

# A study on the Innovative applications of Technology in the Skills in Demand Project for equity and inclusion – A case study of Luanshya Technical and Business College in Zambia

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## ABSTRACT

In 2019, the Commonwealth of Learning (CoL) invited proposals for participation in the Skills in Demand (SID) project. The model of the project involved the identification of skills that are in demand and partnerships were encouraged between training institutions and industry partner who met the criteria. Luanshya Technical and Business College (LTBC) partnered with the Nakadoli Furniture Cooperative (NFC) on the Copperbelt Province in Kitwe and submitted its proposal which was successful. This was followed by a visit by the then CoL Education Specialist Mrs. Terry Neal who visited LTBC and the NFC to appreciate the existing situation. Mrs. Neal also conducted a project design workshop where the problems to be solved were identified, skills to be developed were determined, learner's personas were established and the learner journey was mapped out. The project plan was then drawn which also identified the stakeholders who would be critical to the success of the project.

A contribution agreement was drawn between the CoL and LTBC for the implementation of the project. The project is funded by the CoL with LTBC as the implementers in conjunction with master craftsperson's from the NFC. The project involved a number of factors that promote inclusive learning using basic technology such as the mobile phones and laptops as well as the Raspberry pi, a gadget which provides free internet access for the Moodle lessons uploaded on in. LTBC is developing the open education resources for the CoL while CoL has provided the Moodle platform, consultants, the raspberry Pi and other support services to LTBC. LTBC was responsible for the recruitment and enrollment of ten (10) master craftsperson's and 50 apprentices to participate in the work base training at the NFC.

The main outcomes of the project covered a range of areas including inclusive access and use of technology for all participants in the project. It also aims to promote gender inclusion and equity in technical skills training especially for the women and youth. The baseline study that was conducted revealed that most of the would-be participants in the project live below the poverty line. The is the hope of LTBC and the CoL that the Skills in Demand Project will result into reduced poverty through increased sales revenues, increased household income, reduced gender discrimination in the furniture industry, increased employment especially after graduation as well as increased registration of businesses for youths and women.

### 1.1 Key terms

CoL	Commonwealth of Learning
SID	Skills in Demand
LTBC	Luanshya Technical and Business College
TEVETA	Technical Education, Vocational and Entrepreneurship Training Authority
MCs	Master Craftspersons
OARAS	Outcome, Assessment, Resources, Activities and Support
OERs	Open Educational Resources
TVET	Technical Vocational Education Training

## I. CHAPTER ONE: INTRODUCTION

### A. 1.0 Background

The Skills in Demand model was a first of its kind in Zambia. The model was focussed on identifying an industry partner to collaborate with in order to identify the skills that they may need and then develop a training programme aimed at bridging the skills gap. At the same time, the outcomes of the programme included poverty reduction and employment creation as added benefits of the project. The first cohort of this model was tested at the Nakadoli Furniture Cooperative by Luanshya Technical and Business College, one of the renowned trades training institutions on the Copperbelt Province of Zambia.

As outlined in the contribution agreement, the aim of this model with the NFC involved training their 12 master craftsmen and women (MCs) and 50 apprentices towards Zambia's national qualification 'Trade Test Certificate in Carpentry and Joinery' (62 certified). Phase 2 for Zambia plans to prove and scale the model with 20 of Zambia's larger co-operatives, each training 100 MCs and apprentices (2,000 certified). The third phase would be the rolling out of the programme to the more than 1,000 cooperatives across Zambia, with the potential to train and certify 100,000 MCs and apprentices.

During the implementation process, a number of people were involved from both LTBC and NFC. The implementation stage of the project made it inevitable for the implementation team to grow beyond the initial number. Additionally, the implementation stage started at a time when LTBC had undergone a number of changes in its administration. As per requirement, all the changes that happened in the key roles were communicated to CoL such as the exit of the then Project Manager Mrs Phillis Chibuye, Lubeya Kasonkomona who continued to work with the College on the project as OER developer and subject matter expert for the Entrepreneurship and Business Management Module, the exit of the project coordinator and subject matter expert Mr. Vincent Kabeya who also continued to work with LTBC on the project in developing the OERs for Wood Machining Techniques, Carpentry and Joinery and Upholstering in collaboration with Mr. Jessie Musonda and the death of the then Principal Doctor Samuel H. Moyo who was responsible for the overall project monitoring and evaluation. This role has now been filled by Mrs. Ethel Kalumba Simpemba who is the current Principal.

The changes did not only happen at LTBC. The NFC also saw some changes in its management structure with the tenure of office for the executive coming to an end. However, most of the executive members were retained in the executive and the new members were able to quickly buy into the project and are part of the current implementation process.

### B. 1.2 Statement of the problem

Access to Technical Vocational and Entrepreneurship Training (TVET) has been a serious challenge in Zambia especially to Micro, Small and Medium Entrepreneurs (MSMEs). Technology has been inadequately used by the stakeholders and this was evident during the Covid 19 pandemic. The Skills in Demand Project seeks to overcome that challenge by using readily technology technologies to provide access to skills training through tailored OERs.

### C. 1.3 General Objective

To assess the technologies and strategies used to provide access to inclusive TVET in the skills in demand project

### D. 1.4 Specific Objectives

- 1) To find out the rationale behind the Skills in Demand Project
- 2) To assess the implementation strategies that the project put in place
- 3) To determine the level of support given by CoL

### E. Significance of the Study

This research is important as it tries to establish the role that technology plays in the development of skills. Many people in the rural areas of Zambia have had no reliable access to technical and vocational education. At present, rural communities are being encouraged to form cooperatives as conduits through which support can be given. The Skills in Demand project in Zambia aims to use modern day to day technologies to impart technical and vocational skills to members of the Nakadoli Furniture Cooperative, one of the cooperatives formed by residents, community members of Kitwes towns rural residencies. It is the aim of this project to measure the real-life applicability and practicality of using technology to train vulnerable members including women and youths of the cooperative.

## II. CHAPTER TWO: LITERATURE REVIEW

### A. 2.0 Overview

The commonwealth of learning through its skills in demand project in Africa and Zambia has the potential to contribute to national development. It is a supplement to the current efforts that the government of the republic of Zambia is putting in place with regards to skills development through the TEVETA and other partnering institutions. The Commonwealth of learning identified the need to supplement governments efforts of government by partnering with Luanshya Technical and Business College, one of the registered TVET insitutions on the copperbelt province. In their writeup, Cui Q. and Lindly J. K. (2010;153) say that “The economic development process supposes that legal and institutional adjustments are made to gives incentives for innovation and for investments so as to develop an efficient production and distribution system for goods and service and the spreading of the revenue base for the government.” The furniture industry in Zambia is one of the most promising source of income for many underprivileged members of the rural communities who have now been encouraged to form cooperatives.

The Zambian government made it mandatory for information and communication technology should be included in the nations education curriculum from primary to secondary levels. In his report, (Isaacs, 2007;3) says that “The integration of ICTs in learning and teaching practice has been limited, although the introduction of computer studies as a school study subject has begun to change this.” He further adds that the recent adoption of a national ICT policy, as well as the development of a draft ICT policy for education and an associated implementation framework, provides an enabling policy environment to promote far greater access and use of ICTs across all sectors of Zambia’s education system, including a system for enhancing education management, administration, and teaching and learning. The Covid 19 pandemic exposed how unprepared Africa was in the integration of I.C.T in education. it is for this reason that the skills in demand project is a timely investment in the quest to change the mind knowledge, attitudes and practices in technology and education.

Through increased corporation with the training institutions, business organisations are able to assist if the improvement of the quality of human life through increasing per capita income, reducing poverty, and enhancing individual economic opportunities. At the 2010 conference on trade and development, the UN said that, “Closer integration, openness to trade and foreign direct investment (FDI) flows are helping firms in developing countries become part of international production networks and global value chains, thereby creating new sources of growth and development worldwide.” (UN, 2010).

This of course is possible when backed by strong stable policy that would support the linkages while protecting the interest of the local small and medium enterprises that form a great part of the revenue base for the government. Through the work of training institutions, cooperatives and partnerships with seasoned insitutions in developmet such as the commonwealth of learning, such partnerships would be the conduits through which the governments may link SMEs to the Foreign Direct Investment (FDI). Foreign companies can be compelled to partner with local businesses before they are given the licensing needed to commence operations.

According to Bosso, M. and Garvin J. (2008), “The private sector is not always more efficient and the service provision is often more expensive to the consumer.” For them to be competitive, the private sector especially cooperatives needs to upgrade their operations to meet the international standards.

As argued in the 2001 edition of UNCTAD’s World Investment Report, entitled “Promoting Linkages”, these represent one of the best ways for small and medium-sized enterprises (SMEs) to enhance their competitiveness and acquire critical missing assets such as access to international markets, finance, technology, management skills and specialized knowledge,” (The United Nations; 2010). Linkages promotion programmes can only succeed in the presence of a conducive policy environment, as well as policies aimed at addressing any information or capability gaps which may hamper the integration of domestic and foreign firms in the global economy.

Governments in cooperation with development agencies and the private sector play a crucial role in implementing proactive policies aimed at integrating FDI into a broader development context. On one hand, governments should intervene with specific policies related to the FDI area, and strive towards improving the investment climate and attracting strategic FDI. On the other hand, they should also implement more specific measures for SMEs, which are focused on strengthening the local absorptive capacity and developing a competitive local supplier base.

In its current strategic plan, one of the goals of the Zambian Government through the Zambia Development Agency and various other institutions is to play an active role and to create a long term vision with regard to attracting and retaining Trans National Corporations especially those more likely to form business linkages with local SMEs, providing attractive financial incentives as well as investing in human capital and infrastructural endowment. Zambia Development Agency (2012; 7).

### **III.CHAPTER THREE: RESEARCH METHODOLOGY**

#### **A. 3.0 Overview**

##### **3.1 Research Design**

The researchers used the knowledge, attitude and practices survey to collect data because it is appropriate for the study and because there was more than one time contact with the respondents. The researchers first decided what they wanted to find out, identified the study population, selected a sample and contacted the respondents to find out the required information.

The type of research used by the researchers was the inquiry mode of research. This method was used because it provides a structured approach to the research and allows us to find the answers to the research questions developed. It also allowed the use of quantitative research methods. Therefore, in order to collect data, a survey was conducted by sending out a questionnaire to selected individuals

##### **3.2 Characteristics of the study population**

The study population consisted of Small, Medium and Large organizations that belong to the copperbelt community as well as government institutions and TVET institutions. However, the survey is also qualitative in its approach and as such focused on establishing the general economic welfare of the residents in the towns. Part of the quantitative data was generated from secondary sources. In terms of detailed questionnaires, the survey planned to capture the members of the Nakadoli Furniture Cooperative, TEVETA officials and other small businesses on the copperbelt province.

##### **3.3 Data Collection Instruments**

The researchers collected primary data through questionnaires that will be developed based on the specific objectives of the study to guide the respondents. They compromised of structured (close-ended) questions. The researchers also made use of secondary information that will be collected from various rrelevant sources.

##### **3.4 Limitations of the Research**

Whilst every effort was made by the researchers to make this research all-inclusive and thorough, some challenges were faced and these are;

- 1) Failure to meet all the respondents as there is was a time constraint for the researchers.
- 2) Some respondents being unable to understand some basic questions in the questionnaire.
- 3) Failure of a few respondents to return forms on time
- 4) The covid 19 restrictions were a serious impediment to the data collection process

##### **3.4 Ethical Issues**

The researchers emphasised to the respondents the importance of the research and the important contribution they will be making to the body of knowledge on the subject matter. The researchers will maintain a high standard of objectivity and integrity during the research.

### **V. CHAPTER FOUR: PRESENTATION OF RESEARCH FINDINGS**

#### **A 4.0 Overview**

During the implementation of this project, a number of activities have been carried out by LTBC members of staff as well as NFC members of staff. The CoL has been very instrumental in providing capacity building during or throughout the implementation stage. The process involved;

##### **4.1 Preparation of OARAS Documents**

The development of OARAS is the development of the outcomes, assessments, identification of resources, activities and determining the support that will need to be rendered to the apprentices. The LTBC staff developed the OARAS documents for the Open Education Resources with the consultant organized by the CoL, madam Vasi Doncheva. The process was very insightful and elaborate and the LTBC staff greatly benefited from this activity. The skills learned helped in the way the LTBC staff prepared their lessons and plans are underway to share the OARAS approach during the curriculum development and implementation.

##### **4.2 Develop Assessment criteria**

Having developed the OARAS documents for the modules, the consultant walked the material developers through the process of developing the assessment criteria for the identified modules using the OARAS document. The assessment criteria had a unique approach that covered a range of aspects that tested the competencies of the trainee.

### 4.3 Development of assessment Rubric

Once the assessment criteria were determined the assessment rubrics were also developed for each assessment so as to provide the guidelines and parameters for each assessment. Once again, the assessment rubrics were another learning curve for the OER development team as it was a concept that was known and practiced but had not been fully exploited and embraced in the TEVET sector. This stage paved way for the development of the assessments.

### 4.4 Develop Assessments in line with the rubrics

Having developed the assessment rubrics, it was now time to develop the actual assessments in line with the assessment rubrics. Once again, our consultant Vasi Doncheva was very instrumental throughout this process. The mentoring that she provided to the LTBC team during this process was very valuable and gave encouragement and motivation to the development team. Once the development team completed the assessments, this marked the end of the support and mentorship from Vasi Doncheva. Another consultant, Chad Flinn was provided by CoL to walk the team through the Moodle platform.

### 4.5 Develop the Content

the content development was done under the mentorship of two consultants, that is madam Shauna Farey and Liz Gigg from POP Education. The development process was yet another opportunity for the LTBC team to learn how to develop OERs fit for international use. One of the highlights of the development mentorship involved awareness about the intellectual property rights and licensing guidelines. Alongside the content development mentorship process were many valuable lessons learnt about the most effective ways of making a blend of OERs that can attract the attention of the audience. It is hoped that in the near future, the material developed will be translated into vernacular.

### 4.6 Upload content on Moodle Platform

The first module to be completed in the course was the Entrepreneurship and Business Management Module which was uploaded on the LTBC Moodle platform. This was followed by the Wood Machining Techniques Module which was also uploaded. Currently, the Module for Joinery and upholstery is under development and will be completed, uploaded and the hard copies will be printed out and distributed to the members.

### 4.7 Access to OERs

One of the major challenges of this project has been the Covid 19 pandemic which affected the pace of progress due to massive shutdowns. Another important challenge was the fact that most of the participants did not have access to the modern digital technologies to be able to access the lessons. In this regard, the LTBC purchased a computer screen and is making strides to provide a complete computer set to be stationed at the NFC main office for all the members with changes to be able to access the lessons.

In order to overcome the challenge of lack of access to smart phones, LTBC printed out hard copies of the two complete modules and they were issued to the NFC master crafts persons. This proved to be a great aid since the members were now able to commence the training before the Aptus raspberry pi was delivered with the uploaded materials.

At present, the lessons are going on and a number of the apprentices are already accessing the materials through their phones.

### 4.8 capacity building programmes undertaken during the project

- a) Vasi Donchevo with OARAS document, Assessment Rubrics, Assessment criteria and story boarding
- b) Chad Flynn with Moodle development
- c) Moodle implementation course
- d) Flexible skills development course
- e) Leading change in TVET
- f) Facilitating online courses
- g) Liz Giggs and Shauna with content development and uploading
- h) Monitoring and evaluation with Damodaram Kuppuswami and Vi Ly

### 4.9 Training in Pedagogical skills

In order to prepare the master craft persons for the task ahead, LTBC conducted a training in Pedagogical skills to them. This training equipped them with the knowledge on how to be good mentors.

## IV. CHAPTER FIVE: DISCUSSION OF THE RESULTS

### A. 5.0 Overview

#### 5.1 Highlights of the mentoring process

The monitoring and evaluation process was spearheaded by the Principal/C.E.O for LTBC Dr. Samuel H. Moyo who passed away in June 2021 due to the Covid 19 pandemic. This role is currently played by Ms Ethel Kalumba Simpemba. The Monitoring process concentrated on the development of OERs beginning with the OARAS document. The process also involved the engagement of the NFC at each and every stage of the development process. During this process, the tips that were provided by the consultants centred on the design process while the NFC was also able to provide valuable insight in the content of the OARAS documents as confirmed by the project design workshop outcomes.

The monitoring process was enhanced in the second half of the year 2021 after the restrictions of the Covid 19 pandemic were eased. The online course on monitoring and evaluation enabled the collection of baseline data that was valuable in measuring various aspects of the project.

It was recommended that the monitoring and evaluation in which the collection of the baseline data greatly relies on should be conducted at the very beginning of any similar project that LTBC and CoL embark on. This was now going to be possible since LTBC staff were trained in the collection of baseline data.

The evaluation process thus far has revealed that there is an increase in the number of people from the NFC, our partners in the project. The commencement of the actual training under the supervision of the master craft persons has motivated others who otherwise had no interest in the project to develop interest and requests have continued to come forward to join the first cohort. During our weekly meeting with the education specialist Mr. Robert Okenda, the issues of open enrolment, open learning, open assessment have come up and LTBC has adopted this as a policy. Another important development in the project is the tracking document that was developed for all the developmental works that were taking place. The tracking document will be a useful tool that will aid in project monitoring.

#### 5.2 Key Outcomes

The key outcomes of the project so far are:

- 1) Completed OARAS documents
- 2) Apprentices identified and recruited
- 3) TEVETA engaged to oversee the training and assessment
- 4) The NFC Identified the 12 master craft persons
- 5) Technology implemented for the training
- 6) The NFC assisted to implement the workplace and online learning assessment competence
- 7) Ensured that there is gender balance in the training audience
- 8) Enrollment of learners on the TEVETA platform underway
- 9) Monitoring and evaluation process identified and agreed upon
- 10) Monitoring and evaluation tools identified
- 11) Various capacity building training undertaken
- 12) Capacity building extended to other LTBC members of staff

#### 5.3 Conclusion and Recommendations

The skills in demand project has opened many possibilities of the participants, LTBC and other TVET institutions in the TEVET sector. The composition of the current apprentices is dominated by the youths who are the main focus by the current government policy. This empowerment opens the doors for them to enter into formal employment and also to set up companies in the furniture industry that will fill the gap in the furniture industry.

As envisioned in the project design and rationale for this project, the training has managed to ignite the learning spirit among the apprentices. The increased income that follows employment and entrepreneurship.

It is our hope that once this first cohort continues its training, we can get started with the second cohort. At the end of the first official assessment in August 2022, a second baseline survey will be conducted to determine the impact of the training. At present, it is evident that the training has increased the ambitions of the members in light of the new opportunities that have been created by the governments decentralization policy which provides access to the constituency development fund.

## VI. REFERENCES

1. André-Pascal, Paris (2005) Encouraging Linkages between Small and Medium-Sized Companies and Multinational Enterprises; The OECD Investment Committee.
2. Bosso, M. and Garvin J. (2008). "Assessing the Effectiveness of Infrastructure Public—Private Partnership Programs and Projects." Available at: <http://pwm.sagepub.com/content>
3. Cui Q. and Lindly J. K. (2010). Evaluation of Public Private Partnership Proposals. University Transportation Center for Alabama, Department of Civil and Environmental Engineering, Huntsville Alabama.
4. Doran, B. J. (2008). "The Effectiveness of Contemporary Public-Private Partnerships for Large Scale Infrastructure."
5. European Commission (2003) DG Regional Policy, Guidelines for Successful PPPs: Brussels
6. Farlam, P (2005) Assessing Public–Private Partnerships in Africa, Pretoria: Royal Netherlands Embassy
7. FHWA. (2008). "An Update on the Burgeoning Private Sector Role in U.S. Highway and Transit Infrastructure." Available <http://www.fhwa.dot.gov/reports/pppwave/> pdf (accessed May (2018).
8. Geneva Analytics, (2011) Chambers of Commerce: Their role and areas of Opportunity, White Paper Study:
9. IFC (2008) Business linkages practice notes: Developing SMEs through business linkages, A manual for practitioners based on the mozlink mentorship experience in Mozambique, Maputo: Mozambique
10. Kaul I and Conceição P (2006) Exploring the policy space between markets and states: Global public-private partnerships. In *The New Public Finance: Responding to Global Challenges*, eds. New York: Oxford University Press.
11. Martini, M (2013) The role of business associations and chambers of commerce in the fight against corruption, TIZ. CHL Michelsen Institute
12. McPheeters J (2014) Chambers of commerce: Their role in economics development;
13. Ministry of Finance and National Planning (2011) Sixth National Development Plan. Lusaka. Government Printers.
14. Ministry of Finance and National Planning (2017) Seventh National Development Plan. Lusaka. Government Printers.
15. Nariman Mannapbekov (2013) Public-Private Partnership; Manila: Asia Development Bank.
16. NU (2010) United nations Creating Business Linkages: A Policy Perspective, New York and Geneva
17. Pascal, A (2007) Investment Division, Directorate for Financial and Enterprise Affairs; Paris: Organisation for Economic Co-operation and Development
18. Pongsiri, N.2002. Regulations and Public-Private Partnerships. *International Journal of Public Sector Management*, 15(6):487-495.
19. Zambia Development Agency (2011) Promoting Economic Growth and Development, Projects Dossier; Lusaka: ZDA
20. Zambia Development Agency (2014) Public - Private - Partnerships in Infrastructure Development In Zambia, Lusaka: ZDA