



MANDELA MINING PRECINCT
MINDS FOR MINES

SUCCESSFUL APPLICATION OF TECHNOLOGY CENTRED AROUND PEOPLE (SATCAP) - 2021

WORK PACKAGE 2.2: SKILLS

Summary Report



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**MINERALS COUNCIL
SOUTH AFRICA**



MANDELA MINING PRECINCT
MINDS FOR MINES

SAMERDI SATCAP21 WP2.2 - CLOSE-OUT SUMMARY REPORT

Skills – Digital Literacy for enhancing AET and Youth Programmes

Name of Programme	SATCAP	
Programme Manager	Sherin Ramparsad	
Work-package	2.2	Skills – Digital Literacy for enhancing AET and Youth Programmes
Service Provider(s)	Wits Mining Institute	
Project team	Ingrid Watson, Nancy Coulson, Mabilanyana Mandlazi, Charlotte Steenekamp, Zerelde Uys, Jill Milne, Rose Johnston-Fitch	
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PROJECT OVERVIEW

The study has been commissioned by the Mandela Mining Precinct, through the Successful Application of Technology Centred Around People (SATCAP) programme, to Wits University.

SATCAP focusses on the effects, impacts and challenges of mining modernisation on people in the mining sector. For 2021, SATCAP projects considered skills development to support a modern workforce for modern mining. For 2021, as the Successful Application of Technology Centred Around People (SATCAP) programme has a skills-related focus, the work packages (WP) are related to immersive learning experiences to support modern training for modern mining. The aim is to investigate engaging learning contexts that are virtually and physically interactive, allowing for learners to be immersed in the learning experience.

This research project addressed the development of digital literacy skills in the mining workforce and local community to support the process of mining modernisation. The focus of the assignment was the development of digital literacy capacity in mineworkers enrolled on Adult Education Training (AET) programmes and youth from mining impacted communities engaged in portable skills 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 less 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) for adoption by Au/PGM AET programme/ community youth portable skills training.

METHODOLOGY

The research supporting this project involved two case studies of the AET and youth portable skills programmes on two modernising mines; a review of unit standards and skills programmes registered with the South African Qualifications Authority (SAQA), and a review of other digital literacy teaching programmes in the public and private sectors that are not registered with SAQA; and finally a review of eLearning platforms. Based on the findings from these an exemplar e-digital literacy training module was developed and recommendations for digital literacy training for mining modernisation made.

The case studies involved key informant interviews and focus group discussions at two modernising mine, this included interviews with trainers and supervisors of the relevant programmes and mine officials involved with the mine modernisation journey. Focus group discussions were conducted with AET learners and youth at each mine site. A rubric was developed in order to review existing digital literacy training programmes that may have relevance to the mining sector. In all, 13 digital literacy programmes were reviewed. Criteria for the assessment of open-source digital platforms were developed against which these were reviewed. Two Moodle options were reviewed – “Do it yourself” and Moodlecloud. In addition, Google Workspace for Education and Sakai were included in the review.

The applicability of digital literacy solutions for conventional and modernising mines, especially as regards the AET and youth portable skills target groups, was reviewed. The differences would relate to the skills and qualifications of the recipients of the training as well as to the needs and available infrastructure of the mine.

The research deliverables were presented at a stakeholder workshop on 12 January 2022. The session allowed for review and validation of the exemplar module through industry participant inputs. There were 87 attendees in total with around 20 participating in the WP2.2 breakout session. Feedback obtained from the session was incorporated into the training facilitators guide and the research report, one component of the documents that are available to industry, to support the module. The key questions from this workshop centred around access to devices, questioning the feasibility of mines providing these to employees; and the language used in the module, namely English, and whether this was appropriate. The module and report were also presented to the SATCAP Technical Steering Committee.

FINDINGS AND RECOMMENDATIONS

The research found that the development of digital literacy amongst our target group 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. Our research findings found 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 in our study 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** for more detail on how this training module can be used. The exemplar module can be accessed through the RTIMS dashboard.

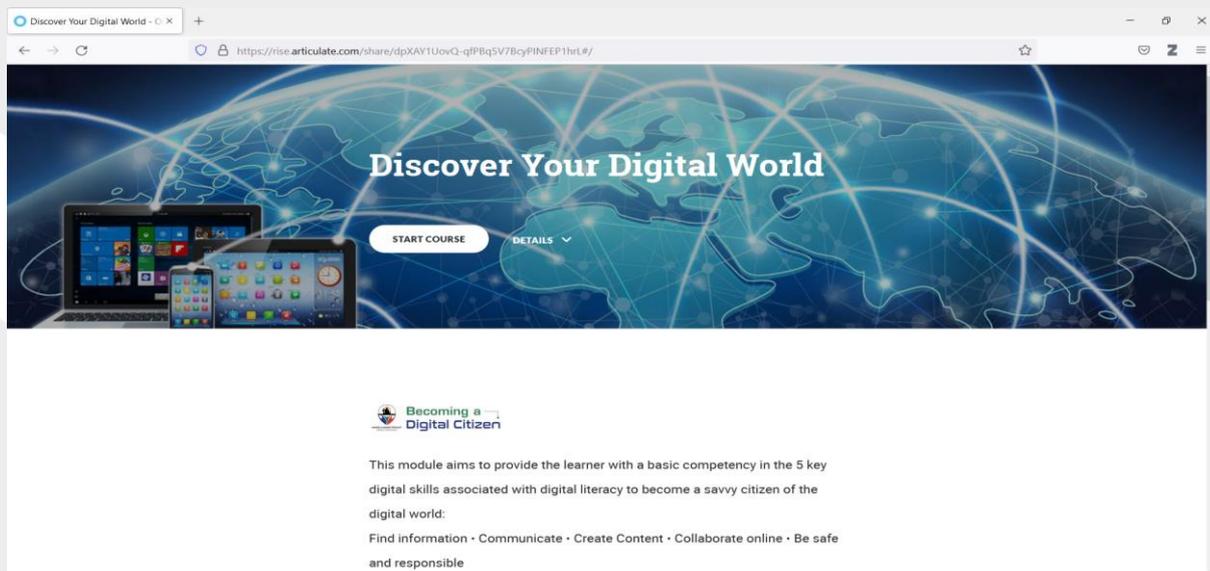
A SUGGESTED SOLUTION AND TRANSFER TO INDUSTRY

This research has a number of outputs that are helpful for industry.

Training module

The exemplar training module ‘Discover your digital world’ is available to demonstrate the art of the possible for digital literacy training. The module can be accessed through the following website <https://rise.articulate.com/share/dpXAY1UovQ-qfPBq5V7BcyPINFEP1hrL/> or through the RTIMS dashboard. The figure below is the landing page for the module

The landing page for the exemplar module “Discover your digital world”



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

Discover Your Digital World
0% COMPLETE

Introduction - Welcome to the Digital World

Are you a Digital Citizen Quiz

Quiz Results

Current Digital Needs Assessed

Getting Started

Living Smarter

Search for Information

Lesson Review

Meet Xolani

Hello! I'm Xolani. I come from the Eastern Cape and I work in a gold mine in the Free State. The job is difficult, but it provides for my family. When my father passed away, I left school to help my family. Now I am completing my schooling part-time through AET. I want to become a team leader. Our mine is modernizing and so there are new digital skills I must learn. This is a new world for me! I need lots of help to find my way in the digital world.

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. In reference to one of the common weaknesses of online/digital learning programmes, adult learning and whole brain principles are often forgotten and the process of learning can be limited or impeded. Therefore the learning programme provides a helpful reminder of the essential details that should be present in any learning programme, specifically digital literacy training. As a result, it can also serve as a best practice model by the mines that can be used to guide requests to service providers

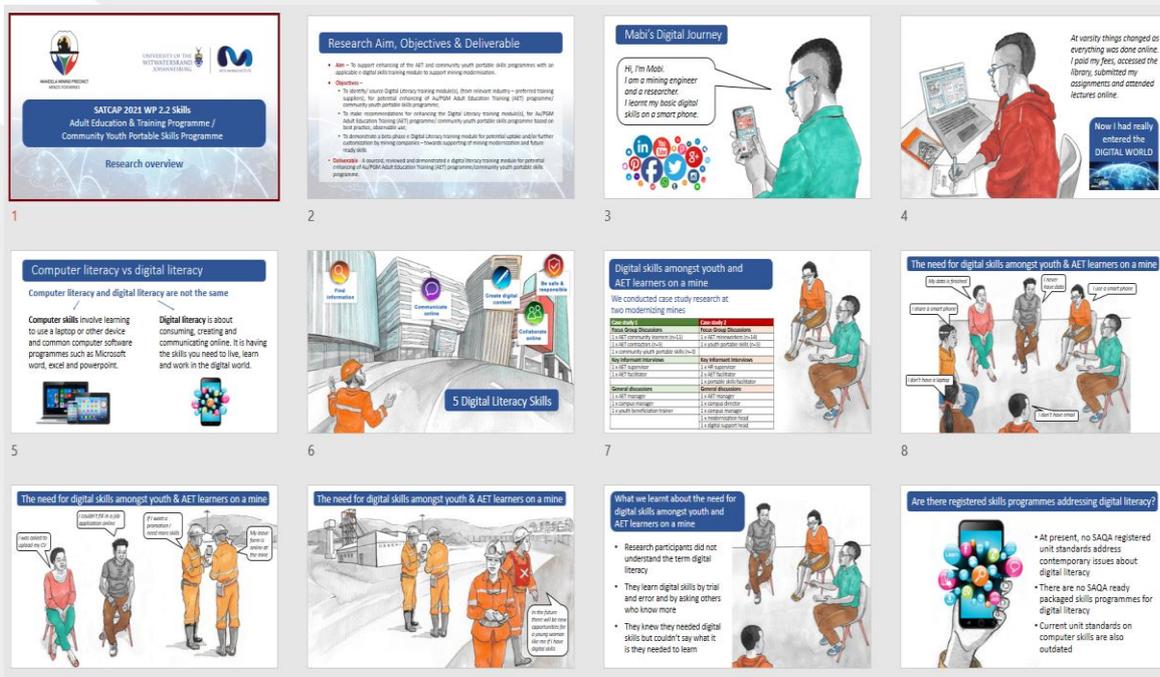
A learning programme guide has been developed to support the exemplar module



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, that of one of the researchers. As already mentioned, stories are an effective way of learning, providing a safe, enjoyable environment for learners to gain skills.

A screen shot of a part of the slide deck providing an overview of the research and findings



Research report for industry and tools

A research report designed to provide users of the various deliverables with a high-level overview of the research has also been developed. This follows the structure of the slide deck discussed above, presented a summarised version of the information provided in this report.

Three tools, developed through the research process, have been designed to assist the industry with assessment of various aspects of the digital literacy training. These are included in this report as annexures and will also be included in the research report. The tools for industry are as follows:

- Tool for assessing existing digital literacy programmes
- Tool for assessing digital platforms
- Adult learning instructional material checklist

CONCLUSIONS

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 portable skills programmes. Based on two case studies, research into existing digital literacy training modules and a review of e-platforms the researchers were able to make identify gaps and make recommendations for industry. These are included in this report.

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. As such three options for training are presented, and an 'art of the possible' exemplar module demonstrated. Mining companies need to consider these, the needs of their operations and engage the relevant service providers or further develop the exemplar module provided.

It was evident from the study that there are numerous existing digital literacy solutions available, some of which allow for 'free' use thereof, which mines may consider use or customisation as per their contexts, and which employees and youth may use for their self-learning.

Digital literacy training, and the provision of infrastructure to support this, may be an important enabler of a second economy in mining communities. This could be considered in mine Social and Labour Plans. Regulator and stakeholder engagement, by mines, may be needed in this regard.