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Editorial

On behalf of the editorial and production team, I am humbled and privileged to kindly introduce to you this Issue Number 1, Volume 14 of the Journal of Issues and Practices in Education (JIPE), of the Faculty of Education – the Open University of Tanzania. I sincerely acknowledge the contribution of all authors and reviewers who dedicated their time to writing and reviewing the manuscripts that form the current Issue. I also appreciate the hard work of the Editorial Board of JIPE and the secretariat team for bringing out this issue of the Journal.

The Journal of Issues and Practice in Education (JIPE) is a refereed journal. The journal is published twice a year – June and December. JIPE is designed to inform both academics and the public on issues and practices in the field of education. The current issue comprises five (5) articles. These articles delve into*Library's Legal Framework*; *A CBT-Based Intervention Model for Computer Anxiety Management*; *Teachers Involving Parents (TIP); Factors Influencing Academic Performance in Primary School National Examination in Tanzania;* and*Information and communication technology in lifelong learning*.The editorial team expects that you will benefit from reading the articles published in this issue. I look forward to receiving more manuscripts for the forthcoming JIPE issues

Dr Mohamed Msoroka
CHIEF EDITOR

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Library's Legal Framework: Legislations, Regulations and Policies on Educational Transformation in Tanzania-An Enabler or Deterrent?

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ABSTRACT
This is an exploratory paper which presents an analysis of the state of the library legal framework, and its impact on educational transformation in Tanzania. The paper focuses on legal and policy aspects of the law, to establish whether they enable or deter the education transformation process and to propose reforms. The data were collected through document analysis. The reviewed documents include the Education Act Cap 353 of 2002 and the School Library Resource Centres Regulations (2002); Copyright and Neighboring Rights (Licensing of Reproduction and Rental Rights) Regulations, 2014; Education policy of 2014; the National Library Policy; and Tanzania Library Service Board Act 1975. Others are the Sokoine National Agricultural Library Act No 7 of 1991; the role of Open Educational Resources (OER) in education, and the significance of the legal framework. The study established that the 2014 Education Policy is silent on library-related issues. Although the Education Act Cap 353 sect 60 (u) G.N No.282 (2002) assigns the Minister of education powers to affect the provisions of the Act, such instructions are missing in the parent Education Act. Some sections of the Legal Framework are inconsistent with the educational transformation in Tanzania. Based on these findings, it is argued here that a conducive environment for educational transformation may be attained by the following. First, by amending the existing legal framework. Second, by ameliorating the legal framework of the Education Act Cap 353 60 (u), Copyright and Neighboring Rights (Licencing of Reproduction and Rental Rights) Regulations (2014). Third, by enhancing awareness amongst library professionals of the laws, regulations and policies enacted by the Government.

Keywords: *Educational transformation, legal framework, policy framework, libraries*

INTRODUCTION

John (2022) defined transformation as a complete change, usually into something with improved usefulness. Sheinberg (2017), on the other hand, has described transformation as the creation of something new that has never existed before and could not be predicted from the past. Globally, the education sector is challenged by the need to respond to new demands in order to build the future we need. The purpose of educational transformation as envisaged by UNESCO (2022) is to ensure the right to lifelong learning by providing all learners of all ages, in all contexts, the knowledge and skills they need to realize their full potential and live with dignity. Indeed, education transformation is ushered to ensure that lifelong learning can no longer be limited to a single period of one's lifetime. Thus, everyone, starting with the most marginalized and disadvantaged groups in societies, must be entitled to learning opportunities throughout one's life in both employment and personal engagements. Sufficing it to say that the demands on educational transformation can be successfully attained in an environment where the existing legal framework and policies support the place and educational functions of libraries in society. This is because historically, libraries have been regarded as powerhouses, treasures of knowledge, the cradle for human development, and civilization and gateways to knowledge and culture (White, 2012).

Hence, the services and resources libraries offer, create opportunities for learning, literacy, and education and shape new ideas and innovative society. Besides, libraries play a key role in ensuring that the records and knowledge created and accumulated for posterity, are well preserved. In emphasising the importance and pivotal role of libraries in society. White (2012) asserts that without libraries, it would be difficult to advance research and human knowledge or preserve the world's cumulative knowledge and heritage for future generations. In this context, libraries are perhaps more valuable institutions for educational transformation because of their role as transmitters of societal values and traditions from generation to generation and because of their role as modifiers of human behaviour. In carrying out the responsibility of providing services to the general public, libraries need to be guided by a robust, clear and supportive legal framework for the execution of their operations. Arguably, the legal framework establishes

legal provisions for the establishment, maintenance, services, functions, rights, and management of a library system under the government. It is through the legal framework that the existence of the library as an institution is safeguarded. The term legal framework, according to Collins Dictionary (2022), refers to a context in which the rules, rights, and obligations of governments, and citizens are outlined in a system of legal documents. Documents in the legal framework include; a country's constitution, legislation, policy, regulations and contracts. Van der Sangen (2010) asserts that the legal framework includes not only the core component of the legislation itself but also the institutional, administrative, political, social and economic conditions or arrangements, which make the legislation available, accessible, enforceable and therefore effective. Thus, the objective of this study was to review key educational and library policies, regulations, laws and reports and establish their relationship to education transformation in Tanzania

Methodology

In this qualitative study, data were collected through documentary review. The reviewed documents were related to educational policies, laws, regulations and reports that are related to education and libraries. These documents include the Tanzania Education and Training Policy (1995), Tanzania Education and Training Policy (2014), Education Act Cap 353 of 2002 and the School Library (Resource Centres) Regulations in Tanzania. Others are Copyright and Neighbouring Rights (Licencing of Reproduction and Rental Rights) Regulations (2014), Legal Deposit Law (1962), Tanzania Library Services Board (1975), the Sokoine National Agricultural Library Act No 7 of 1991 and administrative documents. International policies and guidelines enacted by international bodies which affect the profession and all parts of the legal framework related to libraries were also reviewed. The analysis of the documents was mainly intended to ensure that any points or clauses in the existing library legal framework and related documents which appear to impede the educational transformation in Tanzania are brought to the fore and eliminated. This is to enhance its efficiency and efficacy, as a guiding legal document in library practice and management in Tanzania.

The Education (School Library Resource Centres) regulations (2002) (IFLA/UNESCO, 2006) describes the school library as a centre of learning that provides information and ideas which are fundamental to functioning successfully in today's information and knowledge-based society. In the same vein, IFLA (2015) posits that distinguishing features of a school library comprise a qualified school librarian and diverse collections that support the school's formal and informal curriculum. Other features include an explicit policy and plan for ongoing growth and development. Therefore, School library resource centres are regarded as the heart and an agent of educational activities in secondary schools. If the heart fails to function properly then life becomes in danger, this is especially true for the school library resource centres. For the school library resource centres to function effectively and efficiently, they need to be guided by well-articulated regulations and policies. It is in the realisation of this fact that the government of the United Republic of Tanzania enacted the Education Act Cap 533 (URT, 2002). Section 60 (u) of the Act (2002) instructed the Minister responsible for education to prepare and issue School Library Resource Centres Regulations.

The regulations were published in the Official Gazette G.N.No 282 of 2002. The objective of the regulations is to provide proper administration and management of School Library Resource Centres in the country. Similarly, these regulations define, describe and establish the functions of the School Library Resources Center. For example, sections 4 and 5, of these regulations provide that every School Library Resource Center shall be established and operated in accordance with officially recognised standards. In the same vein, section 8 of the regulations is about staffing, which directed that every school may engage a full-time library staff to man the Resource Center. Section 9 of the regulation is about coordination whereby the Commissioner for education is required to appoint an experienced professional librarian, who shall be the Co-ordinator of the School Library Resource Centers. On the other hand, Section 10 is on Inspection, where the Commissioner is required to appoint by name, an experienced professional librarian who shall perform the functions of an inspector of library resource centres. Section 11 is on the National School Library Resources Centre committee, which inter alia, is required to harmonise and coordinate the development of School Library Resource Centres and other types of libraries in the country, while sect18

concerns remedies. The Commissioner for education has been granted powers to enforce these regulations. An analysis of the Education (School Library Resource Centres) Regulations, is indicative of the good intention of the Government to promote education in Tanzania. From the face of it, the regulations sound to be nice and promising. However, one may be inclined to point out that it is one thing to have a comprehensive regulation, while the implementation of such a regulation is another. Therefore, regulations are only good when they assist in achieving a set of particular objectives; however, such regulations fail for different reasons. For example, where sound legislation exists on paper but the regulator is weak and ineffective and/or poorly resourced. In this instance, and by virtue of section 9 and 10 of the regulation, respectively, provides for the position of an experienced professional librarian, who shall be the coordinator of the school library resource centres, as well as a position for inspector of library resource centres.

In the same vein, Section 11 of the regulation provides for the establishment of the National School Library Resources Centre Committee. One would wish to know if such a committee exists at the Ministry level or the National level, and whether there is a designated person to oversee the implementation of such regulations. The question to professional librarians and the general public in Tanzania is whether they are aware of the existence of such regulations which are key for educational transformation in the country. In the same line, the Education Act Cap 353 sect 60 (u) G.N No.282 of 2002, gives the Minister responsible for education, powers to prescribe anything, which is necessary or expedient for the better carrying out of the provisions of the Act (URT, 2002). However, there is an omission of such instructions in the parent Education Act. Probably this may have been attributed to the non-implementation of the regulations. Hence, in this context, one would be inclined to argue that the legal framework in force, is a deterrent to the transformation of education in Tanzania. Given the above, amelioration of the Education Act 353 and School Library regulatory machinery is therefore imperative at this stage, in order to improve its degree of compliance. Similarly, an understanding of the changes in the current regulations would make the legislation more favourable to school libraries. It is suggested that since the Ministry responsible for education is in the process of reviewing

the Education Act., one would hope that the process will adopt a participatory approach, where librarians who are among the key stakeholders in the education sector, will be fully involved in this process. In this context, librarians' voices are crucial and they need to be heard. It is argued here that, within the realm of modern methods of teaching and learning at all levels of education, the involvement of libraries is important in supporting the curriculum and promoting lifelong learning. Hence, one cannot talk about Education transformation without the involvement of librarians.

The Education Policy (2014)

In 2014, the Tanzanian government introduced a new Education and Training Policy (URT, 2014) which repealed the 1995 Education and Training Policy. The policy was intended to guide, synchronise and harmonise all structures, as well as to provide proper and efficient mechanisms for the management of the education sector, in consideration of the changes in economic, social, science and technology. Besides, the 2014 Education Policy is expected to comply with the principal Act, viz the Education Act No. 353 of 2002, which is still in force and the corresponding school library resource centres regulation, in which issues of libraries are well articulated. However, a critical examination of the policy document revealed that the policy is silent on issues of libraries; where these issues have been discussed, the policy does not provide sufficient information. Issues of libraries were only mentioned on pages 12, 25 and 43 respectively, where it was noted in passing that there is a shortage of essential school facilities such as libraries, for attaining quality education. For this reason, it is argued here that issues of libraries are not featured prominently in the policy. This is contrary to the 1995 Education and Training Policy, where issues related to school libraries were vividly stated and well-articulated. For example, the 1995 Education Policy provided a section on library services, which stressed that the library is crucial in enabling access to information, knowledge and skills (Haki Elimu, 2021; URT, 1995). The role of the Tanzania Library Services Board (TLS) was also appreciated (HakiElimu, 2021). With such observation, it is most likely that the 2014 policy formulation committee did not involve librarians. Thus, one may wonder, how could librarians (among the key stakeholders in the educational sector) be excluded from such an important discussion on the development of education in Tanzania. As a way forward, this paper suggests

that practising library and information science specialists in the country, through the Tanzania Library Association, should seek an audience with the Minister responsible for Education, to air their views, in line with the ongoing exercise of reviewing the Education policy. It is the view of this paper that the contents of the existing policy to a large extent, neither promote education transformation nor enhance the quality of education, because issues related to libraries and library services are not critically addressed. Hence, in this context, librarians are urged to be proactive, rather than silent observers on matters of professional concern. The next section dwells on Copyright and Neighbouring Rights (Licencing of Reproduction and Rental Rights) Regulations, 2014

Copyright and Neighbouring Rights (Licencing of Reproduction and Rental Rights) Regulations, 2014 (GN. No 234 of 2014)

Copyright has been defined by Jones (1996) as the exclusive statutory right, given to those who create original works, and to exercise control for a specified period over the copying and other exploitation of those works. The purpose of copyright law is to protect the creators of works from unlawful reproduction of their materials and to fund further creativity. Similarly, copyright is also intended to ensure that some access to copyrighted work is allowed; without this access, creators would be starved of ideas and information to create more copyrighted materials (Cornish,2019). In Tanzania, copyright is protected and regulated by the Copyright and Neighbouring Rights Act of 1999. It is acknowledged worldwide that the role of libraries is to support users with their information needs. In the context of Tanzania, libraries and librarians can apply the general right to copy which is also referred to as free use, which envisages the doctrine of fair use (otherwise called fair dealing) and copying by librarians and archivists (otherwise called reproduction rights (Benhaji & Samzugi, 2002). To meet the informational needs of library users in accessing copyrighted works while respecting the law, Section 12(7) of the Copyright Act 1999 allows the reproduction of literary and artistic works lawfully made available to the public. The common activities allowed under library reproduction rights include copying for replacing published and unpublished materials in permanent collections of libraries or archives or permanent collections of another library or archive. It is worth noting that the application of the

statutory rights is limited to public libraries, non-commercial documentation centres, scientific institutions and educational establishments. Licencing is one of the methods under section 17 of the Copyright Act of 1999, which grants permission on application by a library. Under this section, the author may grant in writing a licence to the applicant, to carry out certain specific acts. Such acts should cover the author's economic rights, which include reproduction, translations and importation of copies of the work and other communication to the public of the work. The scope of the licence would only cover all those rights specified in the licencing agreement. Through this arrangement, libraries may be in a position to enable their patrons to access electronic-based resources. From the analysis, it can be argued that the Copyright Act under discussion has tried to establish a balance between the creators' and users' needs to access information and the free flow of information and ideas.

However, this is contrary to Regulation 3 of Licencing of Reproduction and Rental Rights) Regulations, 2014 (GN) (General notes) which prohibits the use of copyrighted works without a licence. As such, this regulation does not recognise the exemption provided under section 12(2) of the Act. Thus, contradicting a fair use doctrine, library reproduction rights and licencing, as provided in the principal legislation No 234 of 2014 which came into force on 11 July 2014. The said Regulations are made under section 45 of the Copyright and Neighbouring Rights Act CAP 217 (R.E. 2002). For example, in 2015, Public universities in Tanzania were served with demands from KOPITAN (acting under a power of attorney requiring Universities to pay royalty fees for the reproduction of works which are protected by Copyright (Copyright Association of Tanzania letters dated 24th April 2015and 1st April 2019) (Letters, RE: Obligation to pay royalties for reproduction and rental rights). Their letter partly reads: "It is provided for under Regulation 3 that 'No person shall reproduce and/ or hire copyrighted works unless he has a licence issued by the society". Given that your University is a user of copyright-protected works you will need a licence to continue with the reproduction and rental rights of copyrighted literary works. Under these letters, the universities were served with invoice fees based on the number of students enrolled. For the case of the Open University of Tanzania, it was supposed to pay Tshs 65.913,750 as charges for Reproduction Rights, Tariff

UN 43,942.500, Rental Rights, Tariff UN 21.971.250 (The requested sum was almost a quarter of the library budget). The same notes were served to other Universities. As a response, the Library Board at the Open University of Tanzania convened a meeting to discuss the matter and advise the management on the right course of action to be taken. At this meeting, the Library Board resolved that the matter be referred to the Committee for Vice Chancellors and Principals in Tanzania (CVCPT), for discussion and deliberation. A consultative meeting was convened at which KOPITAN were invited to clarify the basis and legitimacy of charging reproduction charges and penalties. The concerns raised at the consultative meeting were as follows:

a) The procedures leading to the promulgation lacked transparency. Public universities are the major producers of copyrighted materials and the major stakeholders in copyright protection but were not consulted.
b) It is inconceivable that levies are collected through such suspect arrangements using the power of attorney. As public institutions, universities are exposed to dealing with individuals of doubtful credibility and whose accountability is not transparent. There are very serious shortcomings with the Infringing Regulations that need to be redressed very urgently.
c) The Infringement Regulations operate on the presumption of guilt without any justification and contrary to the cardinal rules and justice. Tariffs and penalties are imposed based on students' enrollment and require no proof of any violation
d) The Infringement Regulations seek to impose various responsibilities upon public universities contrary to known norms in law.
e) The Infringement Regulations are consistent with the principal legislation because the regulations seek to take away the special concession to an academic institution in the reproduction of copyrighted materials as recognised and enforced by section 12 of the Copyright Act.
f) Based on the Provisions of section 12 of the Copyright Act, it is believed that universities and other academic institutions are exempted from the requirement of obtaining prior consent (licence) and to remunerate the authors as long as their use of copyrighted materials is on a non-commercial basis (Letter to Attorney General, 2015(17.09).

Based on the above-narrated facts, the following suggestions were proposed to the Honourable Minister for Industries and Trade as follows:

a. be advised to revoke or amend the regulations to incorporate provisions which exempt education and academic institutions from paying the royalty for reproduction and rental licence of the published materials, or

b issue any directive that would exempt academic and educational institutions in Tanzania from the Regulations.

Given the discussion provided above, it is clear that the Copyright and Neighbouring Rights (Licencing of Reproduction and Rental Rights) Regulations, 2014 (GN. No 234 of 2014) epitomises draconian regulations on the part of librarians. Similarly, such, regulations are capable of posing a challenge to access to information, and the provision of quality education and stifle efforts towards educational transformation in the country. The results of the efforts to seek government intervention have not been communicated officially to CVPT. However, to date, none of the public universities has received a demand note to pay the royalty fees. Thus, the issue may have been put to an end. Sufficing to say that, educational transformation can only flourish in an environment where users have access to information without any restrictions. It is therefore suggested that, in future, the reform and improvement of the law should adopt a participatory approach which will also include library and librarians, copyright owners, and educational and research institutions which are great producers and consumers of information.

National Library Policy in Tanzania

According to Network for Information and Digital Access (NIDA, 2011), a library policy is a framework for the planned and coordinated development of countries' libraries. In addition, a library policy serves as a plan of action and statement of ideals adopted by a government (NIDA, 2011). Tanzania, so far, has no officially written National Library Policy, except a set of guidelines documented for each library. The study conducted by NIDA (2011) reported the problem in the library sector in Africa. The emphasis is placed on ICT policies, and as such, there is no mention or role of libraries within the ICT framework. However, efforts are being made through

Tanzania Library Services Board, to come up with a national policy. The current efforts towards realising this goal are laudable. The purpose of the National library policy as envisaged is to plan and coordinate the development of libraries in the country and make them part of the educational and research system. Besides, the national library policy is vital in building a knowledge-based society and promoting lifelong learning. About two decades ago, the Tanzania Library Service Board (1985) submitted to the Ministry of Education a National Library Policy proposal. As a result, the Ministry of Education appointed a committee to study and deliberate on the proposed National Library Policy. The team comprised members from the Tanzania Library Services Board, Ministry of Education, University of Dar-es-Salaam, Tanzania Library Association, Tanzania Commission on Science and Technology, National Archives, Tanzania Industrial Research Development Organization, and Moshi Regional Library (Kaungamno & Ilomo, 1989).

In 1986, the committee concluded that the proposed National Library Policy was most appropriate and timely, and a final report was submitted to the Ministry for further action. The report recommended several issues which are still relevant even in today's library working environment. These include: the formation of a library advisory council mandated to monitor and coordinate library and documentation services; public library development to be the responsibility of the Tanzania Library Services Board. Another recommendation was to place rural library development under the responsibility of the Department of Adult Education and Tanzania Library Service. Similarly, the report also expressed the need for strengthening the library coordinator's office in the Ministry of Education by including a school and college libraries inspection section as part of its functions. It can be argued that those plans were revolutionary development as well as focused on removing the information divide within the country as they were geared towards library development in all parts of the country. Of particular interest is rural library development, where the majority of Tanzanians live. Such plans and vision, if had been implemented, would have helped the attainment of viable transformation of education in Tanzanian society. Probably, the lack of a National library policy could be considered a deterrent to educational transformation because it has made it impossible to achieve the

set objectives. Sufficing to say that the absence of a national library policy, is a deterrent to achieving educational transformation in the country because the majority of the population in Tanzania does not have access to libraries, which are a vital part of the national educational system.

Open Educational Resources (OER)

Open Education Resources (OER) refers to learning, teaching and research materials in any format and medium that reside in the public domain or are under the copyright that has been released under an open license, that permits no-cost access, re-use, re-purpose, adaptation and redistribution by others (UNESCO, 2022). They can include textbooks, course readings and any other materials which can be used for education. The Open License refers to a license that respects the intellectual property rights of the copyright owner and provides permissions granting the public the right to access, re-use, repurpose, adapt and redistribute educational materials (UNESCO, 2019). In building inclusive knowledge societies, Open Educational Resources (OER) can support quality education that is equitable, inclusive, open and participatory as well as enhances the academic freedom and professional autonomy of teachers by widening the scope of materials available for teaching and learning (UNESCO, 2021).

As such, Open Educational Resources (OER) play an important role in supporting teaching, learning and community services, in line with Sustainable Development Goal number 4 which aims at 'ensuring inclusive and equitable quality education and promote lifelong learning opportunities for all. OER, if well adopted and utilised by libraries, can make it possible for Tanzania to attain this goal and it could be a good contribution by librarians. It is hoped that librarians are aware of these emerging resources which can be one of the pillars to enable educational transformation in the country. In developing countries like Tanzania, the increasing cost of commercially produced resources is creating a financial barrier to accessing such resources. They are not only increasingly expensive, but they often lack contextual relevance as they were prepared for a general audience, and are difficult to use effectively with specific groups of students in specific contexts (Keats, 2003, Lwoga, 2012). Therefore, the use of OER materials has more advantages as they remove the barriers to accessing current and

relevant materials which have been prepared, developed and reviewed by various experts around the world. In Tanzania, a massive expansion in secondary school enrolment is leading to an increase in the required learning resources. It has become clear that the country could not afford to produce all the materials needed by learners. According to Muganda, Samzugiand Mallinson (2016), Open Educational Resources have the potential to widen access to education both formal and informal, at all levels. Therefore, librarians in Tanzania have a moral duty and contribution to make, in identifying relevant OER materials, which are compatible with our curriculum. In so doing, librarians will go a long way towards making a positive contribution to educational transformation in Tanzania. Besides, it is pertinent to note that the use of OER hinges on the issue of OER policy, as adopted by UNESCO at its 40th General Conference, in November 2019, (UNESCO, 2019). The recommendations call upon all Member States, where Tanzania is a signatory, to build the capacity of stakeholders to create access, use, adapt and redistribute OER resources, as well as develop supportive policy. This paper recommends that librarians, through their Consortium and Tanzania Library Association, advise the government on the importance of OER resources in teaching and learning. The availability of freely provided OER resources is a positive move towards attaining the development of education transformation in the country. It is, thus, important for the country and librarians to seize the opportunity offered by UNESCO, on the utilization of OER resources, which serves as a boon for the transformation of education in Tanzania.

Legal Deposit Law in Tanzania

Legal deposit is a statutory obligation which requires that any organization, commercial or public, and any individual producing any type of documentation in multiple copies, be obliged to deposit one or more copies with a recognized national Institution (Lariviere,2000). The purpose of legal deposit revolves around ensuring that copies of all national publications in every kind of media are provided to trusted custodians, legal deposit enables and ensures the comprehensive collection of a nation's documentary heritage (IFLA, 2011). Besides, the legal deposit also supports the preservation, contributing to the long-term survival of a nation's documentary heritage. In Tanzania, legal deposit is guided by the Tanzania Library Services Board

Act, 1975 and the Sokoine National Agricultural Library Act No 7 of 1991. Under section 4(3) of the Act, the library shall be both the library of the university as well as a National Library for Agricultural and allied subjects in Tanzania. The Tanzania Library Services Board assumed the activities of its predecessor the Tanganyika Library Services Board. In this Act, unless the context otherwise requires interpretation "book" includes every part or division of a book, pamphlet, newspaper, periodical, magazine, review, gazette, sheet of letterpress, sheet of music, or map. Others include a plan, chart or table separately printed, but do not include any second or subsequent edition of a book, unless such edition contains additions or alterations either in the letterpress or in the maps, prints or other illustrative materials belonging thereto. It also includes any book which will not be made available to the public at large. For the case of any gramophone record, film, or other books, not being printed material, the Board may direct that the person producing the same shall supply the Board with one copy only. This legislation was passed many years ago when print was predominantly used as a means of communication. However, the revolution brought about by Information and Communication Technologies has led to the birth of publications in electronic formats.

As such, electronic information should be treated equally as part of a nation's documentary heritage, and therefore must be included in legal deposit arrangements. Pandley (2019) citing the example of the UK, cautions that there has been a rapid growth in the publication of material in non-print forms in recent years. Unless these forms of publications are covered by the legal deposit legislation, the danger would be that countries might lose an important part of their national heritage. The caution provided by Pandley is also relevant to the environment of Tanzania, where the Legal deposit Act does not support documents which have been born digitally. To overcome such a challenge, Jensen (2021) advised that the introduction of electronic legal deposit is arguably the greatest transformation which national libraries have undergone in our professional lifetimes. In Tanzania, the system used to deposit printed materials is well elaborated; however, the challenge is in electronic format. Such materials include e-journals, e-books etc. It is suggested that Tanzania Library Services Board and the Sokoine National Agricultural Library which are designated legal depositories in the country,

consider establishing a national institutional repository which will cover materials born digitally. Also, as a nation, there is a need to review or amend the legal deposit law to align it with new emerging technologies. This will ensure that all the generated information in the country, regardless of format, is collected and preserved to support teaching, learning and community services which are key to educational transformation. Hence, the lack of integrating locally generated digitally born information in the Legal Deposit law is tantamount to denying the world community easy access to information resources from Tanzania.

Conclusion and Recommendations

Given the above, it is clear that, at some point, there is a mismatch between policies/Acts/regulations and practice. Some policies/Acts/regulations do not provide clear support to library activities. Thus, the paper recommends that the Ministry responsible for education needs to involve librarians, who are important stakeholders in the education sector, in the process of reviewing the Education Act and Education policy. Also, a dedicated and experienced professional librarian needs to be appointed at the Ministry level, to oversee matters of School Library Resource Centres Regulations. It is also recommended that procedures leading to the promulgation of laws and policies should adopt a participatory approach to ensure the inclusion of all key stakeholders, including the librarians. Similarly, regulations need to be amended to incorporate provisions which exempt education and academic institutions from paying the royalty for reproduction and rental licence of the published materials. The librarians need to consider the adoption of Open Educational Resources to meet the informational needs of their patrons. The legal deposit law needs to be amended to incorporate locally generated digital information resources. It is also recommended that the Tanzania Library Services Board and the Sokoine National Agriculture Library should consider putting in place a National Institutional Repository for depositing materials emanating from within the country, which is increasingly born digitally.

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A CBT-Based Intervention Model for Computer Anxiety Management among first-year students at the National Open University of Nigeria in South-West Nigeria

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ABSTRACT

The study investigated the effectiveness of Cognitive Behaviour Therapy (CBT) in treating computer phobia among distance learning first-year students in south-western Nigeria. The moderating effects of age and gender were examined. Technology Acceptance Model was taken as the framework for the study, with the pre-test-post-test control group quasi-experimental design, where 55 computer anxious students first-year students who met the screening criteria were randomly allocated into the CBT and the Control groups. For screening, the Computer Anxiety Scale Revised (=0.89) with a norm of 60.0 was used, while Computer Anxiety Rating Scale (=0.86) was utilised to measure the criterion variable. Treatment lasted eight weeks using the CBT training guides. Data analysis was conducted using covariance and post-hoc multiple classification analysis at a significance level of 0.05. Participants mean age was =32.70, with 65.5% females. It was found that the treatment group was significantly affected by the management of computer anxiety among NOUN freshmen (F(1,46) = 42.492, p0.05, =0.480). Participants in the CBT had the least adjusted mean (=27.260), and the control group had a higher adjusted mean score (= 39.733). Participants in the treatment groups and the control group are significantly affected by age when it comes to computer anxiety (F(2,123)=4.548, p0.05, 0.090). There is a significant effect of age in the management of computer anxiety among the participants; gender did not significantly impact computer anxiety. It is recommended that educational and counselling psychologists should employ this therapy to reduce computer anxiety. Service providers should consider age in computer appreciation training for distance learners.

Keywords: *Cognitive behaviour therapy, computer anxiety, anxiety management, National Open University of Nigeria.*

INTRODUCTION

Anxiety is a psychological disorder which affects the normal life of individuals. Anxiety can manifest in diverse ways in an individual's life. Every human being experience anxiety with its attendant consequences at one point or the other. It is one of the most widespread and persistent human emotions that affect individuals emotionally, physiologically and cognitively. In its emotional sense, anxiety involves worries, apprehensions, and phobias toward situations and things(Akintumi, 2001). Many students in NOUN, particularly those in their first year of study, exhibit computer anxiety which constitutes a clog in the wheel of progress in their studies and a severe inhibiting factor to their performance and general achievement. A computer-anxious learner may have difficulty adjusting to an ODL environment. Oyadeyi (2018) states that "distance education in the 21st century encompasses the use of computer-mediated resources in most of its activities globally".

These tasks include registering for courses and examinations, online facilitation and tutor and computer-generated assignments and other forms of learner support. Adequate computer skills devoid of anxiety are quintessential and germane to the success of distance learners. Studies have shown a positive correlation between computer skills and programme completion by distance learners. The attrition rate is positively correlated with inadequate computer skills and computer anxiety (Ofole, Fawusi, &Oduneye, 2012). Undoubtedly, distance learners with computer anxiety find it difficult to cope and benefit maximally from the online opportunities available in the ODL environment (Oyadeyi, 2018). According to NOUN (2011), distance education today involves online technologies, such as student support services, access to electronic information, virtual libraries hosting electronic databases, eBooks, free research publications, learner management systems and collaboration with faculty and students. Students with computer anxiety are likely to experience academic failure and lower levels of comfort in their studies; it can potentially result in dropout, lack of interest in studying, and unnecessarily high levels of physical and emotional stress. Global competition and globalisation have contributed to the acceptance of interactive computer technologies for multi-faceted development in our modern environment. Despite the extensive number of

study centres set up by open and distance learning (ODL) institutions, it is often difficult to keep students engaged and enrolled in distance learning because of the physical separation between teachers and students, and among students. Computer technology is the driving force of the information age and the engine of modern civilisation (Ituen, 2009).ODL's education programmes are dominated by computers worldwide. Despite this fact, it is not good news that many prospective students of distance learning experience computer anxiety; this may frustrate the speed at which they would achieve their educational objectives. The problem of computer anxiety has plagued many users since its invention. There is evidence that ICT phobia can adversely affect distance learners (Oluwole, 2009; Wang & Newlin, 2002). Distance learners may suffer from computer anxiety due to adverse effects they might have on their performance. Chau, Chen, and Wong (1998) define computer anxiety as a fear of computers or the inability to use them effectively because of apprehension.

Cognitive Behaviour Therapy (CBT) is a therapy that has the potential to manage or reduce different forms of anxiety (Busari, 2007; Snowden, Steinman &Fredick, 2008); hence it was adopted as an intervention strategy in this study. It is a form of psychotherapy that emphasises the essential roles of accurate and faulty thinking in individuals' actions. Cognitive behaviour therapy can change behaviour or mood (Busari&Uwakwe 2001). Cognitive behaviour therapy also focuses on the learning process and how individuals' cognitive processes and emotive processes are affected by external factors. In the context of this study, cognitive behaviour therapy was set up to help students learn how to manage their fears about the computer. By doing this, participants learned to change their thinking and strengthen their coping skills. They were trained to recognise, monitor and change their self-defeating and irrational thoughts and assumptions in favour of rational behaviour patterns resulting in improvement of conditions. CBT is an intervention that has been used and has significant effects on anxiety management. An investigation by Rosen, Sears & Weil (1993) attempted to reduce computer anxiety among students by incorporating two individual and group treatment modules. 162 participants participated in a course in which they had to interact with computers. The students exhibited marked improvements in computer phobia, knowledge, and behaviour following the five-week training programme.

Psychological reactions to computers were eliminated similarly by all treatment modules. A second comparative study showed (a) client dropout rates decreased by half, graded performance in computer courses increased significantly, and (b) fear, thoughts, and understanding in the 5-week programme were transformed compared to similar participants in other computer programmes. Following up with 41 participants, six months later showed substantial gains in computer knowledge and interaction. It was found that half of the clients (former computer phobics) were ready to begin a career with computers. An examination of 10 weeks of selective desensitisation programme using 16 computer-induced anxiety participants (8 computer-anxious, eight non-anxious). Brosnan and Thorpe (2006) revealed the beneficial effects of clinically derived treatments. A significant reduction in computer anxiety was seen among participants. In the second research, 30 screened computer-anxious participants underwent a one-session treatment session, of which nine were treated (n=9), and 21 were not treated.

There was a marked improvement in anxiety levels in the treated group after one academic session/year. In their study, Rathod, Kingdon, Weiden, and Turkington (2008) found that cognitive behaviour therapy (CBT) is beneficial for patients with medication-resistant symptoms of schizophrenia. A study of this type is crucial given that persistent symptoms can be disabling, cause significant distress, and increase depression, anxiety, and the risk of suicide. Cognitive therapy (CT) and systematic desensitisation therapy (SD) were compared by Fathi-Ashtiani, Salimi&Emamghohivand (2006) among high school students with test anxiety. Psychotherapy techniques significantly reduced test anxiety levels in both case groups compared to those in the control group after 12 weeks of therapy. Study results suggest psychotherapy techniques positively affected students' test anxiety levels. CBT is very helpful in improving symptoms in people with anxiety (Gould, Otto & Pollack, 1997; Douglas, Ladouceur & Leger, 2003; Linden, Zubraegel& Baer, 2005). Tabibi, Mashadi, Eshragi, Faroughi, & Ahmadi (2014), in a quasi-experimental study, found that group cognitive behaviour therapy may help children with type I diabetes cope with anxiety and depression and have better glycemic control. Thirty (30) diabetic children participated in the study; the experimental group received eight sessions of cognitive-behavioural training. Following the post-test, the results indicated that the experimental group had

been able to control anxiety more than the control group. Age and gender are factors that moderate the study. According to several studies, age plays a crucial role in determining student computer anxiety. It has been found that older and middle-aged adults have lower self-efficacy and higher levels of anxiety about using computers (Rahimi &Yadollahi, 2011; Dyck & Smither, 1994; Czaja, Charness, Fisk, Nair & Rogers, 2006; Oluwole, 2009). Also, researchers found that men and women in their older years report higher levels of computer anxiety and lower levels of computer efficacy compared to younger individuals. Some studies (Yoon, et al., 2016; Dyck & Smither, 1994) concluded that older people were generally more wary of using computers than adolescents. In contrast, Reed, Doty, and May (2005) found computer aversion to being age-independent. A frequently reported finding from the research on gender and computing (Brosnan& Lee, 1998) suggests that males use and have more experience in computers with less fear. There is increasing evidence that females hold less favourable attitudes toward computers than men (Whitely, 1997); they also experience psychological challenges regarding computers (McIlroy et al., 2001).

Using computer anxiety, motivation, self-confidence, and workplace use of computers, Birol, Bekirogullari, Etci, and Dagli (2008) examined how gender shapes these phenomena. It was found that females' scores were significantly lower than those of males, indicating that women are generally less confident than men. There was a significant difference in self-confidence scores for males and females on this scale. However, both reported confidence when using computers to accomplish work. A study by Halder and Chaudhuri (2011) found significant differences in fear of computers on a gender basis among trainee teachers in West Bengel, India. Computer anxiety was lower for male trainees than for female trainees. Similarly, Sanalan (2016) investigated computer phobia among Turkish university pre-service teachers. The findings indicated that females were significantly more apprehensive than male participants. In a study by Loyd et al. (1987), female students showed less computer anxiety than male students; they preferred using computers more than their male counterparts. The Rosen et al. (1987) study found that gender does not play an essential role in computer anxiety despite women's more negative attitudes towards computers. Furthermore, Tunceret al. (2013) examined the degree to which computer anxiety was prevalent among

vocational high school students from Tunceli University. Results indicate that gender does not impact computer anxiety in a meaningful way. In Nigeria, distance learners are faced with the challenge of computer anxiety. The resultant effects among students are avoidance of computers by learners, use of third parties to submit Tutor Marked Assignment (TMA), test anxiety, and loss of time during e-examinations.Others include procrastination in attempting computer-related tasks including assessing e-books, use of e-counselling portal, i-learn portal (despite their numerous advantages and inevitability), ignoring the Open Educational Resources (OERs), and repeatedly deferring examinations.

In Nigeria, there is little research on computer anxiety. Despite the enormity of the problem among distance learners, most studies have not addressed technology-induced anxiety among new ODL students specifically or students generally. Apart from simply recommending skill training, no studies have provided any strategies to help mitigate it. Essentially, skill training in isolation may not be enough to address the problem if other methods are not explored to build confidence, enhance acceptance of computers, or reorder thinking patterns of computer-apprehensive individuals. Researchers have speculated that those who suffer from computer anxieties because of inadequate hands-on experience and knowledge of computers are more readily treated than those with anxiety rooted in their psychological makeup (Howard &Smith, 1986). Computer anxiety has not been widely treated with cognitive behaviour therapy as a group therapy; the researcher knows only a few available instances globally. As such, the study examined cognitive behaviour therapy as a potential treatment option for computer anxiety among first-year students at NOUN in southwest Nigeria. Specifically, the study compared the computer anxiety levels of experimental and control groups to see if the intervention had any significant effect. Additionally, the study analysed the moderating effects of gender and age on the computer anxiety of the participants.

Hypotheses

Hypothesis 1: There is no significant main effect of treatment (cognitive behaviour therapy) in managing computer anxiety among participants.

Hypothesis 2: There is no significant main effect of age in managing computer anxiety among the participants.

Hypothesis 3: There is no significant main effect of age in managing computer anxiety among the participants.

Methodology

The study adopted a pre-test, post-test, control group, quasi-experimental design with a two by two by two (2 x 2 x 2) factorial matrix used in this study. The columns in the factorial matrix included two moderating variables, age (young, old) and gender (male or female), while the rows included only the treatment group (cognitive behaviour therapy) and the control group. Study participants included all fresh students of the National Open University of Nigeria in the south-west region. Two Study Centres of the National Open University Nigeria were selected using a simple random sampling technique. To detect participants with high computer anxiety, first-year students across the seven Schools (faculties) at the study centres were administered the Computer Anxiety Scale Revised by Bandalos and Benson (1990).

Thirty (30) male and female participants were randomly selected from those who scored high on the Computer Anxiety Scale in each of the two selected Study Centres. There was, however, attrition of 5 participants in the treatment group. The data were collected through Computer Anxiety Scale - Revised (CAS-R) developed by Bandalos and Benson in 1990. In studies conducted by Gos (1996), Kay (1992), and Rosen and Weil (1995), CAS-R was found to be a high level of reliability and validity. As a Likert-type questionnaire, the CAS-R has items ranging from Strongly Agree to Strongly Disagree. The examinee is forced to make choices on the scale that can be translated to weights of 1 through 5. Thus, the highest score obtainable is 115, while the lowest is 23. The CAS-R includes items that vary between positive and negative statements. A score of 60 and below indicates high computer anxiety. The authors calculated an estimate of the coefficient alpha reliabilities for 0.96. The unique nature of the sample compelled the researcher to revalidate the instrument. Two-week test-retest reliability of the instrument revealed an alpha coefficient of 0.91, while it had an internal consistency of 0.89. The Computer Anxiety Rating Scale (CARS) is a 19-item self-report inventory developed and validated by Heinssen, Glass and Knight (1987). Respondents

were asked to respond on a five-point Likert-type scale (1=strongly disagree, 2=disagree, 3=undecided, 4=agree, and 5=strongly agree). The total score ranged from 19, indicating low levels of computer anxiety, to 95, indicating a high level of computer anxiety. Test re-test reliability for the instrument was 0.79. The instrument had a Cronbach alpha of 0.86 and a reliability coefficient of 0.89 when revalidated after a two-week test. There were four stages in the treatment process, namely recruitment, pre-test, treatment, and post-test. Participants were screened using the Computer Anxiety Scale Revised during the recruitment process. In this study, low-score participants (i.e. below 60) were classified as computer-anxious. Participants were administered the Computer Anxiety Rating Scale during the pre-test phase. An eight-week treatment period (eight sessions) was allocated to the experimental group (Cognitive Behaviour Therapy). An average of one hour was spent in each session. The eight-session intervention was delivered to the experimental group as planned. Participants were serious about the intervention as they attended all sessions. A seminar on "time management strategies for open and distance learners" was presented to the Control group in place of any treatment. Both the experimental group and control group were subjected to pre-test and post-test. The data collected were analysed using the Analysis of Covariance (ANCOVA) and Scheffe Post-hoc Multiple Classification to determine the directions of differences and significance identified.

Results and Discussion

Hypothesis One: There is no significant main effect of treatment (cognitive behaviour therapy) in managing computer anxiety among participants. ANCOVA tested this hypothesis to determine if statistical significance can be established for post-test scores of participants in the management of computer anxiety using pre-test scores as covariates. Table 1 summarises the results of the analysis.

Table 1: Analysis of Covariance (ANCOVA) of Interactive Effects of Computer Anxiety Scores of Participants in Treatment and Control Groups, Age and Gender

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	2391.212[a]	8	298.902	8.376	.000	.593
Intercept	357.912	1	357.912	10.029	.003	.179
Prescore	1157.446	1	1157.446	32.433	.000	.414
Trtgroup	1516.440	1	1516.440	42.492	.000	.480
Age	162.314	1	162.314	4.548	.038	.090
Gender	93.278	1	93.278	2.614	.113	.054
trtgroup * age	120.034	1	120.034	3.363	.073	.068
trtgroup * gender	172.839	1	172.839	4.843	.033	.095
age * gender	71.827	1	71.827	2.013	.163	.042
trtgroup * age * gender	57.571	1	57.571	1.613	.210	.034
Error	1641.624	46	35.687			
Total	70849.000	55				
Corrected Total	4032.836	54				

a. R Squared = .593 (Adjusted R Squared = .522)

Results presented in Table 1 indicate that there is a significant main effect of treatments in the management of computer anxiety ($F_{(1,46)}$= 42.492, p<0.05,ñ =0.480). Based on this, the null hypothesis is rejected. In conclusion, there is a significant main effect of treatment in reducing computer anxiety among participants. To further provide information on the management of computer anxiety among the two groups (CBT and Control), Multiple Classification Analysis (MCA) was computed, and the result is shown in Table 2.

Table2: Post-Hoc Multiple Classification Analysis

treatment group	Mean	Std. Error	95% Confidence Interval Lower Bound	Upper Bound
CBT	27.260[a]	1.418	24.405	30.115
Control	39.733[a]	1.211	37.295	42.171

From the MCA Table, it is evident that the cognitive behaviour therapy (CBT) group had the least adjusted post-test mean score ( =27.260); the control group had the high adjusted mean score ( = 39.733). The direction of the increasing effect of the interactions in the management of computer anxiety is CBT>Control. Table 2 indicates that the independent variables jointly accounted for as much as 52.2% (MR^2=0.522) of the variance in the management of computer anxiety among the participants, while the remaining 47.8% is due to pre-test measures or other unexpected sampling errors. The result of this study indicates a significant main effect of treatment on the computer anxiety of participants. The implication is that cognitive behaviour therapy was effective in the management of the computer anxiety of participants. In other words, if computer-anxious individuals are exposed to cognitive behaviour therapy, they could be helped to develop skills that will help effectively deal with their phobic condition. This finding is in line with Rosen, Sear and Weil (1993), who found cognitive behavioural therapy effective in treating students with computerphobia. This finding is also consistent with Brosnan and Thorpe (2006), who established that cognitive behaviour therapy effectively reduced anxiety among computer-anxious participants. Similarly, studies (Brozovichet al., 2015; Ebert et al., 2015; Gould et al., 1997; Douglas et al., 2003; Linden et al., 2005) have also

confirmed that cognitive behaviour therapy was very helpful in improving symptoms in people with anxiety. Additionally, the study's finding is also in congruence with that of Fathi-Ashtiani, Salimi and Emamghohivand (2006), who found that cognitive therapy was effective in test anxiety among high school students.

Hypothesis Two: There is no significant main effect of age in the management of computer anxiety among the participants.

The result of the analysis, as presented in Table 1, indicates that age significantly influenced computer anxiety among participants exposed to treatment (CBT and control group) ($F_{(2,123)}$=4.548, $p<0.05$, $\tilde{\eta}$=0.090). This suggests that age significantly affects participants' anxiety when using computers. Thus, the null hypothesis is rejected. To further provide information on computer anxiety management between the two levels (young and old), the t-test was computed. The result indicated that the young students had a high adjusted post-test mean score (=35.59) while the old students had an adjusted mean score ( = 31.40).In the treatment of computer anxiety, interaction has a greater positive effect on young students than on older students.

Table3: Post-Hoc Multiple Classification Analysis

			95% Confidence Interval	
Age	Mean	Std. Error	Lower Bound	Upper Bound
16 - 29yrs	35.593[a]	1.109	33.360	37.827
30+yrs	31.399[a]	1.533	28.312	34.486

The finding of this study correlates with studies from other scholars (Rahimi &Yadollahi, 2011; Czaja&Sharit, 1998; Czaja et al., 2006; Oluwole, 2009) who found a significant relationship between age and levels of computer anxiety. However, it is different from Reed et al. (2005) who concluded that age had no impact on computer anxiety. A plausible reason for this difference could be that NOUN's older first-year students were more mature and responsible for the financial and material resources needed for their study. It could also be that they took the intervention programme more seriously than

the younger first-year students. This argument is based on the belief that older first-year students have more desire to complete their programme for one reason or the other (especially career advancement) and would appreciate any intervention that could help in realising their dreams.

Hypothesis Three: There is no significant main effect of age in the management of computer anxiety among the participants.

As can be seen in Table 1, the analysis indicates that there was no main effect of gender on post-test scores of male and female participants treated with CBT and the control group ($F_{(1,46)}$=2.614, p>0.05, ñ=0.054). This suggests that there is no significant main effect of gender in managing computer anxiety among participants. Therefore, the null hypothesis is now retained. The finding could be attributed to the fact that computer anxiety is a psychological imbalance that affects individuals irrespective of gender. This result agrees with other studies (Howard & Smith, 1986; Igbaria&Parasuraman, 1989)which found no significant gender correlation in computer phobia among business professionals and managers. The findings also correlate with Tunceret al. (2013), Chao (2001), Sam et al. (2005), Adebowaleet al. (2009) and Karsten and Roth (1998). The finding of the current study contradicts that of other studies such as Yoon et al. (2016), Schumacher and Morahan-Martin (2001), Halder and Chaudhuri (2011) and Sanalan (2016)who found gender variations in students' computer anxiety. For instance, Halder and Chaudhuri (2011) conducted a study involving secondary school teacher trainees. They found significant gender differences in computer anxiety, where male trainees had more computer anxiety than females. Sanalan (2016) investigated computer phobia among Turkish university pre-service teachers. Sanalan's findings indicated that females were significantly more fearful of computers than their male counterparts.

Recommendations

Fresh students in Open and Distance Learning (ODL) institutions face many challenges, of which computer anxiety is prominent. Many of these learners find the use of the computer as a tool or resource for their studies as against their orientation from their previous schools. Based on these findings, the following recommendations are given.

1. Cognitive behaviour therapy (CBT) should be incorporated into the orientation programme of fresh students in NOUN.CBT should be an integral component of the orientation programme, anchored by qualified personnel. This kind of training at the inception/resumption of study is critical as it would equip learners with skills needed to cope in the ODL environment.
2. Newly admitted NOUN students must be assessed for their computer anxiety or attitude. Computer-averse students should be offered computer skills enhancing and phobia-reducing interventions within weeks of resumption.
3. Students' counsellors should be well equipped with skills in CBT and should be compelled to use CBT in managing computer anxiety among NOUN students to diffuse their anxiety.
4. Counsellors, ICT personnel and other NOUN staff should encourage computer-anxious learners, noting that their students are at different levels of computer literacy and competence.
5. Computer-anxious learners should avail themselves of CBT since the strategy was efficacious in managing computer anxiety.
6. NOUN Study Centres should all have computer centres to facilitate hands-on activities with computers and allow learners to observe others using computers freely since many do not possess computers of their own.
7. Psychologists and educators should use CBT to reduce computer anxiety among distance learners.

Conclusion

Based on the findings of this study, the following conclusions were made. Cognitive behaviour therapy was effective in the management of computer anxiety among NOUN freshmen. It is expected that the proper application of this intervention programme should yield similar results in future. Age had a significant effect on the management of computer anxiety among NOUN freshmen while gender did not.

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Teachers Involving Parents (TIP): Comparing Tanzanian In-service and Pre-service Teachers' Beliefs on Parental Involvement

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ABSTRACT

In this study, we compared in-service and pre-service teachers' perceptions of parental involvement. The study involved 106 in-service teachers from 55 primary schools and 509 pre-service teachers from five teacher colleges. Hoover-Dempsey and Sandler's model of parental involvement and its questionnaire was used to assess pre-service and in-service teacher's general beliefs about parental involvement, the importance of specific parental involvement activities, teachers' beliefs about parent's efficacy for helping a child succeed in school, and teacher beliefs on the importance of parental involvement in promoting girls education. The parametric test (independent sample t-Test) indicated similarities and differences in pre-service and in-service teacher beliefs on parental involvement. Findings showed more significant means for pre-service teachers on general beliefs about parental involvement and teachers' beliefs on parents' efficacy in helping a child succeed in school. Results showed more significant means for in-service teachers' beliefs on the importance of specific involvement practices and equal means for both pre and in-service teachers on teachers' beliefs on the importance of parent involvement in promoting girls' education. This study recommends including parental involvement in teacher education curriculum and ongoing professional development to in-service teachers to stimulate effective parents' involvement in children's education.

Keywords: *Parental involvement, Teacher beliefs, teacher-parent partnership, parents' efficacy, independent sample t-test*

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INTRODUCTION

Education is a fundamental human right and essential for promoting individual's freedom and socio-economic development. In educating children, enormous empirical studies have demonstrated that parents and teachers serve as the main drivers/source (Gulevska, 2018; Liu, Suleimani& Henning, 2020; Ramanlingam&Maniam, 2020). As such, the power of partnership and collaborative engagement between parents and teachers for meaningful learning cannot be overstated. Although the Government of Tanzania and education stakeholders acknowledge the importance of parental involvement, for many years, parental involvement has been mostly confined to the financial aspect of education. However, with the introduction of fee-free education, in 2002, parents are no longer obligated to pay school fees or any contribution related to their children's schooling. The government takes responsibility to finance all the educational costs in public primary schools; this is imperative for a low-to-middle-income country like Tanzania (Kigobe et al., 2021). With a fee-free education policy, teachers think that parents are less inclined to supervise their children's homework or even visit their children's schools to monitor their academic progress (Gregory, 2016; Uvambe &Msoroka, 2021).

Hence; efforts are needed to promote parental involvement in their children's schooling. The thinking and perceptions of teachers on how parents can and should be involved in their children's education are imperative because teachers are the key role players in effective parental involvement in children learning. Therefore, any effort taken to influence parental involvement should not overlook the role of teachers. Despite considerable theoretical and empirical work supporting the critical role of parents in students' school success, generally, pre-service teachers receive little preparation for involving parents and hence raise the need for effective in-service teacher training to enhance parental involvement (Hoover-Dempsey et al., 2002). In Tanzania, it is not clear how pre-service teachers are prepared to work with parents as there is no specific course on parental involvement in teacher colleges. With this note, one could ask, if pre-service teachers are not prepared to work with parents, how do they deal with parents when entering the teaching career? Morris and Taylor (1997) stressed that if schools are going to be successful in educating children, teachers entering the profession

must possess relevant knowledge, skills, attitudes, and strategies to enable them to work effectively with students and families from diverse backgrounds. Literature suggests that most educators enter schools without an understanding of the family background, concepts of caring, or the framework of partnerships (Epstein, 2010). Consequently, most teachers are found not prepared to understand, design, implement, and evaluate practices of partnerships with the families of their students. In African countries and Tanzania in particular, there are a handful of studies (Eaford, 2018; Ikechukwu, 2017; Makgopa & Makhele, 2013; Mathekga, 2016; Mathebula, 2017; Nkosi, 2021) on teacher perceptions of parental involvement. However, there is scant information on how pre-service teachers are prepared to work with parents and how in-service teachers are supported to work with parents. Mathekga (2016) investigated teachers' perceptions of parental involvement in children's education in South Africa. The results indicated collective perception among teachers who participated in the survey; parental involvement had positive benefits for both learner performance and social behaviour. Therefore, this study compared the pre-service and in-service teachers' perceptions and beliefs on parental involvement so as to advise how to incorporate parental involvement aspects in teacher education and organize effective in-service teacher training for primary school teachers.

The Importance of Parental Involvement in Education

The concept of parental involvement centres on parents' activities and behaviours that help students learn effectively at school and home (Morera et al., 2015; Epstein, 2010). For example, literature shows that parental involvement is associated with assisting pupils to accomplish homework in the home learning environment; the frequency with which parents are physically present at school; and volunteering at school. Others are parents' communication with children about school; parents' decision-making on education matters; and communication with teachers about their children. These are paramount in children's education (Christenson et al., 1992; Morera et al., 2015). Studies support that engaging families in the education of their children at home and school is instrumental in enhancing learning outcomes for children (Mathekga, 2016; Kigobe, 2019; Kigobe et al., 2021; Gulevska, 2018; Makgopa&Makhele, 2013). For example, Kigobeet al. (2021) assessed the effect of parental involvement intervention on child

literacy development in Tanzania. They found that the intervention had a significant impact on decoding skills, reading fluency and reading comprehension among second-grade children. Kigobe (2019) also revealed parents' willingness to be involved in their children's education. Involvement was related to parents' expectations for children's school success, parents' perceived time and energy, child invitations and parents' self-efficacy. The findings showed associations between parental reading support activities (modelling, reinforcement, encouragement and instruction) with three aspects of children's reading (decoding, fluency, and comprehension). Primary schools reported higher rates of parental involvement than secondary schools. Gulevska (2018) found that attending formal meetings was the leading form of parent participation in the studied schools. Also, primary school teachers reported a positive attitude towards parental involvement. They felt that effective parental involvement in children's education leads to enhanced academic achievement and attendance of students.

In addition, Rivera (2010) found that children from parents who invest time, effort and energy in supporting their children's education were better than those whose parents did not engage in education matters of their children. He argues that the greater the parents' interaction and involvement, the better the child's academic achievement. According to Sapungan and Sapungan (2014), parental involvement serves the following functions to parents: (i) to increase parents' interaction and discussion with their children and enable them to become more responsive and sensitive to their children's social, emotional, and intellectual developmental needs. (ii) To increase confidence in parenting and decision-making skills. (iii) To build positive attitudes towards schools and teachers; hence, stronger ties and commitment to the school policies. Parental involvement also improves communication between parents and teachers and supports each other's efforts. Hence, the administration and teachers become more motivated, more committed, and more active to support the initiatives of the parents (Sapungan & Sapungan, 2014). It is important to note that different aspects of parental involvement have different effects on different elements of student learning. Despite its significance to the education of children, parental involvement is affected by a couple of barriers. These include time limitation, poverty, lack of financial

resources, inflexible work hours, language barriers, lack of awareness, cultural norms; low self-esteem, low motivation, lack of interest, lack of self-efficacy, poor parenting skills, teachers' negative attitudes towards parents as well as the failure of schools to create strong links between homes and schools (Burišić & Bunijevac, 2017; Hornby & Blackwell, 2018; Lee & Bowen, 2006; Williams & Sanchez, 2011). Due to these barriers, not all parents effectively participate in the education of their children; some do not see the worth of their involvement in children's education (Khan, 2003). There is enough evidence from the literature that teachers' perceptions of parental involvement influence success in implementing parental involvement programmes (Mathekga, 2016; Gulevska, 2018; Makgopa&Makhele, 2013). Most of the reviewed studies have focused on in-service teachers in primary schools and secondary schools; none of them compared pre-service and in-service teachers' perceptions of involvement in education. As such, comparing in-service and pre-service teachers' perceptions of parental involvement is worthwhile.

Parental Involvement: Theoretical Framework

In attempting to understand how parents can be involved in children's education, we adopted the model of the parental involvement process by Hoover-Dempsey and Sandler (Hoover-Dempsey & Sandler, 1995, 1997; Hoover-Dempsey et al., 2005). The Hoover-Dempsey and Sander framework tries to answer three major questions: (a) why do families get involved in educational activities? (b) What do families do when they are involved in educational activities? Moreover, (c) how does family involvement in children's education positively affect student outcomes? The model focuses on understanding specific elements of the parental involvement process and the relationships among them (Hoover-Dempsey, 2010). Hoover-Dempsey and Sandler present a comprehensive model from the parent's perspective on the parent involvement process, grounded in psychological and educational research that researchers have empirically tested (Tekin, 2011). The model is structured in five levels operating between parents' initial choice to become involved (Level 1) to (level 5), which explains the beneficial influence of that involvement on student outcomes (Hoover-Dempsey & Sandler, 1997). According to the model, Level 1 shows the variables related to motivators of the individual parent and parents' decisions about their

involvement. Specifically, three significant constructs fall under this level. They include

1. parental role construction and parental self-efficacy for helping their child succeed in school,
2. parents' perceptions of invitations from others (e.g. being welcomed by the school, teachers or a child), and
3. contextual variables (i.e. parental knowledge, skills, time and energy).

Level 2 includes parental choice of involvement forms. Level 3 shows the involvement mechanisms (i.e., parents' methods to influence a child's schooling). These include modelling, encouragement, reinforcement and instruction. Level 4 indicates significant variables that may enhance or constrain the relationship between the parent's involvement in activities and the child's academic achievement. These factors may include students' perceptions of learning methods used by a parent. Level 5 is about child/student's outcomes (i.e., skills and knowledge) which influence academic achievement. The current study focused on the first level of the model, specifically on the role of teachers in initiating parental involvement through specific invitations to parents and stimulating child invitations to parents by initiating interactive activities, which will lead children to seek help from their parents. The first level of the model provides a clear framework for understanding how teachers, children and schools can motivate parental involvement and promote parents' beliefs on the importance of parental involvement through involvement invitations described in the first level of the model. Kigobe et al. (2018) showed that parents in Tanzania are willing and positively involved in their children's education. However, they need to be invited by teachers and their children. In this regard, it is essential to explore teachers' beliefs on parental involvement to capacitate them to actively engage parents in education activities.

The Present Study

The present study compared in-service and pre-service teachers' beliefs on parental involvement; it assessed their perceptions regarding involving parents in children's education, the importance of parental involvement and their beliefs on parents' efficacy in helping children succeed in school. This

study is part of a larger project which was designed to promote child literacy development through capacity building for pre and in-service teachers to enhance parental involvement in primary education through teacher-parent partnership. The intervention programme was implemented in four regions in northern Tanzania (Shinyanga, Mara, Simiyu and Mwanza). In this study, we aimed at comparing the pre-service and in-service teachers' perceptions regarding parental involvement in children's education, specifically the study assessed i) Pre-service and in-service teachers' beliefs of parents' efficacy in helping children succeed in school ii) pre-service and in-service teachers beliefs of the importance of specific parental involvement practices and iii) pre-service and in-service teachers believe about the importance of parental involvement in girls education? iv) the relationship between pre-service and in-service gender and age on their beliefs on parental involvement

Method

Participants

The participants of this study were 509 pre-service teachers from five teachers college and 169 in-service teachers from 55 schools in the selected four regions of Southern Tanzania. Females consisted of 58.6% of in-service teachers while males consisted of 41.4%. Among the in-service teachers, 16% were aged between 25-29 years; 21.9% were aged between 30-34 years; 30.2% were aged between 35-39 years; 24.9% were aged 40-44 years; and 7.1% were 45 years and more. On educational levels, 43.2% held a certificate in teacher education, 46.7% held a diploma of teacher education, 8.3% were degree holders and 1.8% held higher degrees. For pre-service teachers, females consisted of 63.5%, while 36.5% were males. Among the pre-service teachers, 21.4 % were aged between 18-21 years; 48.9% were aged between 22-25 years; 21.2% were aged between 26-29 years; 6.9% were aged between 30-33 years; 1.4% of students were aged between 34-37; and 0.2% aged between 38-41 years. All pre-service teachers who participated in the study were enrolled in a certificate teacher education program designed to prepare primary school teachers.

Procedures

As stated earlier, this study was part of a larger intervention study designed to enhance parental involvement in primary education as a key factor in child literacy in Northern Tanzania. The intervention focused on empowering pre-service teachers in the teacher education programme and in-service teachers to work with parents to improve literacy in primary schools. The study recruited three in-service teachers from 55 primary schools and 509 student teachers from five teachers' colleges. In this study, 12 trained research assistants who were tutors from the involved teacher's colleges were involved in guiding pre-service and in-service teachers during the training and survey administration. In-service and pre-service teachers were asked to sign a consent form to participate in the study.

Measures

All measures included in the survey were adapted from the Hoover-Dempsey and Sandler model of parent involvement. The study adopted the tools Walker et al. (2005) developed, which are related to the revised Hoover-Dempsey and Sandler's model of parental involvement. These scales were previously used and tested for the first time in Tanzania by Kigobe et al. (2018). The scales were back and forth translated to create a Swahili-language survey as Swahili is the national language in Tanzania and showed good internal reliability ranging from .66 to 8.1 Cronbach's alpha's, indicating moderate to good internal consistency. With the excellent fitness of the tool in the Tanzanian environment, we were convinced to use the same tool in this study. This was also in consideration that the same model guided the current study. For the intervention programme, we added some items to measure teachers' perceptions of the importance of parental involvement in promoting girls' education. The original questionnaire does not contain these items; hence they were added for this study.

Teacher Beliefs about Parental Involvement

The teacher Beliefs about Parental Involvement Scale is an eight-item measure that assesses teachers' general beliefs on parental involvement. Teachers were asked to rate their belief son what is parental involvement at school. Teachers rated their beliefs on a 6-point scale, showing their disagreement on three points of disagreement (disagree very strongly,

disagree, and disagree just a little). They also indicated their acceptance of the statement on three agreement points (agree just a little, agree, and agree very strongly). The scale included items such as "*Parent involvement is important for a good school*" and "*parental involvement can help teachers be more effective with more students*". On the scale, the higher the scores indicated more positive teacher beliefs about parent involvement. In this study, Cronbach's alpha of this scale was .60 for a questionnaire administered for in-service teachers and .56 for a scale administered for pre-service teachers, indicating an excellent internal consistency of a scale.

Teacher Beliefs about the Importance of Specific Involvement Practices

A teacher's belief about the importance of specific involvement practices is the 16-item scale assessing teachers' perceptions on the importance of some specific involvement practices. Teachers were asked to respond to each item on a 6-point scale (1=this is not important to me; 6=this is very important to me). The scale included items like: I believe it is important to "*have a conference with each of my student's parents at least once a year*" and "*Asking my students' parents to help the child with homework*". In the scale, the higher the scores indicated the more strong belief in the importance of the involvement practices. The standardized alpha reliability for the scale administered for pre-service teachers was .81, while .87 was for in-service teachers, indicating an excellent internal consistency of a scale.

Teacher Beliefs about Parent Involvement in Girls' Education

This scale was developed to assess how teachers' beliefs on parental involvement in girls' education. This was a special scale developed in this study to sensitize teachers to work with parents to promote girls' education and retention in primary schools. A scale had three items asking teachers to rate their beliefs on how parents can promote girls' education, the items are "*Parents should encourage girls as much as boys to go to school and to be educated*", "*Girls have the same capacities to learn as boys*" and "*Girls have the same opportunities to learn and go to school as boys*". In the scale, the higher scores indicated teachers' stronger beliefs that parental involvement can promote girls' education. Standardized alpha reliability for the scale administered for pre-services was .66 and .60 for the scale administered to in-service teachers indicating a good internal consistency of a scale.

Teacher beliefs about Parent Efficacy in Helping Children Succeed in School

Teacher beliefs about parent efficacy in helping children succeed in school is seven items scale assessing teachers' beliefs on the ability of parents to help their children succeed in school. The measure incorporates seven items answered on a 6-point scale (1=disagree very strongly to 6=agree very strongly). It includes such items as ''*If my students' parents try hard, they can help their children learn even when the children are unmotivated*'', and "*my students' parents feel successful about helping their children succeed in school*". On the scale, the higher scores indicated more positive teacher beliefs about parent efficacy. Standardized alpha reliability for the scale administered for pre-services was .54 and .60 for the scale administered to in-service teachers indicating a good internal consistency of a scale.

Results

Statistical Analysis

All the statistical analyses were conducted in SPSS Statistics software 25.0. For this study, we merged two data sets with the same variables. The pre-service data set had 509 cases (respondents) and in-service teachers had 169 cases (respondents). To compare pre-service and in-service teachers' beliefs on parental involvement, we opted for an independent sample t-Test so that we could determine whether there was statistical evidence that the associated population means were significantly different. Our choice was motivated by the fact that our population was not homogeneous because of the different sample sizes of our groups. When the sample sizes for each group differ the *p*-value is not trustworthy and hence using a normal sample T-test is not advised. The Independent Samples t Test includes an approximate t statistic "Welch t-Test" that is not based on assuming equal population variances. The Welch t-test (Unequal Variance t Test) may be used when equal variances among populations cannot be assumed. It is statistically ethical before performing the independent sample t-test to assess if data meet several requirements such as distribution (normality) of the data and outliers. To assess the data distribution, we checked the skewness and kurtosis of continuous variables for all four scales in the study. Skewness is a measure

of the symmetry, or lack thereof, of a distribution. Kurtosis measures the tail-heaviness of the distribution. Inspection of the continuous variables showed no skewness for the study variables. Values were smaller than +3 and -3; the acceptable values of skewness fall between -3 and $+3$ (Griffin & Steinbrecher, 2013). All the kurtosis for all four variables were less than -10 to + 10 (kurtosis is appropriate from a range of -10 to + 10), indicating no variable with a heavy-tailed distribution. For all samples, Pearson and Spearman correlations, means and standard deviations of the variables were calculated to examine the relationships between variables (see table 1 below).In correlation, we first assessed the relationship between individual variables from different data sets to see if the same variables in pre-service and in-service are related.

Then, we conducted another correlation analysis with merged variables from two data sets against the gender and age of the teachers (see table 2). Before running the independent sample t-Test, it is advised to check the descriptive statistics and graphs to get an idea of what to expect. So we started by comparing the two groups by assessing the means and standard deviation (see table 3). After assessing the group means, we then ran an independent sample t-Test to assess whether there was a significant statistical means difference between in-service and pre-service teachers' beliefs on parental involvement. By running an independent sample t-test we are assessing two statistical tests, "Levene's test for equality of variance and test statistics. There are two hypotheses for Levene's test which are either we accept the population of variances of groups one and two are equal, or we reject the hypothesis that the population variances of groups one and two are not equal.

Correlation between Study Variables

The correlation analyses of the individual variables showed relationships for some variables and some unrelated ones. In the first correlation analysis between individual pre-service and in-service variables, results showed a strong positive association between the variables of the same group. Only two variables were correlated across groups, but they did not have a positive relationship. On teacher beliefs about parents' efficacy in helping children succeed in school, findings showed a negative relationship between pre-service and in-service perceptions of parents' efficacy in helping children

succeed. This was the same with teacher belief in the importance of specific involvement practices, which showed a negative correlation between pre-service and in-service teachers on the variable (See table 1). The correlation results for merged variables from two data sets against the gender and age of the teachers showed no correlation between gender and all study variables. Results showed a strong negative correlation between pre and in-service teachers' age with teacher beliefs on parents' efficacy to help the child succeed in school and a positive relationship with teachers' beliefs on the importance of specific involvement practices (See table 1).

Table 1. Correlations, Means, Standard Deviations of all Study Variables

	1	2	3	4	5	6	7	8
1. In-service Teacher's Beliefs about Parent Involvement								
2. In-service Teacher Beliefs about Parent Involvement in girls education	.189*							
3. In-service Teacher Beliefs about Parents' Efficacy helping children succeed in school	.369***	.006						
4. In-service Teacher Beliefs about the importance of specific involvement practices	.259***	.453***	.134					
5. Pre-service Teacher Beliefs about Parent Involvement	-.090	-.049	-.100	-.155*				
6. Pre-service Teachers' beliefs about Parental involvement in girls' education	-.138	-.103	-.138	-.059	.398***			
7. Pre-service Teacher Beliefs about Parents' Efficacy in helping children succeed in school	-.067	-.053	-.154*	-.117	.213***	.159***		
8. Pre-service Teacher Beliefs about the importance of specific involvement practices	-.105	-.123	-.130	-.184*	.323***	.247***	.438***	
M	4.99	5.73	4.26	5.35	4.85	5.73	4.67	4.87
SD	0.43	0.49	0.65	0.46	0.60	0.59	0.83	0.66
Cronbach's alpha	.60	.60	.60	.87	.56	.66	.54	.81

Note. * p< .05 ** p < .01 *** p < .001. Pearson correlations were calculated between all variables.

Table 2. Correlations, Means, Standard Deviations of Gender and Age of Participants with all Study Variables

	1	2	3	4	5	6
1. Gender						
2. Age	-.029					
3. Teacher Beliefs about Parental Involvement	.037	.035				
4. Teacher Beliefs about Parents' Efficacy to help the child succeed in school	.052	-.099**	.206**			
5. Teacher beliefs about the importance of specific involvement practices	.058	.117**	.331**	.292**		
6. Teacher Beliefs about Parent Involvement on girls Education	-.070	.003	.361**	.129**	.265**	
M	1.38	2.35	4.89	4.57	4.98	5.73
SD	0.48	1.02	0.06	0.81	0.65	0.56

Note. * p< .05 ** p < .01 *** p < .001. Spearman non-parametric correlations were calculated between the gender and age of participants and other variables; Pearson correlations were calculated between all other variables.

Group Means for in-service and Pre-service Teachers for all Variables

On the group means, the finding showed that the means for pre-service teachers on the teacher beliefs on parental involvement (M = 4.85, SD = 0.60) and teacher beliefs on parents' efficacy in helping children succeed in school (M = 4.67, SD = 0.83). Findings show a higher mean for in-service teachers on the importance of some parental involvement practices (M = 5.35, SD = 0.65) and an equal mean for both pre-service and in-service teachers on teacher beliefs on parental involvement in promoting girls' education (see table 2). The output of the independent sample t-test of four variables showed that the p-value of Levine's test for three variables was p<.001, which is very small. Hence, we rejected the null of Levene's test that the population variances of pre-service and in-service are not equal. Thus, the variance in pre-service teachers is significantly different from that of in-service teachers. This was shown by F (14.89, 676) = -2.90, p< .001) for teacher beliefs in parental involvement, F (11.74, 676) = 5.81, p< .001) for teacher beliefs in parent efficacy for helping children succeed in school; and F (23.25, 676) = -8.76, p<.001) for teacher beliefs on the importance of specific involvement practices.

The output shows that teacher beliefs in parental involvement in girls' education were the only more significant P-value. The larger p-value indicates equal variance between in-service and pre-service teachers over the importance of parental involvement in promoting girls' education. This can also be confirmed by the equal means of the two groups on the beliefs on the importance of parental involvement in promoting girls' education. We then checked the t-test for equality means to assess the actual independent sample t-test by subtracting the second group's mean from the first group's mean. The results showed that there was a significant negative difference in teacher beliefs on parental involvement (t401.66 = -3.41, p<.001), (t362.50 = 6.54, p<.001) for teacher beliefs on parent efficacy for helping children succeed in school and (t412.92 = -10.44, p<.001) for teacher beliefs on the importance of specific involvement practices between pre-service and in-service. This can also be shown by group means (Table 2). The last part of the independent test, which is also essential, is the confidence interval of the difference (CI). Results showed no 0 within the interval, and the CI's lower and upper boundaries contained either negative or positive numbers. This

assured us that our result was significant and agreed with the small p-value of the significance test. If the lower CI contained a negative number and the upper contained a positive number, then our results could be not significant at a chosen significant level $\alpha = 0.05$(see table 4).

Table 3: Compared Means for in-service and Pre-Service Teachers for all Dependent Variables

Groups		1	2	3	4
1	Mean	4.85	4.67	4.87	5.73
	N	509	509	509	509
	Std. Deviation	0.60	0.83	0.66	0.59
2	Mean	4.50	4.26	5.35	5.73
	N	169	169	169	169
	Std. Deviation	0.43	0.65	0.46	0.49
Total	Mean	4.89	4.57	4.99	5.73
	N	678	678	678	678
	Std. Deviation	0.57	0.81	0.65	0.56

Key. *1: TeacherBeliefsabout Parental Involvement, 2: TeacherBeliefsabout Parents Efficacy 3: TeacherBeliefsabout Importance of some parental involvement practices 4: TeacherBeliefsabout Parental Involvement in girl's education*

Table 4: Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	p	t	df	p	M Difference	Std. Error Difference	Lower	Upper
Teacher Beliefs about Parental Involvement	Equal variances assumed	14.89	.000	-2.90	676	.004	-0.14	0.05	-0.24	-0.05
	Equal variances not assumed			-3.41	401.66	.001	-0.14	0.042	-0.23	-0.06
Teacher Beliefs about Parents' Efficacy	Equal variances assumed	11.74	.001	5.81	676	.001	0.41	0.07	0.27	0.55
	Equal variances not assumed			6.54	362.50	.001	0.41	0.06	0.28	0.53
teacher beliefs about the importance of specific involvement practices	Equal variances assumed	23.25	.000	-8.76	676	.001	-0.48	0.05	-0.59	-0.37
	Equal variances not assumed			-10.45	412.92	.001	-0.48	0.05	-0.57	-0.39
Teacher beliefs about Parental Involvement in girls education	Equal variances assumed	0.00	.950	0.00	676	.999	0.00	0.05	-0.09	0.10
	Equal variances not assumed			0.00	341.88	.999	0.00	0.04	-0.09	0.09

Note: Chosen significance level $\alpha = 0.05$

Discussion

Teachers' positive attitudes toward parents' educational involvement are highly significant in parents' decisions about involvement in their children's education (Hoover-Dempsey & Sandler, 1997). Although parent–teacher interaction is crucial for children's education, little attention has been paid to this issue in teacher education programmes (Baum & McMurray-Schwarz, 2004; Uludag, 2008). There is limited training available for teachers on how to work with families. Hence, most teachers enter school unprepared to understand, design, implement, and evaluate practices of partnerships with their students' families (Hornby & Witte, 2010). This study assessed pre-service and in-service teacher's beliefs of parental involvement in Tanzania by examining teacher's general beliefs about the importance of parental involvement, teacher beliefs about the importance of specific parental involvement practices, teacher beliefs about parent involvement in girls' education and teacher beliefs about parent efficacy for helping children succeed in school.

Comparing pre and in-service teacher attitudes is essential in developing an intervention to boost teacher-parent partnership through teacher education and ongoing professional development. The study showed similarities and differences in pre-service and in-service teachers' beliefs on parental involvement variables. Results showed the difference between pre-and in-service teachers' beliefs on the parents' efficacy in helping the child succeed in school and the general perceptions of parental involvement. The mean scores of the two variables showed a higher mean to pre-service teachers than in-service teachers. This finding has two explanations: pre-service teachers are more excited and have higher hopes and beliefs about parental involvement. Second, due to several challenges in working with parents that in-service teachers might face daily, they may resent parents and parental involvement. Cheung and Kam (2019) showed that pre-service teachers perceived engaging families in school decisions as the least important and feasible. This differs from our findings; pre-service teachers are optimistic about family-school engagement. These findings are promising to Tanzania and give the impression that teacher education preparatory programmes can efficiently prepare teachers to work with parents. Katz and Bauch (1999)

asserted that pre-service teachers who feel more confident with parents are likelier to involve parents in the future. The findings also highlight the need for ongoing in-service teacher training to support teachers and encourage them through challenges. Teachers need to receive special training on parental involvement in teachers' colleges in Tanzania and hence might find it challenging to work with parents in later years. Many teachers in Tanzania face challenges related to poor teaching and learning environment, oversized classes and lack of explicit policy and guidelines for teacher professional development, which might affect their teaching efficacy and their perception of parental involvement. The findings also revealed that in-service teachers possessed firmer beliefs of the importance of some parental involvement practices. This was expected since in-service teachers have daily experience interacting with parents, while pre-service teachers might have yet to gain experience. It is noted here that parental involvement is not included as a course or aspect in the teacher education programme; therefore, pre-service teachers may need more knowledge of specific parental involvement practices.

The finding aligns with the results of Cheung and Kam (2019), who found that the pre-service teachers felt least confident in implementing parental involvement. These results raise a concern about the need of early preparation for pre-service teachers to help them develop basic knowledge and skill for partnering with families. Hiatt (2001) affirmed that teachers who have received pre-service teacher preparation training have reported feeling well-prepared and able to engage in many parenting practices. Uludag (2008) suggested that teacher education programmes that integrate parental involvement instruction and activities help pre-service teachers become better prepared and carry positive opinions toward parental involvement. On the relationship between age and gender of the pre-service and in-service teachers with the four parental involvement variables, age showed a negative relationship with teachers' beliefs on parents' efficacy to help the child succeed in school. This suggests that the younger teachers believed more in parents' efficacy than more aged teachers. This finding differs from the findings of Abdullah et al. (2011), which showed that the higher the teachers' age, the more they demonstrated positive attitudes toward parental involvement. This is an alarm that teachers in Tanzania face challenges in

their teaching career which may be caused by different challenges that affect their interaction with parents and their perceptions towards parental involvement. This also raises the need for active in-service teacher training to help teachers with ongoing skills and motivations to work with parents. Similarities showed that pre-service and in-service teachers had the same beliefs on the role of parental involvement in promoting girls' education. This is a significant finding given that girls' children in Tanzania still face social-cultural challenges related to gender inequalities, including violence, poverty and a lack of access to age-appropriate sexual and reproductive health education, which accelerate early marriage and school pregnancies. A report from the United Nations Tanzania (2021) in Tanzania shows that 690,001 girls become pregnant every year when they should be in school. To help girls stay and finish school, teachers and parents must work together to create a safe environment for girls at school and home. A similar positive belief of pre-and in-service teachers on parental involvement in promoting girls' education is a good sign that teachers can actively work with parents to support girls' education success. Hence, teacher education programmes must stress parental involvement to prepare teachers to work with parents to help girls stay in school and complete their education. The study of Famade (2015) affirmed that teachers believe that parent involvement is an essential factor in girl child education and that if both parties work together, girl child education will improve significantly. He stressed that though teachers have many roles to play in helping girls' students, the collaborative effort between parents and teachers on girls' education is more to be desired.

Strengths and Limitations of the Study

The findings of this study need to be considered in light of the following strengths and limitations. This study is crucial for educators, teachers, policymakers and researchers as it sheds light on the importance of teacher perceptions of active parental involvement. This study gives a vast understanding of the role of positive parental involvement in facilitating active parental involvement and stimulating school-family partnerships. Teachers are fundamental pillars of families' practical involvement in school activities; hence, assessing their beliefs is essential for effective parental involvement. Literature shows that most researchers separately study pre-service and in-service teachers' perceptions of parental involvement.

Comparing pre-service and in-service teachers' perceptions of parental involvement is significant in creating a wholesome mechanism for teacher preparation programmes. This study can help education planners see how in-service teachers perceived parental involvement and evaluate essential aspects to include in pre-service teacher programmes which can be helpful in later years of teachers in schools. Including teacher beliefs on the importance of parental involvement in girls' education variable is the strength of this study. It is essential for all education stakeholders should advocate parental involvement in girls' education. However, teachers need to be more aware and be keener to work with parents as crucial partners with equal responsibility to create a safe environment for girls at school and encourage parents to do the same at home. Including this aspect in pre-service teacher and ongoing in-service professional development programmes is essential. This study reports only cross-sectional data, which limits us from making casual-relationship conclusions. In the future, it might be interesting to do a longitudinal study to assess how pre-service teachers' perception change from teachers' colleges to their earlier years in school.

Implications and Conclusions

Parental involvement in children's education is yet to be widely practised in Tanzania as in the Western world and is not well incorporated in teacher education preparatory programmes. In this light, educators and researchers must continue exploring teachers' perceptions of parental involvement because teachers' attitudes towards parental involvement play an essential role in the ways teachers approach children's families and motivate partnerships with parents. Effective and active parental involvement depends much on positive beliefs and the readiness of teachers to work with parents. Policymakers need to give parental involvement sufficient coverage in teacher education curricula to give teachers foundational skills and knowledge on parental involvement. To strengthen parental involvement in girls' education, teachers need to be aware of their role in motivating parental involvement in girls' education by creating a strong partnership with parents to create a protective environment for girls and motivate girls to realise their educational potential. The assessment of teachers' beliefs on the parents' efficacy in helping children succeed in schools is crucial because if parents

do not believe in their abilities, they cannot appreciate and value their participation in educational activities. It is imperative to encourage parents to believe, trust and help parents to participate in their children's education actively.

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Analysis of Factors Influencing Academic Performance in Primary School National Examination in Tanzania: A Case of Kilosa District

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ABSTRACT

This paper examined the factors influencing academic performance in primary schools in Kilosa district, Mrogoro region in Tanzania. The study employed a qualitative research approach through a cross-sectional research design. About 106 participants were involved including five (5) head teachers (from five schools), one (1)district education officer, one (1)ward education officer, 30 primary school teachers, and 69 students from the five selected primary schools. Data were collected through interviews and focus group discussions. The collected data were qualitatively analyzed. The study shows that poor academic performance in primary schools in the Kilosa district was first, contributed by a learning environment characterized by the poor quality of school infrastructures, long distance to schools, few desks, and poor teachers' houses. The second was a lack of motivation and the last one was a lack of parental involvement. The findings of this study add to the body of literature on academic performance and learning environment. It also underlines the importance of creating favourable working conditions for both teachers and students that fosters high morale among workers and students. This study also broadens our understanding of the importance of government intervention as part of the strategies for improving teaching and learning environments to improve academic performance.

Keywords: *Academic performance, primary school, primary school examination, national examination*

INTRODUCTION

The world has recently faced various challenges in meeting its economic, social, and political developmental goals. In this process, education is central to achieving such goals. Worldwide, students' academic performance is measured by examination and continuous assessment. *Academic performance* can be defined as the level of expertise attained in the academic work in the school (Kohl, 1975). Stephen (1966) argued that educational growth affects children's scholarly output in school. Different countries have realized that students' performance is the heart of the educational process and that if the performance is poor; all innovations in education are doomed to failure (Nyipir, 2010). Past research indicates that despite the initiatives taken by various countries to improve academic performance, yet, many students' performance remains poor (Nyirenda, 2013). This situation has been highlighted by studies conducted in countries such as United Arab Emirates (UAE) and the United Kingdom (UK). Such performance has been attributed to many reasons. For instance, the study by Naimi (2010) found that 15% to 30% of students in the UAE performed poorly. In the United Kingdom, Nyapir (2010) found that the performance of Somali students was affected by overcrowded classrooms. Other scholars (Kundu & Tatoo, 2000; Mugisha, 1991) hold that children's attitudes and home background are the most significant primary factors influencing school performance.

Rono (2013) researched the factors affecting students' performance in public primary schools in the Kenya Certificate of Primary Education Examination (KCPE) in the Nandi district. Rono found that inadequate playgrounds, classes, and other resources likely affected primary school academic performance. Similarly, Ahmed (2015) researched the poor performance cases in Kenya's public primary schools. He argued that students performed poorly in Wajir areas due to deficiencies in the teaching and learning activities, lack of access to learning activities, financial constraints, and regional disparity. Regardless of the great importance placed on education, it faces several challenges including poor students' academic performance, shortage of resources (teachers and infrastructure, teaching and learning resources), poor teaching and learning environment, and teachers' conditions (Nyipir, 2010). Such situations compel the government of Tanzania to initiate and adopt strategies such as Big Result Now (BRN) and Primary School Development Programme (PEDP) to curb the problem. Following the

continued decline of primary school performance in Tanzania yearly, the government took a robust measure by adopting such strategies as a part of the government's effort to uplift the country into a middle-income economy. The government further introduced new methods of working under a specified time frame for delivery of the step-change required to improve the quality of education and improve the primary school leaving examination (PSLE) performance(URT, 2013; Nyirenda, 2013). This step was taken due to the continued decline of PSLE performance. For instance, in 2012, only 30.7% of the students who sat for the PSLE passed, while 69.3% failed (URT, 2013). The deterioration in pass rates among primary school leavers in Tanzania compelled the government to launch a student-teacher enrichment program (STEP). STEP was among the BRN strategies and intervention measures for increasing primary school examination performance which was implemented under the Ministry of Education and Vocational Training (MoEVT) in collaboration with the Prime Minister's office(URT, 2013). It was introduced because teachers' quality is crucial to enhance students' performance (Umeasiegbu,1991; Adeyemi,2014). Despite the launch of such educational strategies to increase students' pass rates, poor performance in primary schools remains a key problem in the Kilosa district (Kumburu, 2011). For example, the primary school national examination performance in the Kilosa district between 2012 and 2018 shows that most schools performed poorly in the national examinations, as it is shown for some schools in table 1.

Table 1: The PSLE from 2012 to 2018 in Kilosa District

School	2012 %	2013 %	2014 %	2015 %	2016 %	2017 %	2018 %
School "A"	0	0	7	11	14	14	19
School "B"	0	0	14	0	3	3	38
School "C"	0	0	19	8	16	16	15
School "D"	0	0	13	0	0	0	0
School "E"	0	63	19	22	64	12	42

Source: URT (2019)

additionally, There is also a call for research into the interrelationship between the different dimensions of learning environments such as spaces, pedagogy, and learning (Acton 2018; McNeil & Borg 2018). The studies

reviewed did not delve into the relevant strategies to improve academic performance in the studied areas. Therefore, the current paper addresses factors that can influence academic performance in selected schools. The current research responds to the question: What are the factors influencing academic performance in Primary School National Examinations in Tanzania? With this research question, the study delved into the factors influencing academic performance in the Primary School National Examination in the selected schools in the Kilosa district, Tanzania.

Methodology

The study was conducted in the Morogoro region, Kilosa district, covering all primary schools in the Magubike ward. Kilosa district was chosen due to poor academic performance for several years. For example, in 2017, the district performed poorly and became the last district in the performance ranking at the regional level (NECTA, 2018). The study employed a cross-sectional research design using purposive sampling and simple random sampling techniques to select participants. This study involved 106 participants including five (5) head teachers (from five schools), one (1) district education officer, one (1) ward education officer, 30 primary school teachers, and 69 students from five primary schools. Data from head teachers, District Education Officer and Ward Education Officer were collected through individual interviews. Data from primary school teachers and students were collected through Focus Group Discussions. The data were analyzed through content analysis. The data from interviews and Focus Group Discussions were transcribed from voice to text. Transcription was followed by breaking the recorded information into meaningful units of information, subjects, and tendencies. Then, researchers identified and coded the major themes and subthemes. While analyzing the data, researchers used a constant comparative method to compare the codes against each other. The process involved going back and forth between coded scripts and themes. This back-and-forth process helped the researchers trim out all recurring themes and merge subthemes into a manageable number. The reliability of the findings was ensured by crosschecking the themes between the two independent coders, and frequently communicating to have a shared understanding and maintain uniformity throughout the analysis. Additionally, a third person was given the document to review and comment on what should be removed and maintained. After the exchange and

crosschecking of the document, writing and presentation of the findings started for both qualitative and quantitative.

Results and Discussion

This paper examined the factors influencing academic performance in the primary School National Examination in the selected primary schools in Kilosa, Tanzania. The findings of this study aligned the factors influencing performance into three main themes. The first theme focused on the learning environment, the second one focused on parental involvement and the third one focused on teachers' motivation. These factors are discussed hereafter.

The Learning Environment and Students' Performance

The District Education Officer (DEO), teachers and head teachers were asked about the causes of poor academic performance in schools. One of the mentioned factors connected to students' academic performance was the learning environment. A poor learning environment puts students in an uncomfortable position and causes them to lose motivation to learn. As a result, some students escaped from school or were absent from school and studies, unnecessarily. Consequently, their performance becomes poor. One of the respondents had this to say:

> *In my opinion, many factors influence recent students' performance. Good school infrastructure is one of the factors that can make students perform better. Unfortunately, in many of our schools, infrastructure is very poor and is marked by inadequate desks and chairs. Instead of concentrating on the lesson, students concentrate on how to sit and hold their items, which reduces concentration and hence poor performance.*

The poor learning environment was also characterized by the shortage of desks which affects lower-class students and teachers, especially in writing and classroom organization. This condition leads to poor handwriting. Teachers fail to assist students as they cannot move within the classrooms to observe and support how students do the exercises. One teacher commented:

> *In the school I teach, there are insufficient desks and classrooms to accommodate all students at the required ratio. Classes are overcrowded, and hence not easy to reach every child in 40/80 minutes. Such a condition affects performance, primarily when you cannot concentrate on teaching those who lag behind others.*

The head teachers also reported that poor infrastructure, shortage of teaching and learning materials, as well as the distance to schools from teachers' houses, contributed to poor performance. A good number of teachers rented houses far away from schools; therefore, they usually came to school late. This interfered with the school timetable, as teachers taught few periods – less than the allocated number in the timetable. As a result, even the coverage of the syllabi sometimes became difficult. In sum, findings indicate that the learning environment has a role to play in enhancing students' performance in primary schools. The following emerged as the major factors which create an unconducive learning environment and hence poor performance. These are *poor school infrastructure characterized by a* shortage of desks; shortage of teaching and learning materials, long distance to schools for both teachers and students and absenteeism. In one way or another, this causes teachers to teach a *few periods and thus be unable to cover the syllabus; hence poor students performance.* It is argued here that poor working conditions faced by teachers presented in this study contribute to students' poor performance in the PLSE. The findings of this study are supported by Dhanapala (2021) who found that the learning environment affects students' academic success in achieving a second language.

Lizzio, Wilson and Simons (2002) argued that the learning environment can be categorized into three broad aspects; the academic environment, the physical environment and the psychological environment; and all these affect overall academic success. Moreover, Morumba (2006) confirmed that absenteeism of students from the schools and lack of facilities could also be the major factors affecting primary school examination performance in Kenya**.** Kitonyi (2017) concurs with our findings in the sense that, a lack of teaching and learning resources, a lack of adequate physical facilities, very high teacher-pupil ratio (TPR) creates an unconducive learning environment. This situation contributes to poor performance. Galabawa (2001), noted that academic performance in schools is very much dependent upon teachers who are the main instrument for improving learning activities. This implies that their condition affects their functioning and hence contributes to a poor learning environment and hence poor performance. Along the same line, the finding about the shortage of teachers' houses around schools is supported by Nannyonjo (2017) and Anderson (1991) who asserted that long distances to schools for teachers and students lead to lessons untimely attendance, and hence reduce the number of periods to be covered. This affects academic performance.

Parental Involvement and Students Performance

It was further revealed that a lack of parental involvement in school activities contributed to poor performance. The participants reported that parents were not well informed and were not involved in school activities in most schools. Some parents would not contribute ideas and efforts even if they were given chance to do so. Failure to contribute declines government efforts and sets back school programmes such as Big Results Now (BRN). One of the teachers had this to say:

> *Parental involvement in students' academic affairs is minimal. In our district, many parents do not contribute their effort to run school activities. For instance, they do not have ideas and cooperate to supervise students at home, which is crucial in facilitating learning. The reason is that, for children to learn better it requires cooperation between parents and teachers.*

Another teacher added:

> *Students' performance is affected by a combination of factors not only environmental but also by parents' involvement. That is if parents are not involved they will not be able to assist their children at home. Helping students go beyond providing their needs such as food and other material things needed for them to go to school. It includes involvement and devoting time to help children in doing their school activities, understanding and putting efforts to foster government initiatives. Children who are not assisted as required fail to achieve their academic goals in terms of performance.*

It is clear in this study that parental involvement contributes to students' academic performance. Thus, it is argued here that poor performance in the selected schools could be partly contributed by poor parental involvement. This finding concurs with Miedel and Reynolds (1999) and Hill and Craft (2003) whose findings indicated that parental involvement practices at home or school influence children's academic performance. A similar view was also observed by other scholars such as Barnard (2004), Christenson et al.(1992), Singh et al.(1995) and Miedel and Reynolds (1999). Thus, we argue that parents' involvement in their children's education is one of the important factors which assists in improving students' achievements regardless of the level of education.

Teachers' Motivation and Students' Performance

In this study, it was indicated that teachers' motivation contributed to students' performance. Usually, motivated teachers work hard under

minimum supervision, as compared to demotivated teachers. It is clear in this study that many teachers were not motivated to work because of the low salaries they were paid and poor housing. One of the teachers commented:

> *I think poorly motivated teachers and students highly affect performance. Many teachers are poorly paid, and some live in poor houses. This demoralizes teachers and reduces their work spirit, resulting in poor performance.*

On the same line, another participant added:

> *Our living environment is not conducive at all. You can imagine, coming from a poor house which is made up of mad and roofed with grasses. So, when the rain starts, you cannot concentrate on teaching students while your house is getting wet. If it rains overnight, you also get wet and things inside get wet as well.*

Another group added that,

> *In my place, houses are expensive, and you are forced to find cheap houses which fit your financial capacity. So, it demotivating to stay in such a bad house and then go and teach students by heart. In this kind of environment, even the performance is low. It is because we spend some extra time to find extra income by doing other business. Thus, we reduce time spent in the classroom. So to speak, I struggle a lot to get extra income.*

Literature suggests that motivation is a viable factor for the growth and development of education worldwide (Ofoegbu, 2004). High motivation enhances teachers' commitment to pedagogical and management roles; it enhances classroom effectiveness and ultimately improves school academic performance. In this study, the teacher's motivation was seen as a key to students' performance. In most poorly performing schools, most teachers were demotivated and put less effort into teaching. This is in connection with Sumra (2004), who posits that a lack of teachers' motivation highly contributes to poor academic performance. It is noted here that highly motivated teachers put maximum effort into their job (Mruma, 2013). Therefore, teachers' salaries and other incentives such as accommodation should be offered to increase students' performance.

Conclusion

This paper examined factors influencing academic performance in Primary School National Examination in Tanzania. There is a combination of factors affecting students' performance. The major factors include poor learning environment, lack of teachers' motivation and lack of parental involvement. The findings of this study suggest the importance of improving the learning environment, teachers' motivation and parental involvement in improving academic performance. This, in turn, encourages students and employees and raises their morale – leading to a high commitment to improving teaching and learning, and hence high performance.

Practical Implications

This paper has two practical implications. First, if the identified challenges are addressed, and the government invests enough in the learning environment and teachers' motivation, it may create a conducive working and learning environment, which in turn promotes positive feelings to both teachers and students. The government need to design mechanisms under which support for teachers may be possible, particularly by minimizing encountered challenges and empowering schools and school leaders. Such a condition may create a sense of commitment and a safe working and learning environment. This in turn may enable children to work hard and achieve their goals. Second, parents if involved and made aware of their responsibilities, will support the government’s efforts to improve students' academic performance.

Limitations and Future Research

Despite the findings discussed, this study has some limitations. First, the research design was developed to minimize common method bias. That is, the emphasis was put on the freedom of participants to decide to drop out within the data collection stage, and the anonymity treatment of their participation (Malingumu et al., 2016). However, such a condition cannot be ruled out completely. The reason is that the data were collected from a single source and with only a qualitative method. Thus, future research could reduce common method bias by collecting data from different sources (Podsakoff et al., 2003) and using a mixed-methods research approach or quantitative method to cover a large sample. Second, the study was single phased

conducted in one region of Tanzania's mainland alone and used a cross-section survey to collect information. The sample and context cannot be used to generalize the findings all over Tanzania. As a result, future research should expand the sample by adding other regions of Tanzania (including Zanzibar Island); longitudinal data using two phases may be collected. Third, the current paper focused on the factors influencing the performance of students in the Primary School Leaving Examination; further studies have to look at the influence of parental involvement on primary school students' performance. This will assist in finding out the role of parents in education performance because parents play a crucial role in enhancing performance in schools.

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Information and Communication Technology in Lifelong Learning: Opportunities for People with Disabilities

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ABSTRACT

People with disabilities are underrepresented in adult education programmes that integrate information and communication technology (ICT), posing a challenge in adopting the pace of change facilitated by technological advancement. The increased use of ICT in facilitating lifelong learning presents challenges for training and retraining people with disabilities in the sense that, they are denied access to ICT. This study employed constructivism and communities of practice theories to investigate innovation in how ICT can be used to create lifelong learning opportunities for people with visual and hearing disabilities. The study involved 30 people with disabilities enrolled in ICT skills training classes at the Open University of Tanzania. Data were collected through interviews. The findings suggest that people with disabilities can learn the use of ICT if involved in collaborative action research. It was also found that enhancing ICT skills training for people with disabilities faced physical, fiscal, and human resources challenges. The study recommends increased funding for ICT skills training for people with disabilities to enhance their participation in lifelong learning.

Keywords: *Disability, lifelong learning, adult education, innovation, assistive technology*

INTRODUCTION

The global report on assistive technology indicates that despite ratifying the UN Convention on the Rights of Persons with Disabilities (UNCRPD) and the existence of legislation, policies and public budgets, the population's need for assistive products is not fully met in most countries (WHO & UNICEF, 2022). The report further indicates a need for further attention and improvements to make assistive technology affordable and accessible for everyone in need. With the increased use of technology in education, Tanzania, like other nations, is facing a challenge on how to increase access and participation of persons with disabilities in lifelong learning opportunities. People with disabilities face widespread barriers in accessing health care services (including rehabilitation), education, transport and employment (WHO, 2013). As a result of widespread barriers, people with

disabilities are perceived as a low class in society because of their living limitations, low level of education, unemployment, meagre income and participation restrictions in life lifelong learning situations. For this reason, people with disabilities become more dependent (Braum, 2020). Disability in Tanzania needs to be addressed by developing systems that support people with disabilities in accessing lifelong learning opportunities. ICT skills training, as a growing industry through which all people improve life standards, must be accessible to all, including people with disabilities. In Tanzania, the Disability survey 2008 indicated 9% of children with disabilities under the age of 18 years had no fathers, 1.8% had no mothers and 1.3% had neither fathers nor mothers. About half of the PWDs (47.6%) were illiterate compared to 25.3% of the persons without disabilities. About 35% of people with disabilities aged 15 years and above reported having a problem with the availability of information in an accessible format; 50% of children with disabilities either were born with disabilities or got them before the age of one year.

About 2% of children with disabilities were using assistive devices (URT, 2008). The facts presented in the Disability Survey 2008 indicate that persons with disabilities face challenges in accessing social services including education. According to WHO (2011), disability is the umbrella term for impairments, activity limitations and participation restrictions, referring to the negative aspects of the interaction between an individual (with a health condition) and that individual contextual factors (environmental and personal factors). In Tanzania, 7.8% of the population has a disability (Mnyanyi, 2014). ICT involves technology, which comprises the use of electronic devices and human interactive materials that enable the user to employ them for various personal uses, including teaching and learning processes. Beri and Shu'aibu (2019) assert that ICT touches every aspect of human endeavour in the contemporary world, and lifelong learning is necessary to keep up with the current technology trend. ICT can be defined as the hardware, software, and media used to collect, store, process, send and show information in the form of voice, text, data, and images, as well as the services that go along with them. People with disabilities in less developed countries face challenges related to income and thus, an inability to participate in the use of technology. People with disabilities face challenges in using ICT as a means of accessing information and learning resources. The

challenges are associated with inadequate opportunities for learning the skills to use modern technology, including inadequately skilled facilitators and relevant ICT infrastructure for persons with disabilities (Fernández-Batanero et al., 2020; Iredale, 2018; Mnyanyi et al., 2010). Other challenges are associated with a low level of availability of resources and institutional strategies (Ramsten, 2018; Oswal, 2019; Rueda, & Cerero, 2019). Creating access to ICT for all requires professionals with the pedagogical skills necessary to enhance ICT skill development (Günes & Bahçivan, 2018). Access to information for all requires skills in using ICT tools that are believed to increase or reduce equality, depending on the social, political, and economic contexts within which they are introduced (Unwin, 2009; Fernández-Batanero et al., 2018). Lifelong learning (LLL) is the pursuit of knowledge for personal development and skill enhancement, involving people in continuous learning to keep up with current issues and meet modern life technologies (Beri & Shu'aibu, 2019; Chaulia, 2015; Repetto & Trentin, 2008).

Lifelong learning reflects the provision of education in its totality, which covers both formal and non-formal patterns of education characterized by flexibility and diversity in content, learning tools, techniques, and learning time (Tasç & Titrek, 2020). The European Union [EU] (2006) defines eight key competencies for LLL. They include (1) communication in the mother tongue; (2) communication in foreign languages; (3) mathematical competence and basic competencies in science and technology; (4) digital competence; (5) learning to learn; and (6) social and civic competencies. Others are (7) initiative and entrepreneurial spirit; and (8) cultural awareness and expression. People with disabilities rarely have digital skills training options they might need throughout their lives (Kauppila, Kinnari, & Niemi, 2020; Raja, 2016; Mnyanyi et al., 2010). With the growing use of ICT, lifelong learning is enhanced through the use of technology. The ICT can facilitate learning in all its forms, including formal (with a curriculum), non-formal (incorporating elements of formal and informal patterns), and informal (without guidance from a curriculum). Improving lifelong learning for all necessitates a more thorough examination of how people with and without disabilities at all ages can make use of and be included in the development of ICT skills. In addressing ICT skills training opportunities for people with disabilities, the issues to consider include content, approach

to learning, skills training facilitators, connectivity, culture, economics, the learning environment, financial viability, and relevance to the learners. The main goal of the current paper is to find out what needs to be in place for people with disabilities to be able to use information and communication technology (ICT) to learn for the rest of their lives.

Literature Review

The theories of social constructivism by Vygotsky (1978) and communities of practice by Wenger (1999) guided the study. Social Constructivism is based on assumptions about reality, knowledge, and learning, emphasizing culture and the context of human relationships and activity (Kim, 2001; Kumari, 2020; Vygotsky, 1978). For example, Kumari (2020) asserts that reality is socially constructed through human activity. Social constructivists also claim that learning is a social process shaped by external forces that occur when individuals are engaged in social activities (Elias & Mansouri, 2020). The communities of practice tend to be separated by boundaries that reflect the specificity of various enterprises focusing on the ongoing production of meanings and experiences. Boundary objects include *artifacts, documents, terms, concepts, and other forms of reification around which communities of practice can organize their interconnection* (Wenger, 1999). Boundary objects can also be representations or metaphors that have the power to speak to different communities of practice (Wengeret al., 2011). The created meanings and practices can cross borders, as the practice involves multiple interactions between the local and global communities.

For example, in this study, the boundary objects between the communities of practice are ICT skills in different contexts. The broker community, for example, can connect people with hearing impairments and cross-influence. According to Wenger (1999), connections are made by people who can introduce one practice into another; in this study, the broker community includes the researcher and the ICT skills facilitators. The broker community (Wenger 1999) influences both the visually impaired community and the people with hearing impairment community, allowing them to participate in a global society that values the use of ICT for lifelong learning. In this study, participants from the three communities were cross-influencing their ICT skills through collaborative action research as they collaboratively reflected on and learned new skills (Mnyanyi, 2014). Information and communication

technology provides opportunities that enable the full participation of people with disabilities in all aspects of life like education, civic participation, employment, disaster management, e-governance, and financial inclusion (Raja, 2016). However, the challenges of accessing ICT facilities among people with visual and hearing disabilities are enormous, leading to unequal opportunities and benefits. Creating inclusive lifelong learning opportunities is important since training, retraining, and reskilling are becoming crucial for creating skills-mixes for future jobs. The future jobs require people with strong cognitive skills, basic information and communication technology skills, analytical skills and the 21st century skills such as creativity, problem-solving, critical thinking, and communication (Kim & Park, 2020). Social constructivism contributes to understanding of the external world, its meaning, and its value, which are necessarily achieved through social interaction. Elias and Mansouri (2020) assume that humans develop social frameworks and environments to scrutinize and assess their experiences concerning the external world. Learning, in this context, becomes an avenue through which individuals become community members, mediated by cultural artifacts such as work ethics, rules, and regulations. Individuals who engage in lifelong learning make sense of their experiences.

The negotiation of meaning is a predominant feature in Wenger's theory of communities of practice. In this theory, practice is a process by which individuals can experience the world and their engagement with communities as meaningful practices (Wenger, 1999). Wenger developed this concept to enhance understanding of what is happening in communities. Wenger (1999) states that the central themes surrounding the practice are "about meaning as an experience of everyday life" and that life's meaning is a philosophical issue. The implication here is that people in everyday endeavours experience meaning. As features of the negotiation of meaning, people talk, act, think, and solve problems. LaterWenger et al. (2011) referred to communities of practice as "learning partnerships" among people who find it useful to learn from and with each other about a particular domain. Further, the authors noted that communities use each other's practices as a learning resource. The two theories are linked in creating a social environment for ICT skills training sessions in which they collaboratively share experiences within the groups while learning and later across the communities they are engaged. For example, people who are deaf and people with visual impairment (two

communities) learn on their own before they can share information between the groups. The premise "learning is a continuous process" has continued to shape how we learn, live, and participate in addressing social demands. Lifelong learning results from the globalization of life and work demands (Billet, 2010; Billett, 2018; Organization for Economic and Cultural Development [OECD], 2010; World Economic Forum, 2019). Lifelong learning differs from lifelong education in that lifelong learning is a personal process (Billett, 2010; Billett, 2018). Lifelong education occurs all the time as individuals think and act, some of which occurs through their engagement with educational institutions (lifelong education) programmes that contribute periodically to an individual's life history (Billett, 2010). Alternatively, lifelong education is institutionally organized learning with specific learning outcomes (Billett, 2010). Ngure (2022) defines "lifelong learning" as "learning and development that emerge from and are secured by individuals throughout their lives through diverse experiences, activities, and interactions in various settings (e.g., workplaces, communities, and educational institutions)." Lifelong learning and lifelong education cannot be separated directly, even though they complement each other, with lifelong learning being the most powerful.

The question to be addressed is, "How can people with disabilities, particularly those with visual and hearing impairments, benefit from lifelong learning opportunities in the technological evolution and innovation era?" People with disabilities have a right to lifelong learning. The rights-based approach towards people with disabilities as reflected in the 2030 Agenda is aligned with the UN Convention of 2006 on the Rights of People with Disabilities (CRPD). According to the convention, people with disabilities have the right to education and learning. In this paper, the emphasis is on learning, not education, for education is a relational concept that refers to the interaction between an educator and a student, whereas learning refers to something one can do alone and by oneself (Biesta, 2006). Much knowledge must be learned and unlearned in formal and non-formal education systems (Billett, 2010). According to Biesta (2006), lifelong learning is an individual issue and responsibility. Lifelong learning requires social theories because individuals learn as they participate and engage in dialogues individually, with some elements of the teaching and learning process occurring through informal learning patterns unrelated to academic courses and qualifications

(Coffield, 1999; Nind, 2016). Nind (2016) is of the view that it is rare for the concepts of lifelong, community, formal, or informal learning to be discussed in relation to people with disabilities. While there are increasing discussions related to creating lifelong learning opportunities for the older adult population to increase their well-being, intellectual stimulation, and social engagement (Hansen et al., 2019; Iredale, 2018; Pstross et al., 2017; Talmage et al.,2016), little is said about people with disabilities. Lifelong learning programmes are not designed for improved job skills or qualifications but rather to offer opportunities to expand knowledge of diverse topics, improve creativity, and broaden and deepen perspectives (Hansen et al., 2019; Talmage et al., 2015). Individuals with disabilities require knowledge and skills in using information and communication technology (ICT) to participate in and benefit from educational programmes, social life experiences, and secure employment opportunities (Egaga & Aderibigbe, 2015; Escueta et al., 2017; Lersilp & Lersilp, 2019). Studies indicate that ICT can enhance learning among persons with disabilities in school and social participation. However, rarely one finds opportunities for people with visual and hearing disabilities to access ICT skills training (Ali, 2008; Dadzie-Bonney & Hayford, 2017; Mnyanyi et al., 2012). The paper addresses the issue of creating ICT skills training opportunities for people with visual and hearing disabilities so they fully participate in lifelong learning. The paper focused on: facilitating the learning of basic ICT skills for people with visual impairment and people who are deaf; assessing ICT skills developed; assessing their views on ICT skills training; and assessing the contribution of ICT skills training on enhancing LLL.

Methodology

The study was qualitative in nature, adopted action research design guided by a participatory action research approach. Chevalier and Buckles (2019) suggest that participatory action research works on reconciling and integrating research and the advancement of knowledge with people's active engagement. Action research helps practitioners change their practices because it is practice-oriented but contains elements of research that help practitioners gather information, process the information, reflect, plan, and evaluate (Argyropoulos & Thymakis, 2014; Kemmis & McTaggart, 2007; Mnyanyi, 2014). The researcher acted as a facilitator; during the whole process of the study, people with visual and hearing disabilities were

involved in defining social issues, reflecting on the process, and addressing the continuation of the process of solving the challenge they face in participating in LLL and how ICT can mitigate the challenges. The participants of this study were graduates of the ICT skills training programme of the Open University of Tanzania (OUT). The OUT started ICT skills training for people with visual impairment in 2011 and ICT skills training for the deaf in 2015. All participants with visual impairment were secondary school graduates and 20% of participants who are deaf were secondary school students. A purposive, convenient sample of 36 (15 people with visual impairment, 15 people who are deaf and 6 facilitators) at the Open University of Tanzania were selected for interviews. The OUT facilitated ICT skills training for the blind at Lugalo Secondary School Iringa region (December 7^{th} – 21^{st}, 2016) and ICT skills training for the deaf at Njombe School for the deaf (January 8^{th} -22^{nd}, 2017). The training was for 15 days each. Facilitators for ICT skills training for people with visual impairment were people with visual impairment, and facilitators for those with hearing impairments were also with hearing impairment. The training focused on what is a computer, Computer fundamentals (turning it on and off, as well as parts of a computer), using Microsoft Word and Internet in general for all.

There were also additional modules for specific disabilities, including Using Non-Visual Desktop Applications and Keyboarding for the Visually Impaired. Additional modules for people with hearing impairments included PC maintenance and developing ICT sign language for computer terminologies. The idea was that once people with disabilities learned and used basic ICT skills, they could improve their quality of life by participating in lifelong learning opportunities. In this study, the interviews for people with hearing impairment were conducted with the support of a sign language expert. Data were collected through individual interviews. This method is suitable when the researcher wants to inquire into people's experiences and opinions, as they express their values, social interactions, differing experiences, and how the participants interpret their real-life situations (Doody & Noonan, 2013). This study was about participation of people with disabilities in lifelong learning experiences. During the individual interviews, the author's role was to explore attitudes, perceptions, feelings, and ideas regarding ICT skills training for persons with disabilities in terms of importance, the relevance of the skills training and what might be the

outcome of the training among the participating groups. The interview transcripts were subjected to content analysis for formulations of categories and themes. The content analysis was useful in categorising responses from participants' stories to reveal their views on the contributions of ICT skills training for enhancing participation of people with disabilities in LLL (Elo et. al., 2014).

Results

This study explored views of people with disabilities who participated in ICT skills training on creating ICT skills opportunities for enhancing their participation in LLL. The participating groups in the study reflected different social backgrounds with some slight variations based on their core disability and their practice of lifelong learning. For example, people with visual impairment indicated that their learning depended on sighted people – for learning and information sharing; the deaf depended on sign language experts. They all indicated a challenge with increased use of ICT where information sharing and learning are less dependent on hard copies. The author presents findings on aspects related to the evaluation of the facilitating learning of basic ICT skills for people with visual impairment and people who are deaf; assessing ICT skills developed; assessing their views on ICT skills training; and the contribution of ICT skills training on enhancing LLL.

Participant views on the ICT Skills Training

As indicated in the methodology, ICT skills training for people with visual impairment was conducted in Iringa and ICT skills development for the deaf was conducted in Njombe. The ICT skills training outcomes included developing the use of ICT for people with disabilities, using basic ICT skills in searching for information and using ICT skills in communication.

ICT Skills for People with Visual Impairment

Only three of the 15 visually impaired trainees had attended at least one short course in ICT skills; the rest had heard about ICT skills training. During the ICT skills for people with visual impairment, the two facilitators worked with three trainees who already knew how to use ICT. The facilitators started training by discussing why they needed ICT skills and why the course was important. On the whole, the planning was done by the broker group, which later included the three trainees with ICT skills. In each lesson, the trainees

were asked what difficulties they faced, and the ICT facilitators for the visually impaired supported them. It was easy to facilitate, as they all shared a common challenge: having a visual impairment. The broker, apart from having a visual impairment, had ICT skills. Traditionally, people with visual impairment relied on sighted people to read newspapers and emails; to them, ICT skills training was a liberation as improved their valued privacy and information sharing. In the case of communication, a participant with visual impairment (PVI3) communicated with a deaf facilitator (DF1) during ICT skills training for people with visual impairment at Lugalo secondary school in Iringa. This was his first time communicating with a deaf person without the support of an interpreter. He said:

> *When writing an email I was not aware that the one, I was writing to is a deaf person. I was given an email by the coordinator telling us that if we have any challenges contact DF1 for help. I wrote the email that I needed help on how to reduce the volume of the computer. When BDI came started reducing the voice of my computer without talking to me. I continued talking to him but was silent, until when the other facilitator told me that DF1 was a deaf person* [PVI3].

According to PVI3, ICT skills training for people with visual impairment outcomes includes reducing communication barriers and increasing privacy and information sharing. According to Raja (2016), ICT is increasingly enabling persons with disabilities to level the playing field in access to lifelong education, skills development, and employment. For increasing access to lifelong learning opportunities, people with visual impairment indicated a need for ICT skills training. One of the participants of the ICT skills training for people with visual impairment, PVI12, at Iringa indicated a need to increase access to ICT skills training to enable them to become independent and participate fully in lifelong learning as they can enrol in an online course, they find useful as narratives indicate:

> *When I started learning ICT, I was not sure I could learn for such a short period (two weeks). I felt it will be difficult. I am blind, how can it be possible to learn for two weeks whereas non-disabled people do say Computer is a difficult subject. In my life, I had never attended ICT skills training. I had never used a computer. I only heard about computers. After training, I can now search for information online, enrol in online courses, attend zoom meetings,*

> *enter YouTube and listen to online radio. I can download and listen to music, read online newspapers and share information with my friends using email and other applications. I also created friendships with people with hearing impairment as we can communicate through emails and WhatsApp* (PVI12).

From the participants' views, ICT skills training for persons with visual impairment improves access to online learning that enhances access to lifelong learning resources and information sharing. One of the participants, PVI9, added that in my village, newspapers arrive after two to three days, with this training I have become important as I can use technology to access online newspapers and share with my friends as narrated "*I had challenges on reading newspapers. With this training I will be able to read online newspapers, listen to online radio, participate in social media and share information with others*" (PVI9). According to Abraham et al. (2022), smartphones have the potential to serve as an alternative assistive device for people living with severe visual impairment and blindness. Little is known about training on the use of smartphones among people with visual impairment in developing countries (Abraham et.al. 2020; Al-Mouh & Al-Khalifa, 2015). ICT skills training outcomes include developing the ability and capacity to improve quality of life as provides chances for changing jobs, learning new skills and enhancing networking. One of the ICT facilitators for ICT skills training for people with visual impairment (PVIF2) narrated:

> *To me, ICT is a change agent. Initially, I was trained as a lawyer but never had a job. After attending the first ICT skills training for people with visual impairment, I got employment as an ICT facilitator for people with visual impairment. ..... With ICT. I have created more friends through networking. ICT also has allowed me to change jobs and has improved my job performance. I can now work alone without needing much support from others. I can decide to go online and study different books, and online news and make online applications. ICT has changed completely my profession, from a lawyer to an IT expert for people with visual impairment* (PVIF2).

When facilitating ICT, it is important to support people with visual impairment to comprehend parts of the computer. People with visual impairment come to ICT skills training with different conceptions about a computer. There are those whose views indicate learning ICT is difficult and

those with different conceptions about computers and their computer parts. A participant in the ICT skills training for people with visual impairment (PVI14) indicated the importance of the ICT skills training for people with visual impairment

> *When I started learning ICT, I thought it was so difficult and that I cannot learn. But I decided that I would do my best and attend all the sessions. On the first day, the teacher was teaching about parts of the computer and mentioned a keyboard. Then, because I regularly go to church I thought now there are things I know, like a keyboard. But, when the teacher started teaching us, I became aware that the keyboard in the church is different from the one in computers. Since I had some skills in typewriting, it was easy for me to learn to keyboard* (PVI14).

ICT skills training centres have to be equipped with facilities for people with visual impairment practice. People with visual impairment to learn to use a computer, one must learn keyboard skills because they cannot use a mouse (Ampratwum et al., 2016; Sah, 2013). There is an increased need for establishing ICT skills training centres to cater for all youth and adults who become disabled at adult age. The practice for skills training is for children in schools. PVIF3 become disabled at the age of 50 years, with ICT skills training became an ICT skills trainer for people with visual impairment at the open university. "*I became disabled at the age of 50. I started training in Braille skills and later ICT skills. ICT skills have improved my life as I got employment, graduated from an online course and created more friends* (PVIF3). Similarly, PVI12 is a teacher with visual impairment who became visually impaired at the age of 26 years, attended ICT skills training at Lugalo secondary school in Njombe. During an interview, PVI12 indicated ICT skills training to have provided an opportunity to develop competence and has shown that disability is not inability as narrated:

> I became visually impaired at 26 years old. I lost hope. This training has made me feel confident and can learn. I am planning to start a Bachelor's Degree. The challenge after training is how to get a computer and where to get further training when needed" (PVI12).

The trainees reported having created confidence as they could learn, secure training opportunities and even communicate with the global community. Most of the trainees had a view that the training had positive outcomes.

However, the challenges hinted at included shortages of training opportunities, shortages of ICT tools to use and places where they can find experts to support them. It is argued here that providing ICT skills training for people with visual impairment opportunities calls for funding and government intervention.

ICT for People with Hearing Impairment

Hearing loss is the fourth highest cause of disability globally (Bell & Swart, 2018; WHO, 2018). Of the 466 million people worldwide, who have some form of hearing loss, two-thirds live in low and middle-income countries (WHO, 2018). As such, hearing loss among candidates poses challenges. Under normal circumstances, it is challenging to recognize or identify a person with hearing impairment. Such people move freely without any support, though they have to be careful not to be knocked down by vehicles as they cannot hear the noise of an oncoming motorized vehicle. They do normal manual work, and you will rarely find them begging. This calls for creating ICT skills training for the deaf so that they can participate fully in lifelong learning and the community, they live as part of local and global societies. In this era of increased use of ICT, the challenge is how to create ICT skills training opportunities. The deaf community use sign language posing a challenge on how to teach ICT skills.

In creating ICT skills, I implemented collaborative action research that calls for the shared creation of knowledge and skills by identifying a problem and solving it step-by-step (Mnyanyi, 2014). The training started by creating ICT skills signs to use during the teaching and learning processes. During creating ICT sign language, the sign language interpreter and the three ICT facilitators lead the process. The findings indicated that ICT skills training supported the trainees with hearing impairment in developing: self-confidence; ICT Sign language; and self-determination. The ICT skills also had outcomes related to creating friends through Facebook, reducing dependence on sign language interpretation, creating job opportunities like ICT maintenance and data entry and participating in online lifelong learning, especially in the ICT industry like participating in Cisco examinations. During the interview, one of the deaf participants, PD3, a Form IV graduate, who participated in the ICT skills training for the deaf commented that most of the people who are deaf do not

have opportunities for ICT training. For the deaf to learn best, they need sign language. he narrated:

> *When I saw a computer initially, I was afraid to touch thinking that I can destroy it, as I had no experience using ICT. My worry was whether it would be possible for me to learn ICT skills as I did not do well in my secondary education. During training, I was so amazed to see my fellow deaf teaching me. We started by creating signs, and after that, I found the course was easy for me! (PD3)*

Some deaf participants indicated that the training contributed to the ability to use social media and emails that enabled them to increase the number of friends and participate in online learning. The training participant PD13 indicated to have developed an ability to communicate with others using emails and social media. Further, PD13 during ICT skills training had an opportunity to learn how to access online resources and joined CISCO courses as narrated:

> *I can now follow my friends on Facebook and through email. I have friends, some of them are visual impared. I am so happy! I can communicate with my hearing friends without a need for sign language interpreter, just we text or email each other. I have already enrolled on CISCO class so I can learn more about ICT (*PD13*)*

Challenges facing the deaf community on participating in lifelong learning are related to communication. PD13 indicated the use of ICT signs created during ICT skills training for the deaf at OUT enhanced skills learning. Shortage of ICT skills training opportunities hinder access to lifelong education through ICT. Use of ICT skills enhances chances to participate in lifelong learning for the deaf as narrated by PD14:

> For me to learn ICT strategy used was to learn the name of the parts of the computer and their functions using sign language. It was my first time to touch a computer and thus had to learn by heart different parts. Then I learnt keyboard skills, a mouse and how computer parts are connected. After I had learnt basic computers and the internet, a new strategy was invented. This involved use of google Translate where I was speaking English words and then placing it to google Translate where it was

> translated in Kiswahili so that I understand and continue discussing them with my friends (PD13).

The ICT skills trainer or the deaf (PDF2) who participated in training in Kenya and later facilitated the first ICT skills training for the deaf session at OUT indicated a need to empower the deaf community to learn ICT.

> I am deaf, I am happy to be a participant in the first ICT training course at OUT. After training, I am doing my internship in a government-owned company. Initially, they thought oooh a deaf! But now am happy they know that I can do things. My work is on repairing PCs and installing software and making preventive maintenance. I am happy but not sure of getting a permanent job as I do not have a certificate of secondary education (PDF2).

On the whole, trainees with hearing impairment entered ICT classes without having developed concepts about a computer. Some entered into ICT without even knowledge of using smartphones. Deaf have communication barriers that limit them accessing information and lifelong learning opportunities. ICT skills trainees believed that ICT supported them in improving their quality of life by creating opportunities for lifelong learning. Participants in this study managed to enrol on CISCO online courses and change jobs.

Discussion

The investigation addressed issues on how to create lifelong learning opportunities for people with disabilities using ICT through the lens of communities of practice (Wenger, 1998) and social constructivism learning perspective (Elias & Mansouri, 2020; Vygotsky, 1978). The assumption was that participating communities, the community of people with hearing impairment, the community of people with visual impairment and the community of brokers were connected to their indigenous knowledge and practice related to what they are used to. The broker community was exposed to indigenous knowledge about how to go about within the community and with additional ICT and facilitation skills. Lave and Wenger (1991) have shown that knowledge is distributed and shared in the community as the people interact in their day-to-day activities. For creating interaction for sharing knowledge amongst groups, a training session for 15 days was created through which the broker and other communities had the opportunity

to interact. A study by Osman and Diah (2017) indicated ICT plays a key role in empowering PWD, however faces challenges related to financial, social and environmental problems in accessing sources of ICT which contributes to the weakening of their competitiveness in the labour market. The other study Kamarudin and Hussain (2019) indicated that deaf persons can communicate using sign language and thus had to develop ICT tool for translating into sign language. This study responds to Osman and Diah (2017) and Kamarudin and Hussain (2019) study by creating ICT skills training for the deaf so they contribute to the improvement of quality in life and contribute to national development.

Conclusions and Recommendations

People with disabilities account for a sizable proportion and face challenges in accessing lifelong learning opportunities, more particularly in developing countries. Lifelong learning is important in the era of technological advancement that require training and re-training for new job skills. ICT skills training has proved to have the potential to create opportunities for lifelong learning. However, rarely, we find ICT skills training for persons with disabilities. Reasons for low access to ICT skills training include expertise in training persons with disabilities, resources, and language use. In this study, challenges were reduced by involving persons who are deaf to create their ICT sign language. Above all, in classes for people with visual impairment, the facilitator was also a person with visual impairment; in ICT skills training for the deaf, the facilitator was deaf. The skills enabled them to participate in lifelong learning opportunities as they managed to enrol in online courses, including CISCO and academic courses offered in universities. On the whole, implementing action research to develop ICT skills training improved the participation of persons with disabilities in lifelong learning. The study recommends that ICT be effectively integrated into adult education programmes. As a means to increase access to ICT skills training, funding for ICT skills training for people with disabilities has to be improved. There is also a need for government to create ICT skills training opportunities in schools and the community, in which facilitators are people with disabilities. In the case of people who are deaf, there is a need to develop contextual technical sign language to facilitate ICT skills training and extend to technical vocational skills to increase access to lifelong learning and improve their quality of life.

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