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Technology-Based Learning in the Developing World: A Case Study in the Mining Industry of South Africa

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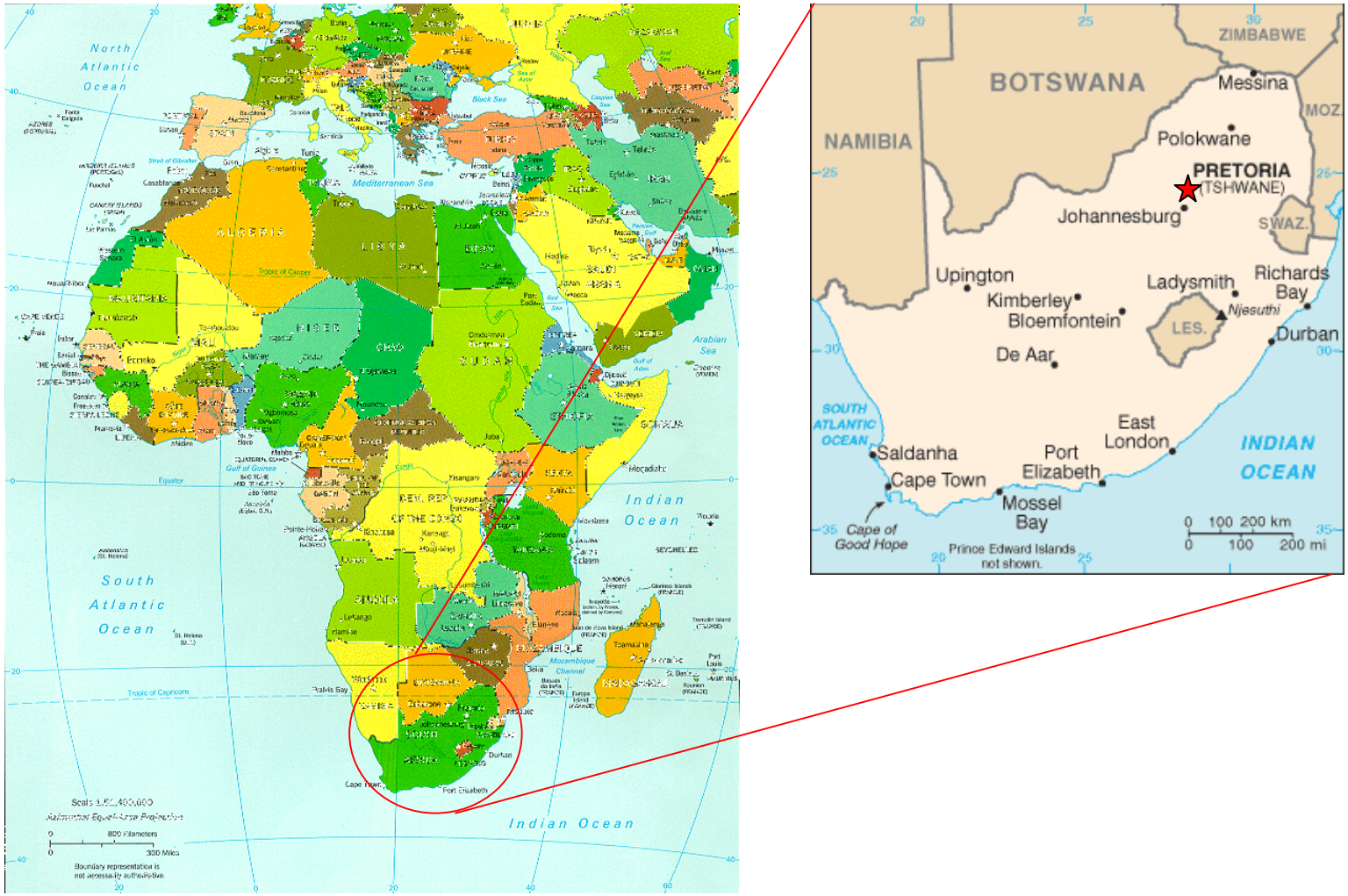
BACKGROUND TO SOUTH AFRICA

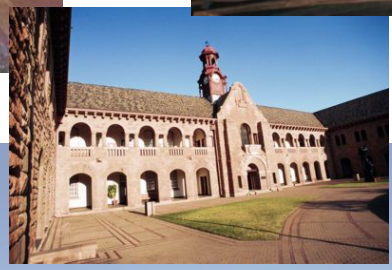
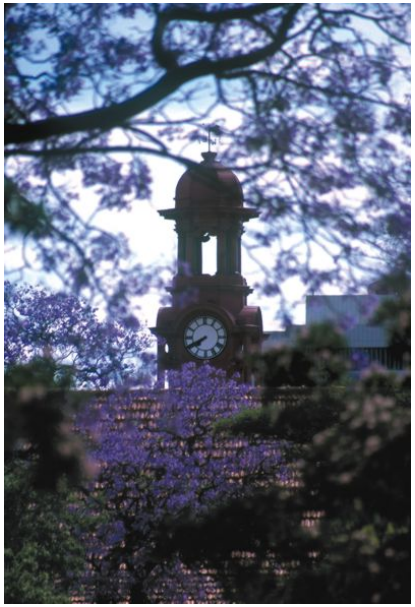
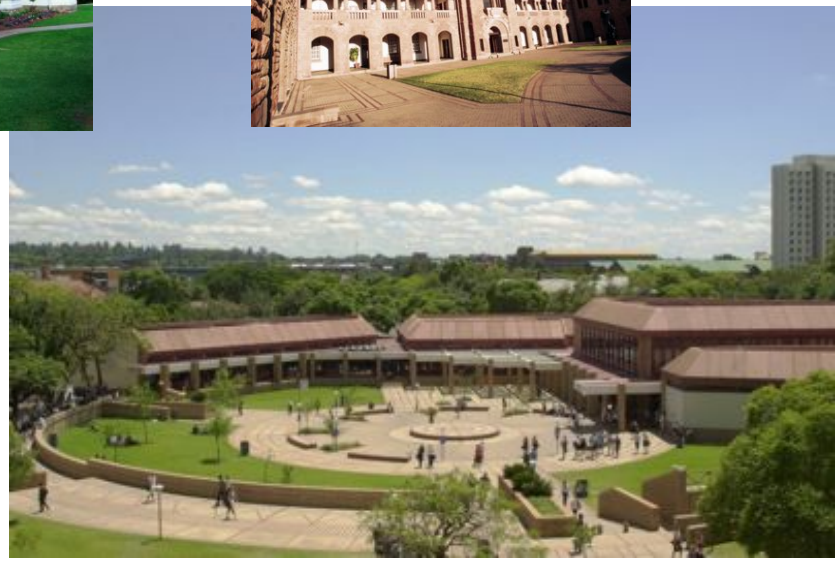


BACKGROUND TO SOUTH AFRICA

- Population: 45 million
- <17 million economically active (2004 est.)
- Ethnic distribution
  - Black African 79%, White 9.6%,
  - Colored 8.9%, Indian/Asian 2.5% (2001 census)
- Language distribution
  - IsiZulu 23.8%, IsiXhosa 17.6%,
  - Afrikaans 13.3%, Sepedi 9.4%,
  - English 8.2%, Setswana 8.2%,
  - Sesotho 7.9%, Xitsonga 4.4%,
  - other 7.2% (2001 census)





Technology-Based Learning in the developing world

- Content
  - Background of mining industry in South Africa
  - Research questions
  - Case study
  - Results
  - Conclusion

Background of mining industry in South Africa

- Mineral industry
  - Gold
  - Diamonds
  - Coal
  - Platinum
  - Vanadium
- Labour sourced from nearby countries
  - Different mother tongues
  - Different education levels
- Enormous training burden to ensure health and safety

Research questions

- Why are developing world countries increasingly replacing traditional learning with technology-based learning?
- How do developing world countries approach technology-based learning?
- How do the current learning technology trends impact on the developing world?
- Do technology-based learning standards play a different role in the developing world?
- Do the requirements and roles of Learning Management Systems differ, and also the approach to Learning Management Systems, in relation to the target group's demographics?
- How do developing world countries approach the development and instructional design of technology-based learning to accommodate non-English speaking and/or illiterate users?

Case study

- Goldfields Kloof Mine
  - More than 1 million ounces of gold per year
  - Between 1000 – 3500 metres underground
  - Own training department
  - 14800 employees
  - Each day 150 – 180 employees attend computer-based learning

Kloof Mine Training Centre

Case study

- Computer-based learning:
  - Standalone software
  - Biometric fingerprint scanners
  - Employees' details and assessments stored in barcode format
  - Testing through multiple choice
  - All text displayed in English and Fanakalo
  - Connected to a learning management system

Results

- Employee profile

	Gender	Age	Home Language	Literate	Highest Qualification	Home Computer
1.	Male	19	Xhosa	Yes	Grade 12	No
2.	Male	20	Xhosa	Yes	Grade 10	No
3.	Male	26	Afrikaans	Yes	Diploma	Yes
4.	Male	27	S. Sotho	Yes	Grade 12	No
5.	Male	27	Zulu	Yes	Grade 12	No
6.	Male	28	Sotho	Yes	Grade 9	No
7.	Male	44	Afrikaans	Yes	Grade 9	No
8.	Male	49	Sotho	No	Grade 4	No
9.	Male	51	S. Sotho	Yes	Grade 12	No
10.	Male	54	Shangaan	No	Grade 6	No

Results

- Employees' preference towards technology-based learning
  - 1. Do you enjoy learning on computers?
    - YES 90%
    - NO 10%
  - 2. Do you prefer learning in a classroom or learning on a computer?
    - Computer 70%
    - Classroom 30%
  - 3. Do you prefer to be tested on a computer rather than in other ways?
    - Computer 70%
    - Other 30%

Results

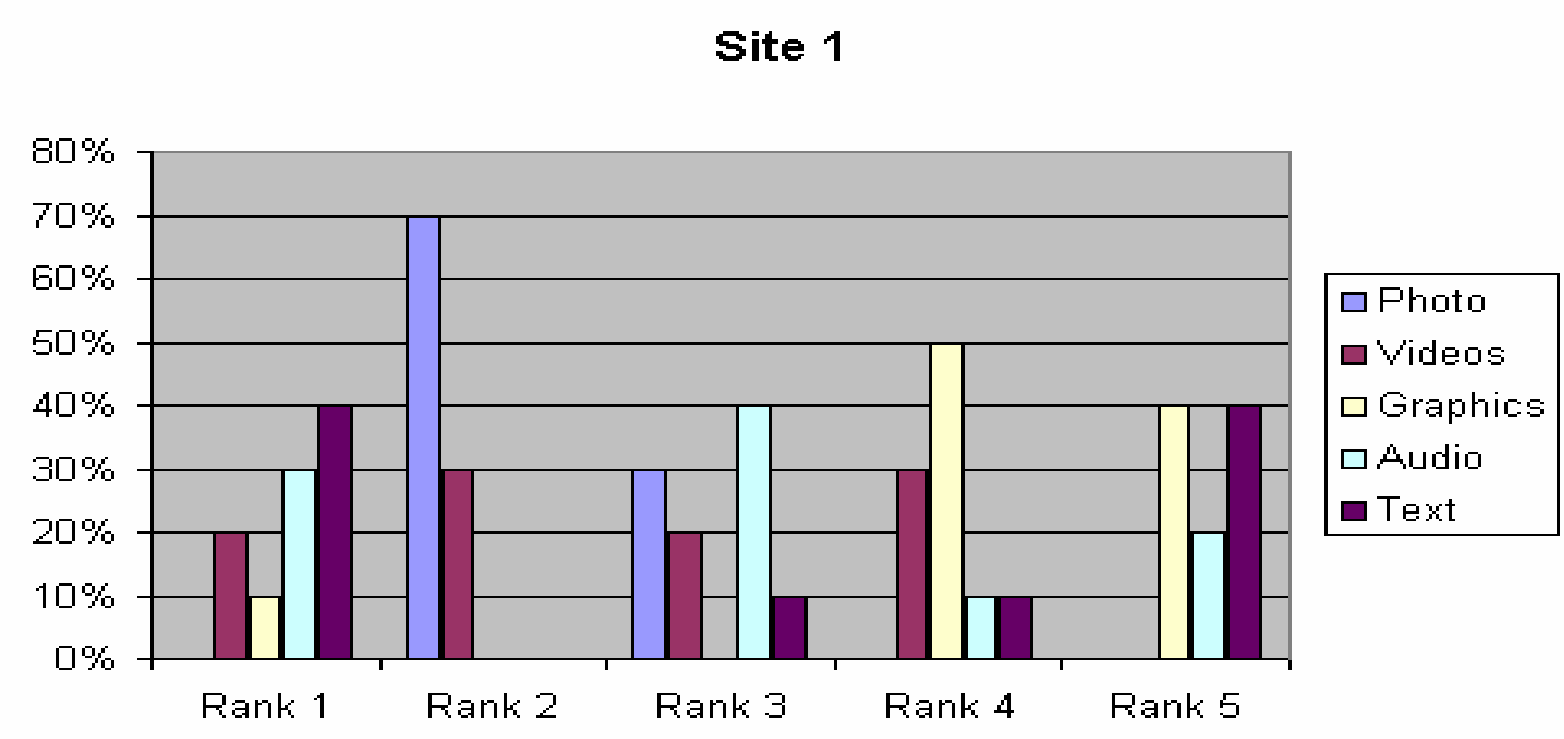
- Employees' ability to understand what they learn
  - 1. Do you understand what you learn on the computers?
    - YES 80%
    - NO 20%
  - 2. Do you understand the sound (voice) on the computer course?
    - YES 80%
    - NO 20%
  - 3. Can you read the text on the screen?
    - YES 80%
    - NO 20%
  - 4. Do you understand the text that you read on the screen?
    - YES 50%
    - NO 50%

Results

- Employees' view on the effectiveness of technology-based learning
  - 1. Do you learn faster with the computer?
    - YES 80%
    - NO 20%
  - 2. Do you learn better with the computer?
    - YES 80%
    - NO 20%

Results

- Employees rating of media used in technology-based learning (1= enjoy most – 5 = didn't enjoy)



Conclusion

- Differences between the use of technology-based learning in the developed world and developing world include the:
  - implementation and relevance of Web-based learning,
  - inclusion of multi-media components in technology-based learning,
  - learning in a controlled environment versus an uncontrolled environment,
  - prominence of simulations and games,
  - popularity of mobile learning,
  - implementation of knowledge-sharing tools,
  - awareness and prominence of technology-based learning standards, and
  - functions required from LMS.

Conclusion

- Similarities between the use of technology-based learning in the developing world and developed world include the:
  - preference of the majority of employees for learning with computers,
  - faster and more efficient learning with technology-based learning,
  - positive attitudes towards technology-based learning among managers responsible for training,
  - replacement of the majority of organisational classroom learning with technology-based learning,
  - increase in spending on technology-based learning,
  - popularity of blended learning,
  - development of reusable learning objects,
  - inclusion of portability and interoperability in technology-based learning systems, and
  - decline in the popularity of generic LMSs.