

Chapter 13

Examining Assessment Tools and Procedures for Work–Based Learning in Pandemic Times

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ABSTRACT

The COVID-19 pandemic disrupted the continuity to technical and vocational education and training (TVET) training activities and assessment thereby affecting and/or threatening the completions dates for many learners. Several institutions must revisit their assessment methods and tools for work-based learning during such pandemics. This study investigated the innovative assessment methods adopted by private TVET institutions to assess work-based learning during the pandemic. A quantitative research design was used to gather data using online questionnaires. Online questionnaires were used to effect social distancing and getting instant feedback. Purposive sampling was used to select research participants amongst TVET lecturers and attachment coordinators in private TVET colleges. Descriptive statistics were used to present research results using quantitative analysis and descriptions for clarifications. Findings indicated that assessment of practical skills virtually remains a challenge, and most of the institutions kept on using their old ways of assessing.

BACKGROUND AND INTRODUCTION

The advent of COVID-19 caused massive disruptions of continuity to TVET training and assessment activities thereby affecting and/or threatening the completion dates for many learners (International Labour Organisation, [ILO], 2021). Several TVET programmes such as apprenticeships and traineeships involve a combination of both classroom and work-based training, or wholly on-the-job learning coupled with formative and summative assessments. Alternance of training venues can take place on varying durations which can be on weekly, monthly, or yearly basis (European Commission [EC], 2013). Whilst most theory lessons delivery and their assessments have gone online, practical competences must be carried out in the workplace and assessed on the job. Even though the pandemic has created several opportunities to adopt new pedagogical methodologies based on digital technologies and interactions online, its impact on development and assessment of hands-on practical skills virtually remains a challenge (ILO–UNESCO–World Bank, 2021). Hence, this study investigated and examined assessment tools and procedures adopted for work-based learning assessment by institutions in Botswana during the COVID-19 pandemic.

To comply with COVID-19 protocols, training institutions have been challenged to revisit their assessment tools and procedures of work-based learning during such pandemics (World Bank, 2020). ILO–UNESCO–World Bank (2021) joint survey findings indicated that 75% of respondents reported that there was cancellation or postponement of examinations and other assessments due to the pandemic. The negative impacts of the pandemic on the school closures and work-based training cancellations and postponements on outcomes for learners was greater in low-income countries. Moreover, in these countries, the online delivery of TVET courses is further hampered by the lack of digital skills among teachers and students (Hondonga, Chinengundu & Maphosa, 2021). On the other hand, some critics of teaching TVET courses online argue that, even where simulators are available, distance and online learning does not easily incorporate the development of practical skills, and many institutions in developing countries cannot afford simulator technology (ILO-UNESCO-World Bank, 2021:12; Hartel, 2017). The overwhelming advantages and need to expose Vocational Education and Training (VET) learners to the real work environment have been met with another challenge on how to assess work-based trainees. This has been further affected by restrictions introduced to limit the spread of COVID-19 pandemic in the workplaces.

Prior to the pandemic, institutional assessors were physically following-up learners in the workplaces for work-based learning assessment and/or collecting evidence of assessment from trainee mentors and supervisors in the workplaces. Therefore, in an era when most of the communication and transfer of information must be paperless, TVET institutions need to come up with innovative ways of conducting work-based assessments to meet training schedules. Hence, this study examined assessment tools and procedures for work-based learning implemented by TVET institutions in Botswana during the pandemic times.

Although training institutions were closed and several lessons have now gone online, including that of TVET courses, the debate is on whether it is possible to teach and assess practical hands-on courses online (Hartel, 2017). Contentious and fundamental questions raised by academics and industrialists are: How can TVET learners acquire practical skills in a virtual workshop? How can learners' competencies be assessed and merged with other theory assessments to make a full award? However, proponents of blended learning such as Bates (2015); Hartel (2017); Cleveland-Innes & Wilton (2018) and Gannon (2020) argue that the future of TVET teaching must embrace online teaching and assessment methods

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to cater for work-based learners and improved recognition of skills and competencies of those workers who did not enroll with formal institutions (UNESCO-UNEVOC, 2020). This study aimed to examine assessment tools and procedures for work-based learning adopted by TVET institutions in Botswana during the pandemic times. The study answered the main question:

What assessment tools and procedures have been adopted to assess work-based learning during the COVID-19 pandemic times in Botswana?

To help answer the main question, the following sub research questions were also asked:

- *What are the resources needed for online assessments?*
- *Are there adequately qualified and accredited assessors in the workplaces?*
- *Are there quality assurance systems for workplace assessment?*
- *What are the challenges for WBL assessment?*

Transformative Learning Theory (Mezirow, 1991)

This study was guided by the Transformative learning theory which focuses on producing enlightened agents of change empowered with decision making skills (Mezirow, 2003, p. 58-9). The transformative learning theory is a learning theory which is uniquely adult that applies particularly in the context of post-secondary education. The theory is viewed partly as a development process theory since transformation starts from a point of discomfort to guide action to a revised standpoint (ibid). A perspective transformation occurs because of acute personal or social crisis like the pandemics. When there are experiences that are stressful, painful and threaten the very core of people's existence and way of life, like the challenges to WBL assessment due to the pandemic, people would rely on acquired knowledge, technologies, and skills for survival (Mezirow, 2003). Based on the theory, the study examined the transformation of assessment innovations pursued by TVET institutions based on information technology tools to assess work-based learning which has been disrupted by the COVID-19 pandemic. Since transformative learning liberates and empowers people to question the existing situation, transformative learning enables people to take decisions. The study examined new assessment methods which were adopted to achieve WBL assessments during the COVID-19 pandemic.

LITERATURE REVIEW

Work-Based Learning

Work-based learning is that learning which happens in a real working environment producing real objects and delivering services (UNESCO, 2018). Work-based learning is increasingly being recognised as an effective strategy to promote quality and relevance of vocational education and training (Bahl & Dietzen, 2019, p. 3). This type of learning typically has a dual function to meet the learning needs of the employees and trainees; developing their knowledge, skills, and professional behaviour and meeting the workforce development needs of the organisation (Hondonga and Chinengundu, 2020). Therefore, WBL may include learning undertaken as part of workforce development. TVET learners on WBL acquire main job competencies, soft interpersonal skills, and work ethics overtime through, continuous practice, observation and job shadowing on experts in the real workplace (Akoojee, Gewer and McGrath; 2016).

On one hand, the importance of WBL is in providing intensive workplace related training, producing job-ready graduates, and avoiding mismatch of graduate skills and those needed for work (Mabhandu, 2016). On the other hand, learning on the job increases employability of graduates on completion of training as they would qualify with some hands-on experience (Dean and Campbell, 2020). The exposure to real work during WBL durations affords learners to get work experience which cannot be gained through purely school-based vocational education training. Since WBL contributes to a qualification, it must be structured with defined durations and assessments. This study examines how workplace learning is assessed in Botswana especially during the COVID-19 pandemic.

Work based learning comes in different models with different names. The different names are reflected in the different ways of work-based learning implementation. For example, common nomenclature of WBL in Botswana include Work-Based Learning, Apprenticeship, Recognition of Prior Learning (RPL), Internship and Workplace Learning (UNESCO, 2018). In Zimbabwe, different names such as, Apprenticeship, Traditional Apprenticeship, Industrial Attachment, on- job training, and Work- Based Learning are commonly used (Mabhandu, 2016). A variety of names in South Africa (SA) are also used to differentiate the forms of WBL and these include, Apprenticeship, Work Integrated Learning (WIL), Workplace Based Experience, Internship, Learnership, and Artisan Recognition of Prior Learning (UNESCO, 2018). The different models and names vary depending on country specific contexts, training pathways, and traditions.

European Commission (2013) states that, in Austria and Germany, alternate schemes and apprenticeships are common. These approaches are based on integration of companies and training providers together with VET schools. Alternance of training venues can take place on varying durations which can be on weekly, monthly, or yearly basis. The model is characterised by high intensity of work skills on real- life work situations.

In Botswana, several skills development models are in place and they all have emphasis on WBL for students to acquire the necessary competences needed for work. For instance, the Brigades system of education and training ushered in 1963 has an underlying philosophy of Education with Production (EWP) and emphasises that learners should acquire skills on the job (Akoojee, McGrath, 2006, p. 53). EWP was meant to integrate the component of training with production and skill acquisition balanced with academic education, putting emphasis on learning by doing, integrating theory and practice, and between subjects. The curriculum operates with 70% practical and production to 30% theory work in the institutions (Akoojee, *et al.*, 2016). Apprenticeship programmes in Botswana have alternating institutional and work-based learning. Currently, apprenticeship in Botswana follows a 3-3-6 model of initial 3months institutional theory learning followed by 3 months of practicals in the institutional workshops (Curriculum Based Modular Training-[CBMT]), and then 6 months on work-based learning in companies (*ibid*) This model repeats itself from first year to fourth year. All other TVET programmes in the country have varying durations of work placement. Similarly, workplace training in neighboring Zimbabwe is offered on alternating schemes between the TVET institutions and companies (Munetsi, 2016). In South Africa (all students from TVET and other occupationally directed programmes must go through work integrated learning (WIL) to acquire occupational skills, workplace behavioural skills and establish workplace connection (Department of Higher Education [DHE], 2013).

Policy Framework and Legislation for Work-Based Learning

Many countries do not have specific workplace policies and rely on their overall country TVET policies (UNESCO, 2018:8). Policy and legislation are important to formalise and regulate work-based learning and making it an integral part of the skilled human resource development of a country (Barabasch, 2017). Okarafor and Nnajofofor (2017) noted that in most developing countries TVET policies are divorced from the actual implementation. Major policies that shaped the TVET policy in Botswana are The Revised National Policy on Education (RNPE) 1994, National Policy on Vocational Education and Training (NPVET) 1997 and, the Vocational Training Act (VTA) 1998 (Government of Botswana, 1994; UNESCO, 2018). The Human Resources Development Council (HRDC) in Botswana coordinates WBL, it also promotes WBL by reimbursing employers who incur costs of training apprentices or their own employees. However, WBL in Botswana is not examinable to all TVET programmes but it adds value to learner skills by equipping them with the necessary skills for work to improve graduates' employability, hence it's a common component in several TVET programmes.

Financing of Work-Based Learning

Funding for work-based learning (WBL) in Botswana is predominantly government driven and augmented by levy system (Bothhale, 2019). The amount of the levy paid by companies in Botswana is based on the annual turnover, and the fund is entirely managed by the Human Resources Development Council (HRDC, 2017). The levy was introduced in 2014 and is collected by the Botswana Unified Revenue Services (BURS) who in turn forward it to HRDC. Company levies are used to fund WBL activities such as paying students work-placement allowances, buying tool kits and big machinery for training institutions (Bothhale, 2019).

Work-Based Learning Assessment

Work-based assessment is that assessment done in a workplace setting (Race, 2009). As such, tools and methods used for WBL assessment can be defined by *what is to be assessed*, whether application of content learnt, the process of learning or both (Barabasch, 2017). A range of different methods can be used to assess achievement of work-based learning (Norcini and Burch, 2007); for example, assessment can be done through:

Ungraded Self-assessment: often formative rather than summative and should promote reflection on the learning undertaken. In this case trainees capture their daily/weekly operations to reflect what they learned and comment on how well they performed the tasks. Learners have a chance to measure and critique their own performance or understanding.

Assignments and projects: any task must be directly linked to the learner's work content and context and, as with all assessment, include clear criteria. Learners can have prepared tasks that must be performed in the workplace.

Reports: these can relate to distinct aspects of the work-based learning and can be designed to develop the skills of writing as well as measure the veracity of the content.

Portfolios: portfolio assessment comprises of a focused collection of work and can be used to achieve two distinct purposes: a developmental portfolio, if organised to show student learning or a showcase portfolio, if based on samples of a student's best work. Ideally the student will be involved both in select-

ing the work and deciding the criteria that are used to judge the work. In addition, the portfolio should include evidence of student self-reflection on the content and process. Race (2009) provides advice on the use and assessment of portfolios:

- Specify or negotiate intended learning outcomes clearly.
- Propose a general format for the portfolio.
- Specify or negotiate the nature of the evidence which students should collect.

Oral presentations: the use of oral presentations at the end of the work-based learning allows the learner to demonstrate communication skills as well as presenting their findings and understanding of a project or tasks performed during the WBL.

Logbooks/ Learning journal / learning log: Logbooks should be developed by both institutional instructors and work-based supervisors to guide assessment of WBL. Assessment criteria should cover both occupation-specific technical, generic, and transferable skills that support occupational mobility and career development. Such logbooks must be kept and maintained by WB learners as they are used to note down the tasks they have performed and record key stages of achievement for assessments (ILO, 2018). For instance, British Columbia uses mobile logbooks (also called Skills Record) which allows for peer learning from logbooks over and above the recording of tasks performed by learners.

Work-based assessments allow for inclusive assessment methods to be made possible especially in situations where trainees work in companies that cater for the disabled employees (ILO, 2013). It is acknowledged that companies are more likely to provide a more enabling environment for persons with disabilities in the workplaces than training institutions and it is better therefore, to allow company-based supervisors to assess disabled TVET trainees in the same environment and workstations with specialised equipment which may not be available in training institutions and provisions for better performance (ILO, 2016).

Quality Assurance of WBL

In this context, quality assurance refers to all policies and processes done to ensure adherence, sustenance, enhancement of quality and competitiveness in the provision of vocational skills development during work based learning to meet international expectations (BQA, 2020; Barabasch, 2017). This includes registration and accreditation of training institutions, companies who want to host trainees, workplaces, programmes, assessors and moderators, and assessment processes up to certification of successful learners. Quality assurance processes are done to ensure quality training standards and graduates, and protection of learners. For example, company accreditation is important as a quality assurance process to enhance effectiveness of WBL. This accreditation of companies is done to ensure that companies demonstrate that they will be able to supply highly skilled, knowledgeable, and competent graduates (EC, 2013; Barabasch, 2017). The employer must confirm that they can host the learners over and above other reasons such as suitability of the workplace premises in terms of health and safety, availability of equipment and experienced workers, training structures in place and policies to sustain such intentions of skills development. Barabasch (2017) emphasises that quality assurance can be achieved and sustained by developing and applying quality standards, developing, and applying procedures for quality assessments, developing procedures to implement quality standards and recommendations, and monitoring

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quality improvement progress. Therefore, it is important therefore, to have quality assurance processes to effectively support work-based assessment.

Online Assessment of Work-Based Learning

Since blended learning enables learning from more than one venue and using more than one method, TVET skills training by its nature can also be assessed from different venues: the school for theoretical assessment, and the workplace for practical assessments (ILO-UNESCO-World Bank, 2021). The institution must properly coordinate all points of assessment until certification of the learner. This entails either to give the role of assessing workbased learners to experts based in the workplaces on one hand, or to use online assessment methods. For example, this assessment responsibility could be assigned to the immediate supervisors of workbased learners who could assess and in turn transmit the assessment decisions to the institution through computer based platforms (Hartel, 2017). Proponents of online work-based assessments like Hartel (2017) point out that in-company trainers are ideal persons to be engaged in assessing practical activities in the workplace since assessments can be arranged within the normal working routines of the company. This arrangement offers a great deal of flexibility to be adopted to suit local company arrangements of infrastructure, as well as work arrangements and learner assessment readiness (International Labour Organisation [ILO], 2020). Involving industry experts as examiners can help to ensure the credibility of the certification. In any case, hosts of learners on WBL are also important stakeholders to the skills development agenda in TVET (Barabasch, 2017). A better understanding of innovative tools and procedures to assess WB learners during the COVID-19 pandemic helps to curb the effects of the pandemic on assessment procedures.

Effects of COVID-19 on Assessment of Work-Based Learning

It is well acknowledged that the COVID-19 pandemic prompted the need to reduce physical presence of many people from getting into workplaces even where learners are involved on work-based learning. This has threatened the formative assessment that need to be carried to check students' progress whilst they are on WBL. For instance, the ILO-UNESCO-World Bank (2021) survey found that in some countries work placements were cancelled, rescheduled, or postponed due to the lack of coordinated response to the challenge of incorporating WBL and their assessment in distance learning. For example, in Armenia, Australia, Austria, Finland and New Zealand, some workplaces not affected by COVID-19 remained open and trainees could continue with work-based learning tasks (ILO-UNESCO-World Bank, 2021:11). Whilst work-based learners could continue with working and learning in the workplaces under strict health restrictions, their competences and skills development needed to be assessed to meet course requirements.

Although companies limited easy accessibility into their workplaces to external WBL assessors, it remained imperative for work-based trainees to be assessed. In countries like Botswana, college- based assessors have not been able to travel across the country to visit companies due to inter-zonal travelling restrictions imposed during the pandemic to reduce the spread of COVID-19 (BQA, 2020). This scenario prompted training institutions to adopt novel, but flexible, inclusive, and sustainable assessment options dictated by the prevailing situation and country level covid-19 protocols as the crisis unfolded together with an urgent need for improved resources to meet new assessment methods. Therefore, this study examined assessment tools and procedures for work-based learning assessment implemented by TVET institutions in Botswana during the pandemic times.

Young people were particularly hard hit by the disruptions to WBL assessments especially those who were learning jobs or those who were about to enter the labour market (ILO-UNESCO-World Bank, 2021, p.11). Several trainees did not generally move into unemployment but, rather, dropped out of the labour force, or delayed their entry into it due to disruptions to TVET assessment and training activities highlighting the all too real risk of a lost generation (ILO Monitor, 2020). Although over two-thirds of training is now being provided on distance learning, often online, few low-income countries have actually made that transition. A better understanding of innovative tools and procedures to assess work-based learners during the COVID-19 pandemic helps to inform policy makers concerning assessment procedures to improve the recovery of VET in and post the COVID-19 pandemic.

Role of ICT and 4IR Tools in WBL Assessment

The information and communication technology (ICT) sector has a role in enabling and supporting skills development systems by increasing the efficiency of teaching and assessment processes. For instance, ICT tools can allow for the transmittance of assessments before and after they have been administered (Reaves, 2019). Digital innovation describes how technology enables new forms of teaching and learning, including new pedagogies. Training systems must adopt Fourth industrial Revolution (4IR) tools in teaching and assessment processes and be used as a link to connect and allow communication between the training school and workplace learning venues in real time (Rajab, Nomvete, Manda & Keevy, 2020). Several studies acknowledge that 4IR has improved the responsiveness of educational systems to emerging trends and times like pandemics (Hondonga, Chinengundu & Maphosa, 2021; Oke & Fernandes, 2020; Salmon, 2019).

Online assessment requires shared responsibility between training institutions and companies hosting trainees. This improves and encourages effective communication and close cooperation between the enterprise and the TVET institution, as well as a detailed feedback and evaluation mechanism for assessment of WBL (ILO, 2020). Distance learning options that are dependent on the use of online methodologies based on internet emerge as one possible solution to allow access, capturing and transmitting of assessment decisions between the TVET institution and the workplace. However, this calls for coordinated synergies for the smooth running of the assessment process (Hondonga, et al., 2021). Questions would be raised whether all companies hosting students have the internet and human resources to handle the responsibility required by assessing WBL online? Do companies have dedicated people to deal with trainees' assessment? Are company work-based assessors trained and accredited to carry out assessments?

DATA ANALYSIS AND DISCUSSION

This study presents the empirical findings from six private TVET colleges in Botswana. The study focused on examining WBL assessment tools and procedures adopted during COVID-19 pandemic, institutional response strategies, challenges and lessons learned from this experience. It also focused on assessor skills like, training, accreditation, and experience. The methodology of collecting data was an online survey using Google forms to effect social distancing. The respondents of this study, who were selected purposefully were, 21 institutional lecturers, 4 workplace coordinators in the institutions, and 2 assessors. The total number of respondents who completed the questionnaire were 27 out of the 50 that were distributed via email. It was a 54% response rate which is fair considering the costs of data as-

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sociated with online surveys. From the survey, it was established that all the programmes in the private colleges had a WBL component which was mandatory in most (96.3%) of the colleges.

Assessor Skills

As shown in Table 1, 74.1% of respondents indicated that they were trained and registered assessors with Botswana Qualifications Authority (BQA). The results show that there were experienced assessors with experience ranging from five years to over twenty years. Also, 77.8% assessed WBL, 18.5% did not always assess and 3.7% did not do WBL assessment. Findings indicate that WBL assessment was normally done by college-based assessors n=19(70.4%), n=15 (55.6%) work-based assessors whilst n=1(3.7%) self-assessment by learners.

Table 1. Assessor training, registration and experience

	Frequency	%
Training		
Trained assessors	20	74.1
Not trained	18	66.7
Registration with Botswana Qualifications Authority		
Registered with BQA	20	74.1
Not registered	7	22.9
Experience of Assessors		
0-5 years	13	48.1
6-10 years	9	33.3
11—15 years	3	11.1
16-20 years	0	0
Above 20 years	2	7.4%

Methods of WBL Assessment Before the Pandemic

Most n= 14 (51.9%) institutions normally assessed WBL using observations of trainees in the workplaces by workplace assessors as shown in Table 2. Other popular ways of assessing WBL normally used by institutions were; observations of trainees in the workplace by lecturers n=11(40.7%) and trainee reports on completion of their WBL n=11(40.7%).

Mode of Transferring WBL Assessment Information between Institutions and Workplaces

According to the results in Table 3, most institutions and workplaces communicated manually n=12 (44.4%), followed by online platforms n=9 (33.3%) and then telephone n=8 (29.6%).

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Table 2. Method normally used by the institutions to assess work-based learning? (n=27)

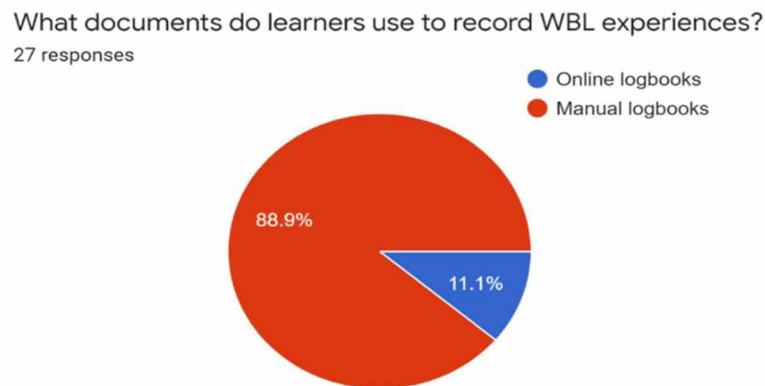
	Frequency	%
Observations of trainees in the workplace by lecturers	11	40.7
Observations of trainees in the workbased by workplace assessors	14	51.9
Through evidence collected by trainees	6	22.2
Students completing task sheets provided by the college	8	29.6
Students reports on completion of WBL	11	40.7
Presentations by trainees when they return to college	6	22.2

Table 3. Methods of transferring assessment information

	Frequency	%
Using online platforms	9	33.3%
By Telephone	8	29.6%
Courier	1	3.7%
Manually	12	44.4%

Most institutions are still using their old assessment tools and methods as indicated by n=24 (88.9%), whilst n=3 (11.1%) use online logbooks showing little transformation from the usual assessment methods.

Figure 1. Assessment methods used during COVID 19 pandemic



WBL Assessment during COVID-19 Pandemic

The majority of respondents (73.1%) indicated that delivery of work-based assessment was affected by COVID-19 whilst 23.1% indicated that WB assessment was not affected. This had an impact on completion of courses by students since WBL was a mandatory component for course completion. According to the

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findings most TVET institutions closed as a measure to counter the spread of COVID-19. Some institutions closed completely, others partially in specific regions whilst others stopped certain activities during the COVID-19 pandemic. A few institutions remained open while observing World Health Organisation (WHO) protocols. The respondents cited the following effects of COVID-19 on assessment of WBL:

- Practical skills could not be assessed since companies had closed
- Trainers could not visit companies due to travel restrictions and curfew
- Some companies had to stop students on WBL as a way of scaling down their workforce to effect social distance
- Equipment had to be aligned to COVID-19 protocols, hence a few students were allowed during practical assessment
- High cost of data affected students' learning since they could not attend tutorials and simulations.

The above scenarios indicate that COVID-19 had a detrimental effect on the assessment of WBL.

The survey established that most institutions (56.6%) continued with their old system of assessment whilst 33.3% indicated that they changed their assessment strategies. Figure 1 indicates that most institutions are still using manual logbooks as indicated by 88.9%, whilst 11.1% use online logbooks showing little transformation from the usual methods. Findings suggest that assessment continued with a mix of both face-to-face and online methods. Some institutions occasionally used online learning platforms for training before COVID-19 pandemic although others did not. On the onset of COVID-19 pandemic, assessment did not go fully online as shown in Table 4. Some of the reasons cited for not going online are:

- To prevent the spread of disease and companies were closed.
- The mechanism for online assessment was not put in place.
- Lecturers were still being trained on the online assessment platforms and tools.
- The students had no access on internet.
- The institution's online tools and platforms were still in their infancy stage.

Table 4. Methods used to assess work-based learning during the COVID-19 pandemic (n=27)

	Frequency	%
Fully remote (online and/or offline assessment, no face-to-face contact)	2	7.4
Partially remote (a mixture of face-to-face, online and/or offline) assessment	12	48.1
No online or offline assessment offered as we continue providing face-to-face assessment	11	40.7
No online or offline assessment as since we had to cancel all training	0	0
I don't know	1	3.8

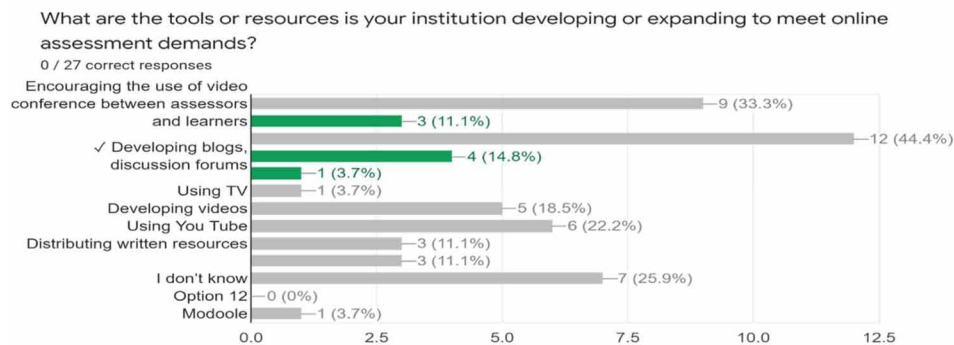
Institutional Response Strategies to COVID-19 Pandemic

According to the findings, 55.6% of the respondents indicated that additional human and financial resources were committed in their institutions to create new materials, deploy new technologies and/or

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expand the use of online and offline WBL. Figure 2 shows that, as for the development and expansion to meet online assessment demands, the most common tools or resources used were video conference such as blogs, discussion forums, videos and Youtube. To a lesser extent, tools or resources for offline distance learning were also being developed and expanded, which includes new written resources such as self-paced learning guides and learner notes.

Figure 2. Tools and resources needed to meet online assessment requirements



The assessment strategies implemented by institutions to respond to a health crisis like COVID-19 had been designed before in some institutions but other institutions started from scratch. For example, lecturers had already been trained on online teaching. Some institutions had introduced a new Academic Data Management System, Academia, which could be used for data capturing and retrieval. The same has facilities for teaching and learning online. Others had also acquired some smart boards that would also support teaching and learning online. The online learning platform had since been established before the pandemic and it still continued to grow to allow less contact interactions.

Challenges of Adopting New WBL Assessment Methods

Despite 55.6% of the respondents indicating that additional resources were deployed to create new WBL assessment methods 29.6% said no additional resources were added in their institutions. Furthermore, 74.1% respondents indicated that switching to online strategies remained a challenge since they were not consistent with the strategy before the pandemic, yet 18.5% never used them. The main challenges brought forward by respondents were:

- Lack of resources needed to access online learning services. Both students and lecturers were not provided with resources (laptops and internet connection) to enable efficient participation and gain maximum benefits from online learning.
- Lack of collaborations and designated work-based assessors

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- There were no effective platforms to use for the online WBL assessment.
- There were no proper scheduling of assessment activities between TVET colleges and industry based assessors
- Lack of access to online facilities/tools in both venues, learners and assessors.
- Trainees and lecturers were not flexible to accept change.

Lessons Learned from Assessment of WBL in Pandemic Times

Respondents made a range of observations regarding the lessons learned since the onset on the COVID-19 pandemic:

- Lecturers found it difficult to adapt to new normal since they had not used virtual methods in assessing WBL. The use of online technologies in teaching and assessment should have long been adopted.
- Institutions were exposed in terms of lack of preparedness in terms of resources and training for lecturers.
- Training of TVET assessors and learners on use of new strategies needs to be intensified.
- Lecturers need to be more flexible to create new methods and materials. They also need more training and support to do so.
- There are challenges with the usage of IT and resources are not adequate to cater for both lecturers and students.
- Investments in Technology (including IT platforms for online learning and tools) should be considered and connectivity-related issues should be tackled.
- There is a need to incorporate both online based learning and hands on learning without a cause to action.
- It is not easy to make a quick transition from face-to-face to online learning. It is a process that requires careful planning and preparation. Therefore, after the pandemic, the systems in institutions should be updated and roles and responsibilities should be established and agreed with the students for smooth assessment of WBL.
- Institutions should move to blended learning and invest in online learning. They also must ensure that students have the resources necessary to benefit from online learning for example, laptops and internet connectivity.

Solutions Required by Assessors

There is need to provide training on the use of online assessment methods to ensure that lecturers and assessors observe WHO guidelines during assessment. Institutions need to improve access to internet, unlimited access will enable the communication which is uninterrupted between assessors in workplaces, institutions and learners. However, lecturers/assessors in some institutions were offered an opportunity to purchase computers through the institution's credit. From the respondents' perspective, institutions were not doing enough to support lecturers/assessors to respond to the challenges and to move into online assessments.

RECOMMENDATIONS

From the study, the following recommendations are made:

- Policy responses must prevent long-lasting damage to young people in terms of education/training and labour market prospects.
- Institutions need to provide more flexible WBL assessment tools and methodologies.
- There is need to make a thorough study on the impact of the pandemic on TVET training activities in different sectors and give more focus on training more young people in areas which were hardhit by the COVID-19.
- Additional resources must be deployed for research to rethink, rebuild and find suitable WBL assessment methods going forward if VET has to recover.
- There is need for more collaborations and memorandum of understandings (MOUs) between TVET colleges and workplaces to open up WBL opportunities.
- There must be improved coordination and scheduling of assessment activities between TVET colleges and workplaces.
- Botswana Qualifications Authority (BQA) must do more on quality assurance processes on WBL. There are still several assessors practicing without accreditation and registration both in TVET schools and workplaces, yet *all eyes* are on TVET to equip learners with the requisite competences needed for employment.

FUTURE RESEARCH

There is need for further studies to check on the efficacy and sustainability of innovative assessment methods adopted for WBL and how challenges are mitigated. Other studies can focus on policy shifts that assist transformation of assessment strategies, and factors that either promote or challenge effective transformation.

CONCLUSION

The chapter has brought to the fore the importance of WBL in training TVET students. In conformity to the Transformative Learning theory, the study established that there is need for transformation of assessment innovations in TVET institutions based on information technology and fourth industrial revolution (4IR) to assess work-based learning which has been disrupted by the COVID-19 pandemic. Empirical evidence from the study established that, though the pandemic has created many opportunities for more technological teaching and learning interactions online, its impact on assessment of practical skills development virtually remains a challenge. To comply with COVID-19 protocols, training institutions are challenged to revisit their assessment tools and procedures of WBL during such pandemics. Despite having qualified and accredited assessors, assessment of WBL during the COVID-19 pandemic exposed a number of challenges. Lecturers were not well versed in using online assessment tools, hence most of them kept to their old ways of assessing WBL trainees. From the study, it can be gleaned that there is need to train lecturers in digital skills, use of new assessment methods and pedagogical tools

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for effective assessment of WBL. This study also established that, institutions which were infrastructure ready, were able to transit smoothly to online assessment of WBL though with minor challenges. Therefore, TVET institutions need to plan for the post COVID-19 pandemic to avoid implementing reactive measures which are detrimental to the training of future workforce (Reaves, 2019). Laboratory tools for the development of practical skills are lacking and should be developed. There is need for alignment of online provision with skills assessments and forecasts. Collaborations between workplaces and training institutions on WBL activities including assessment is not robust in Botswana and needs to be improved together with coordination of assessment procedures so as not to delay trainees from completing WBL components even during post COVID-19 era.

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KEY TERMS AND DEFINITIONS

Accreditation: Is when a qualification is officially accepted or approved as being of a particular standard.

Assessment: A tool used to determine performance.

Assessor: A person who can make a decision on observed behaviour and/or performance.

Botswana: Is a landlocked country in Southern Africa. It is bordered by South Africa to the south and south-east, Namibia to the west and north, and Zimbabwe to the northeast.

Competence: This is an internalised observable skill displayed by a person who has mastered a way of doing something in a particular area.

Skill: A type of work or activity which requires special training and knowledge.

Work-Based Learning: Work-based learning is that learning which happens in a real working environment to develop trainee job knowledge, skills, and professional behavior. It includes learning undertaken as part of workforce development in an organisation.

Workplace: This is the place where a trainee takes a stint to practice and gain practical job skills and a place where assessment can be conducted.