

3.1. MINING IN A GLOBAL ENVIRONMENT MODULE

This module acts as a virtual site tour of the Ranger mine in Kakadu National Park, located in the Northern Territory, Australia. It contains 16 photographic 360° panoramas of the mine and the surrounding environment, as well as 12 panoramic videos, 4 aerial photographs, 7 interviews with site personnel and industry experts, and over 180 still photographs. Students are able to combine these resources into virtual "workspaces", grouping related information together. Students also have access to an archive of chemical data. The data can be viewed by selecting from a series of "hot spots" on an aerial photograph of the mine and its surrounding areas. In a 3rd year assignment, students are given the opportunity to construct an optimal mine layout for a green-fields site (Fig. 3). They are presented with both an aerial and a panoramic view of a real life site and can construct a mine by dragging and dropping 2D/3D representations of major mine features such as buildings, waste dumps, dams and processing plants. At the end, they have to justify the location of their mine layout considering the environment in which they are located. Kakadu National Park being a heritage site adds more complexities to their assignment. The Ranger Mine was chosen for this assignment due to its complexity of issues including environmental, community, cultural, climatic, remoteness, etc. [25].

3.2. LABORATORY ROCK TESTING MODULE

This module contains a virtual representation of a rock testing machine.

Students are able to start the rock testing machine, interact with the machine, control panel and PC interface, and run various geomechanics tests on a series of rock samples. Instructors are able to load the results of previously run rock tests into the simulation. Students can also view a series of videos explaining the rock sample preparation process. This module is also currently running over the internet.

3.3. BLOCK CAVING MODULE

This module contains the lower portion of a block caving mine containing 60 drawpoints.

The purpose of the module is to install roof supports in such a manner as to maximise profitability and output of the mine. As time goes by, in the module, each block cave section starts to decay and produce less ore. Propping up the area with adequate roof support prevents the output from dropping further. Once the user has gone through the entire mine section, he/she is presented with a score for their session. This is currently being used more as a game.



Fig. 3. Students doing the assignment in the Mining in a global environment module.