervision and assessment. By doing so, they can contribute meaningfully to improving the quality of mathematics education and student outcomes within the ASEP programme.

## References

- Abuhasanein, Y., Rejeb, A., & Jemai, K. (2025). Challenges to learning mathematical concepts among sixth-grade students in primary education: A teachers' perspective. *International Electronic Journal of Mathematics Education*, 20 (2).
- Bandura, A. (2001). *Social cognitive theory: An agentic perspective*. *Annual Review of Psychology* 52 (1).

- Behlol, M., Akbar, R., & Sehrish, H. (2018). Effectiveness of Problem-Solving Method in Teaching Mathematics at the Elementary Level. *Bulletin of Education and Research*, 40 (1), 231 - 244.
- Cardino Jr., J.M., & Ortega-Dela Cruz, R.A. (2020). Understanding of learning styles and teaching strategies towards improving the teaching and learning of mathematics. *LUMAT: International Journal on Math, Science and Technology Education*, 8 (1), 19 - 43.
- Effect of Group Work on Students' Performance in Mathematics at the Elementary Level in District Larkana. (2025). *The Critical Review of Social Sciences Studies*, 3 (1), 631- 641.
- Gravemeijer, K., Stephan, M., Julie, C. *et al.* (2017). What Mathematics education may prepare students for the society of the future? *Int Journal of Science and Mathematics Education* 15. 105 - 123.
- Kerrigan, J. (2018). *Active Learning Strategies for the Mathematics Classroom*, 2 (66), p. 36.
- Kikomelo (2024). Students' Perceptions of Mathematics Teachers' Implementation of Problem-based Learning Practices in Tanzania. *Journal of Advanced Academics*.
- Larkana. (2025). Effect of grouwork on students' performance in Mathematics at the llementary level in District. *The Critical Review of Social Sciences Studies*, 3 (1), 631- 641.
- Lessani A., Yunus, A., & Bakar, K. (2017). Comparison of new mathematics teaching methods with traditional method. *International Journal of Social Sciences*, 3 (2), 1285 – 1297.
- Lister, K., Macdonald, B. & Shumway, J. (2020). *The Mathematics enthusiast*, 17 (2), 615 – 640.
- Lugosi, E. & Uribe, G. (2022). Active learning strategies with positive effects on students' achievements in undergraduate mathematics education. *International Journal of Mathematical Education in Science and Technology*, 53 (2), 403 - 424.
- Mangwende, E., & Maharaj, A. (2018). Secondary school Mathematics teachers' use of students' learning styles when teaching functions: A case of Zimbabwean schools. *Eurasia Journal of Mathematics, Science and Technology Education*, 14 (7), 3225-3233.
- Mazana, M., Montero, C., Casmir, R., (2020). Assessing students' performance in Mathematics in Tanzania: The teacher's perspective. *International Electronic Journal of Mathematics Education*, 15 (3).

- Mazana (2025) The Effect of Teaching Approaches on Students' Academic Achievement in Mathematics at the Higher Education Level. *International Journal for Mathematics Teaching and Learning*, 25 (1), pp 1-17.
- Mbedule, N. (2020). *The Influence of Teaching Methods on Students' Academic Performance in Secondary School Basic Mathematics*. Dar es Salaam, Tanzania. The Open University of Tanzania.
- Michael, K. Alemu, M. Desie, Y. Atnafu, M. Assefa, S. (2023). Understanding and practice of active learning among upper primary school science and Mathematics teachers. *Heliyon* 9 (6).
- Muema, J. (2023). Relationship Between Teaching Method and Students' Performance in Mathematics in Public Secondary Schools in Dadaab Sub-County, Garissa County, Kenya. *IOSR Journal of Research & Method in Education (IOSR-JRME)*, 8 (5), 59 - 63.
- Razia, N and Khan, R. (2019). Activity-based teaching versus traditional method of teaching in Mathematics at the elementary Level. *BullFetin of Education and Research*, 41 (2). p145 -159.
- Sunzuma, Chando, Gwizangwe, Zezekwa & Zinyeka (2020). In-service Zimbabwean teachers' views on the utility value of diagrams in the teaching and learning of geometry. *International Journal on Math, Science and Technology Education*, 8 (1), 1-18.
- Umugiraneza, O., Bensilal, S. & North, D. (2017). Exploring teachers' practices in teaching mathematics and statistics in KwaZulu-Natal schools. *South African Journal of Education*, 37 (2).
- Vale, I. & Barbosa, A. (2023). Active learning strategies for effective Mathematics teaching and learning. *European Journal of Science and Mathematics Education*, 11 (3), 573 – 588.
- Voskoglou, M. (2019). Comparing teaching methods of Mathematics at the university level. *Education Sciences*, 9 (3), 204-.
- Zobair, K. M., Sanzogni, L., Houghton, L. & Islam, M. Z. (2021). *Forecasting care seekers' satisfaction with telemedicine using machine learning and structural equation modeling*. PloS one <https://doi.org/10.1371/journal.pone.0257300>.