



MANDELA MINING PRECINCT
MINDS FOR MINES

Guideline:

DIGITAL LITERACY - FOR ENHANCING ADULT EDUCATION & TRAINING (AET) AND YOUTH PROGRAMMES (SKILLS)

SATCAP 2021

About the Mandela Mining Precinct

The Mandela Mining Precinct is a Public-Private Partnership between the Department of Science and Innovation and the Minerals Council South Africa. The Precinct is jointly hosted by the Council for Scientific and Industrial Research and the Minerals Council. The Mandela Mining Precinct is an initiative aimed at revitalising mining research, development and Innovation in South Africa to ensure the sustainability of the industry. This is achieved through the South African Mining Extraction, Research, Development and Innovation (SAMERDI) strategy.

The strategy comprises six research programmes:

1. Longevity of Current Mining;
2. Mechanised Mining Systems;
3. Advanced Orebody Knowledge;
4. Real-Time Information Management Systems;
5. Successful Application of Technologies Centred Around People; and
6. Test Mine.

This guideline was developed under the Successful Application of Technologies Centred Around People (SATCAP) research programme. The programme is aimed at understanding the effects, impacts and challenges of mining modernisation on people in the minerals sector.

ISBN number: SATCAP 2021WP2.1

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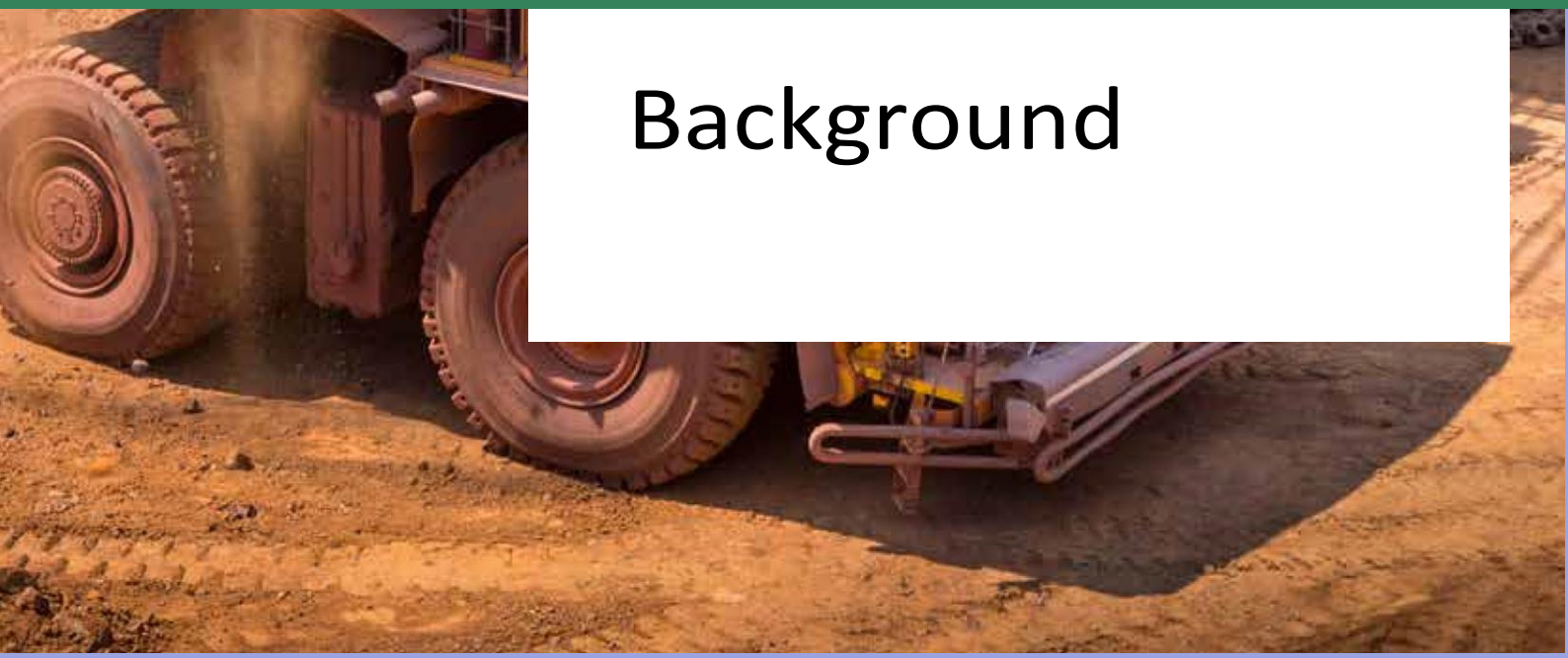
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CHAPTER 1

Background



The Mandela Mining Precinct has commissioned ‘people-related’ research work through the Successful Application of Technology Centred Around People (SATCAP) research programme.

For 2021-2022, the Successful Application of Technology Centred Around People (SATCAP) research programme had focus on skills needs for a modern workforce. The research work was related to immersive learning experiences to support modern training for modern mining. The studies have considered engaging learning contexts that are virtually and physically interactive, allowing for learners to be immersed in the learning experience.

This research project considered the development of digital literacy skills in the mining workforce and local community to support the process of mining modernisation. The focus of was the development of digital literacy capacity in mineworkers enrolled on Adult Education Training (AET) programmes and youth from mining impacted communities engaged in training. Without adequate education and digital experience both of these target audiences are vulnerable in a mining modernisation process; either because their jobs are under threat because they do not fit the profile of the future mineworker; or because modernisation may mean there is fewer work opportunities at the local mine for young people who lack the relevant skills. In order to close this gap, this project examined how digital literacy skills can be enhanced. Specifically, the project set out to deliver an exemplar e-digital literacy training module (at NQF level 4 assumed- nothing that the level may vary) for enhancing of existing AET/ community programmes.

The project was funded by the Department of Science and Innovation (DSI), as part of the Successful Application of Technology Centred Around People (SATCAP) programme, in support of the South African Mining Extraction Research, Development and Innovation (SAMERDI) strategy. The project was conducted by Wits University. The project comprised Work Package 2.2 “Skills” for the 2021 financial year.

1.1 AIM AND SUMMARY OF THE PROJECT

The **aim** of the project was to deliver an exemplar e-digital literacy training module (at NQF level 4 assumed) for enhancing of existing AET/ community programmes.

Given the rapid pace of modernisation more generally, and the impact of this on the workplace, employees and mining communities, there is an increasing need for digital literacy skills. The Mandela Mining Precinct commissioned this research to investigate options and demonstrate the art of the possible for digital literacy training for AET learners and as part of the mines’ youth programmes, through an exemplar training module.

1.2 SUMMARY OF RESEARCH FINDINGS

1.2.1 DIGITAL LITERACY

The research found that the development of digital literacy amongst the target group for the study is best encouraged by providing access to devices and data. Currently mineworkers and youth really only have access to smart phones, and these may be shared and often short of data. This reality limits the organic development of skills through trial and error.

Research findings indicated that there is openness amongst the target group to becoming digitally literate because for AET learners and youth, digital skills are associated with improved opportunity for work and promotion in the workplace. However young women were not aware that a modernised mine greatly improves their prospects for employment in the future. There is an enormous opportunity to strengthen digital literacy training by applying adult learning principles that integrate digital skills into the priority needs of adult learners which in this case is work readiness.

Five key digital literacy skill areas were identified, these are used to frame existing educational products available in Africa and worldwide. The main skill areas are:

- Find information online – such as doing a google search;
- Communicate online – by talking over zoom, Microsoft teams or WhatsApp;
- Create digital content – such as posting on Facebook or making a TikTok video;
- Collaborate and manage content digitally – such as storing information in the cloud on dropbox or working on the same document in Microsoft onedrive; and
- Participate safely and responsibly online – such as knowing about online abuse.

Currently there is no SAQA registered skills programme/qualification for digital literacy. The only available programmes are for computer skills and these were judged to be largely out of date. While there is overlap between computer and digital literacy skills training they are not the same. Computer skills are about how to use a specific device and the related software packages and programmes only.

The choice of digital platform on which to provide digital literacy training should be informed by a number of criteria. These include the capacity of the IT department and in particular the time available and knowledge to customise source code; the kind of support that can be offered, both by the provider of the open-source platform, as well as to the end-user; the devices that will be used for example, mobile device for learners on the move, or desktops in learning centres; ability to integrate with other software systems already in use, such as HR software; and the kind of reporting available, for insight on learner performance and course effectiveness.

Key recommendations made are as follows:

- Access to data and devices is vital. The research indicates that the very first step is to make devices and the internet available to youth and AET learners at mine training centres or at centres in the community
- Digital skills training can be included in existing programmes or qualifications. Many of the skills needed for digital literacy are similar to the skills described by SAQA as Critical Cross Field Outcomes (CCFOs). CCFOs are a requirement for all unit standards and qualifications, this means a trainer can introduce digital literacy teaching into their existing courses in any field of study. There is no reason for digital literacy skills teaching to not appear in any course of study.
- Digital literacy training should be integrated into work readiness and job promotion programmes. Mining companies should analyse the current and future specific digital competency needs of specific job strata through a complete skills audit and consider the overall mining value chain for strategic opportunities. The common threads can be identified for a core mine specific curriculum serving digital literacy. Such a curriculum would be practical competencies bridging the skills gap into the digital modern mine
- Mining companies should review and decide on an approach to addressing digital literacy needs. There are some well-developed ideas and products in the public and private sector that develop digital literacy skills. The research identified three options:

1. Microsoft Office 360 training suite

This product is primarily for the youth. By registering on the SA Youth.mobi app (SAYouth.mobi) any young person between the ages of 15-35 can access these Microsoft training course. The site is zero rated for data and designed for a use on a smart phone. Once a person is registered, the SAYouth.mobi site provides access to training on basic digital literacy skills and access to the Microsoft Office 360 training suite. Once a course is completed then learners get a certificate. Young people registered on this site are also automatically registered on a national database for further employment opportunities.

2. Pearson Digital Literacy Citizenship course

The second product available to a mine is the Pearson Digital Literacy Citizenship training programme. The Digital Literacy Citizenship course is developed by Pearson and covers the same five digital skill areas highlighted in this research. The Pearson course costs between R500-R700 per learner depending on how many learners are registered at a site. The course appears appropriate for both AET and youth learners. The course is not designed to be used on a smart phone, therefore tablets or laptops must be made available to support learning. The Digital Literacy Citizenship Course has three levels: Beginner, Everyday, and Savvy. The course is designed as 100 hours learning in total. There are many interactive questions, learning points and exercises. The Digital Literacy Citizenship course is endorsed by SACE and participants can earn 15 CPTD Points.

3. Customisation

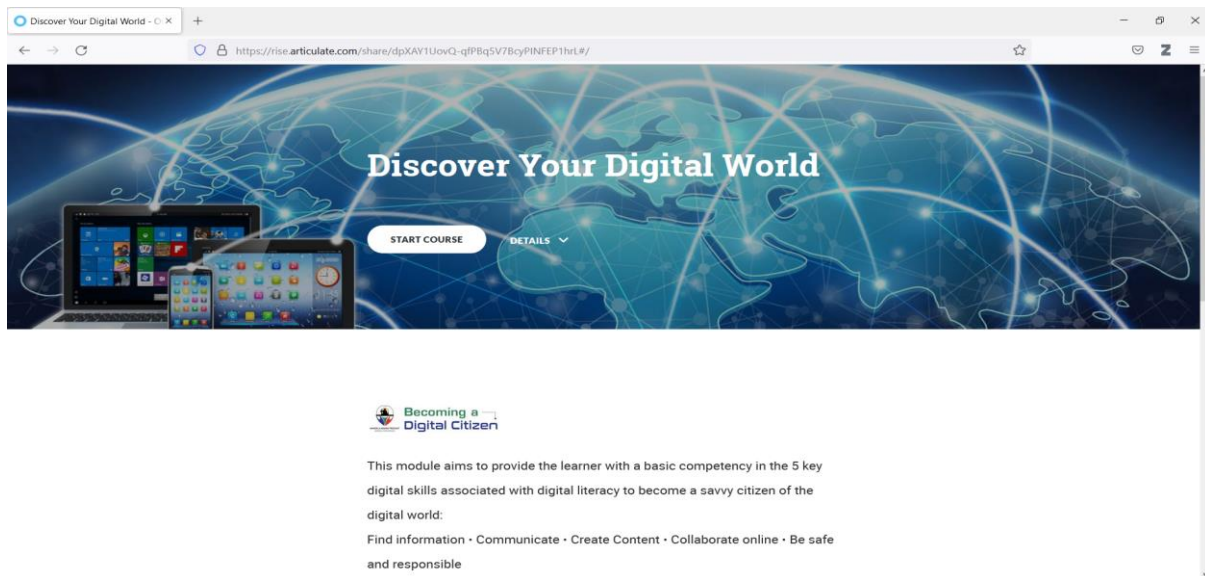
There are currently no products in the South African market that talk directly to the development of digital skills within the mining space. This means that there is opportunity in the market for the development of a mining specific module. To be successful this module must apply research insights about what is important, such as utilising adult learning principles and integrating digital learning into the context of work readiness and promotion. There are several advantages to customised training programmes, the main one being that a new course can address the specific challenges faced by mining communities and mineworkers. Another advantage is the course can be tailored to fit with an existing programme. However, considerable capacity and resources are necessary to develop a training course and this may prohibit this type of development. It also takes time to develop teaching and learning programmes. These factors should be weighed up before the sector embarks on the journey of customised training.

As part of this project the research team developed an **exemplar module “Becoming a Digital Citizen”** to illustrate the ‘art of the possible’. The exemplar module is accompanied by a **Learning Programme Guide**.

1.2.2

EXEMPLAR TRAINING MODULE

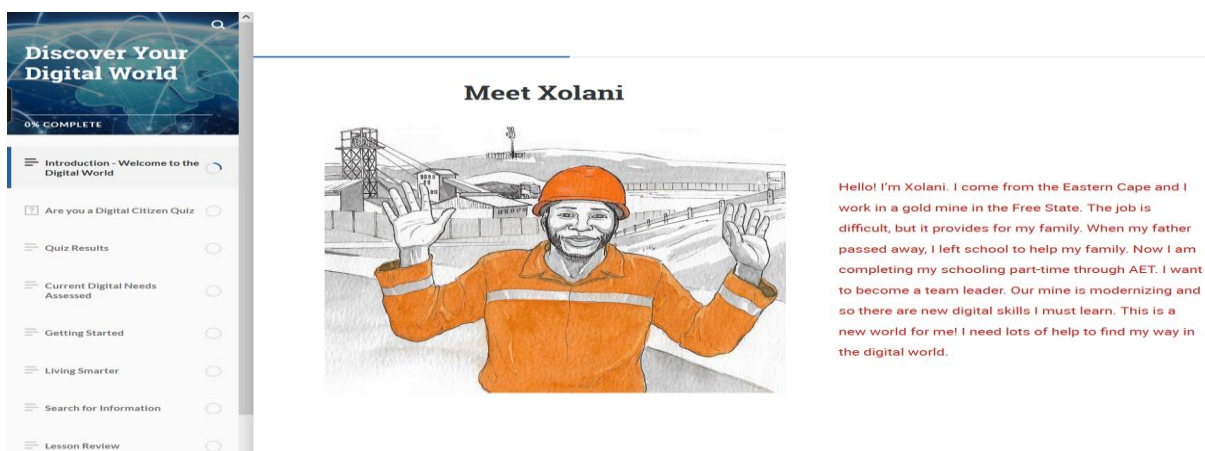
The exemplar training module ‘Discover your digital world’ is available to demonstrate a basic digital literacy training module. The figure below is the landing page for the module



The module uses an easily identifiable character whose story and journey is followed throughout the programme. His name is Xolani and his age is indeterminate to be more relevant to various learners. He is currently a mineworker on a gold mine and is completing his studies via AET. His job requires that he has digital skills as the mine is modernising and he wants to work his way up or improve himself. He starts by becoming savvy on his cell phone. The idea is that lessons are story based to pull people along the learning journey. He meets people, tries new things, encounters problems and has to use digital skills at every step. His world opens up and he gains new knowledge and opportunities.

This approach integrates the authentic story element and empathy to draw our learner in without knowing that he/she is learning. Xolani is introduced to commence the training module.

The module character, Xolani, is introduced at the beginning of the module



The “Discover Your Digital World” Module aims to provide the learner with a basic competency in the 5 key digital skills associated with digital literacy: Find information; Communicate; Create Content; Collaborate online; Be safe and responsible. These competencies focus on the 3 key actions of an online user – Consume,

Create and Communicate. This is done through contextualised learning, adult learning principles applied to online learning and self-assisted practice activities. It can also be customised for hybrid or blended learning modules. The exemplar module focuses on learning outcome 5: Search for Information.

Learning programme guide

Accompanying the exemplar module is a learning programme guide. This provides background to the design of the digital literacy module, the rationale behind the programme, the module framework and the facilitator's guide. This document illustrates the important aspects of a training module, which a mining company can use to guide their requests for training module development via an external service provider.



SATCAP 2021 WP 2.2 Digital Literacy Learning Programme Guide

For AET / Community Youth Portable Skills



Slide deck for training

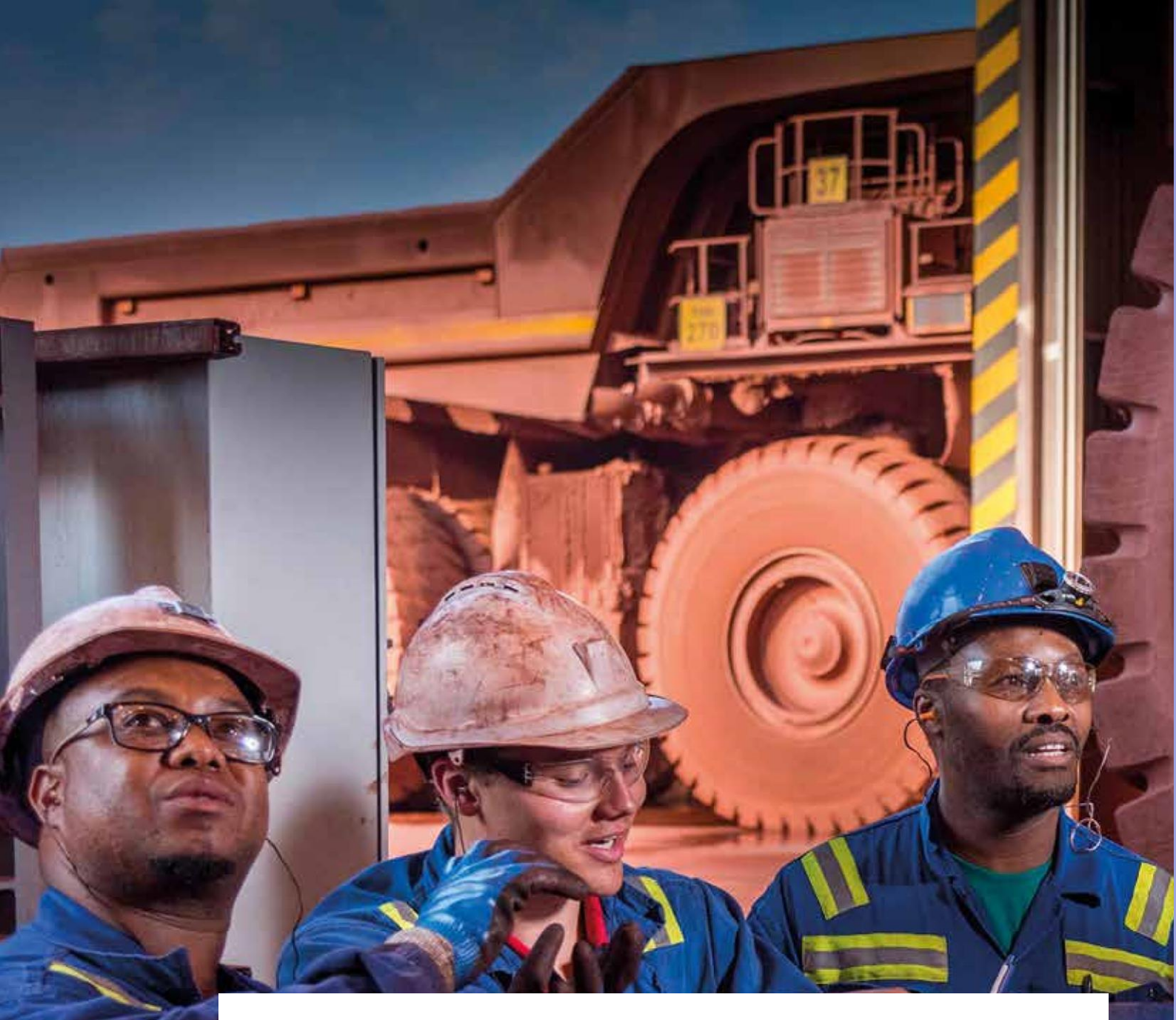
A voiced-over slide deck has been developed to provide an overview of the research and the research findings, present the recommendations and an overview of the exemplar module. The presentation is in the form of a personal story.

1.2.4 VALUE AND TRANSFER TO INDUSTRY

SATCAP has provided 'transfer to industry' training on the exemplar module developed.

A train-the-trainer approach was used so that companies may train their AET trainers, who would be able to impart training further to AET learners. This approach allows for sustainability of training in the company.

Attendees were trained on the exemplar module but were also given capacity on how to access other 'free, on-line' digital literacy supplementary modules, and how to customise their AET training to support learner digital literacy learner needs.



CHAPTER 2

Recommended Training Guideline for
Enhancing AET/Youth Programmes
(Exemplar Digital Literacy Module)

2. TRAINING GUIDELINE

2.1 TRAINING MODULE FOR USE ON MINE

A training guideline recommended for enhancing AET/Youth programmes through a digital literacy module has been developed.

The recommended training guideline includes a 'Discover your digital world' training module, training slide deck and a learning programme guide. A training video is also available.

The training module and learning programme guide may be accessed via the Mandela Mining Precinct's website or the Mandela Mining Precinct's social media platform.

3. CONCLUSION

Given the rapid pace of modernisation more generally, and the impact of this on the workplace, employees and mining communities, there is an increasing need for digital literacy skills. There is no one-size-fits-all solution to digital literacy in mining. Interventions will depend on the mine, existing and required skill needs, employees and available infrastructure.

The recommended training guideline allows for enhancing of AET/Youth programmes through an exemplar training module. The training module may be accessed via the Mandela Mining Precinct's website or the Precinct's social media platform.