

The Use of ICT in Science Education

Information Communication Technology or in short ICT is incorporated into teaching and learning in almost all subjects. Science will be the particular subject discussed here. Being a core subject in Brunei Education Curriculum, science is seen to be important and has the potential to develop various skills within the students which may benefit the nation in the modern era. ICT is undoubtedly could complement in science education achieving its goal of assisting the students to become scientifically literate. All teachers should realize this fact and more importantly to initiate the novel ways of educating students.

Teaching practice done during the last semester break gave me the opportunity to observe how science teachers use ICT. Many teachers have positive attitudes towards integration of ICT into Science education, from the viewpoint that some invest their own money to buy LCD projectors. Those who do not have LCD projectors would borrow from the technician lab, and priority is given to teachers who placed advanced reservation. The famous software used by the teachers is Power point Presentation. Teachers normally present, deliver the lesson in front of the students, and describe the theory as well as giving examples to explain the theory with the help of the Power point slides in front. After presenting the lesson, the teachers ask students questions. The questions are included in the Power point slides too, but some were orally asked without the visual aid. Students would then answer the questions orally and sometimes by written when asked by the teacher. Teachers have also put extra effort by downloading videos from website such as you tube to be used for teaching. Videos are used to demonstrate practical activity that cannot be done in the lab because of factors like unavailability of equipment and apparatus. Animations, pictures relevant to the topic taught were also included in the Power point slides. By having these in the lesson, the students are more attentive in the classroom/science lab.

How can ICT be used in teaching science is another aspect to be discussed. ICT is readily available and the integration of it into teaching and learning science is highly encouraged. Nowadays, many free educational resources on science are available on the web. Teachers may use them with no cost. There are also list of suggested activities included in the scheme of work, therefore teachers should access the website such as BBC and make use of it in the lesson.

Videos are also helpful to teachers for example to show practical activities that cannot be done in lab due to limited apparatus or dangerous. Interactive flash animations are also available which are very useful when used in teaching. It offers interaction between teachers and students as well as among students. Some can be played offline but some need to be played online or are not downloadable. This could be a problem if internet connection is not available or the connection is slow. However Interactive materials like flash could develop students' interest to the subject thus increase their motivation to learn. Science concepts require a lot of processes that have multiple links or connections. Take for example, the concept on digestion, there are many processes involved. The consumption of food rich in fibre would involve different process as to the consumption of food high in carbohydrates. If interactive animations are used, the concepts could be better acquired by the students. Questions, quizzes, educational games are also widely available and it depends to the teacher to select the most suitable ones. Those can be used for assessment, which provides more variation other than the set test and exam papers as well as BCATs for Year 7 and 8.

The use of ICT should not just stop in the classroom or in the science lab. It should be continued outside school. How? Teacher may provide the students with educational CDs, which contains the subject matter. The students could bring it home and learn on their own pace. Teacher could also assign tasks to students that require ICT, for example to search for endangered species and to prepare presentation slides or OHP transparencies. By doing so, students can develop the ICT skills which can benefit them in many ways. ICT allows innovative ways to teach and for students to learn. Blogs and Learning Management System (LMS) can be utilized by science teachers particularly, which serves to provide more information on the subject, update news, express and discuss ideas among each other and so on.

There are a lot of resources available on the net which benefit teachers enormously. However, teachers should be wise in deciding the material that they employ for teaching and learning because not all are trustworthy and valid. Here is where teachers' subject knowledge plays a significant role. ICT should therefore be used to continuously develop the man power skills by significant people in the education curriculum.