KD Module 3: Pedagogy

Unit 4: Facilitating Project-Based Learning

Objectives:

Teachers should be able to implement collaborative, project-based unit plans and classroom activities, while providing guidance to students towards the successful completion of their projects and the attainment of a deep understanding of key concepts (UNESCO ICT-CFT, KD.3.f).

Duration:

Total of 8 notional hours – 3 hour computer practical session and 5 hour assignment on a computer.

A] Computer Practical (Total 3 hours)

Notes to Facilitator

Set up the venue so that the *Commonwealth Certificate for Teacher ICT Integration* tutorials can be accessed from the computers. The purpose of this practical is to provide participants with clear directions so that they can design such a project. We will be accessing one of the Commonwealth Educator's Network elective modules entitled 'Learning with Projects', this time looking at Activities 5 & 7. For clarity purposes the activity has been separated out from the web tutorial and is recreated here. Provide guidance and assistance so that participants can access and do the tutorial described below.

Task 1: Commonwealth Certificate for Teacher ICT Integration Tutorial (90 minutes)
Complete the following CCTI tutorial.

Elective Module 9 – Learning With Projects
Adapted from Activity 7: Dealing with Fears and Potential Problems

In this practical session we will consider some of the challenges raised by adopting a PBL approach, and how these can be overcome. When you start to use PBL in your lessons there can be many challenges, especially if you are the only one trying to be innovative in this way. Also, because you may not be used to it, you may fear the consequences of adopting PBL. This activity aims to look at some of the challenges of PBL, and to look at ways of dealing with the challenges and fears that you may have. You are encouraged to reflect on all the things you think could go wrong, and share your thoughts with the group. Read the article below:

Activity

Planning

1. From what you have learned about PBL so far, what do you think would be the major problems facing you in your school and in your classes as you start to implement the project you have begun devising? Use the template document for Challenges and Solutions to record the challenges and solutions that you have encountered so far. Save it in your home folder as Challenges and Solutions.
2. Read the summary article *Potential Challenges in PBL* (below), then add to your table more potential problems as raised in the article, if relevant to your project. Save your document in your home folder.

Time:
Projects can be very time consuming. When running a major project, other 'normal' class work, such as the syllabus, the next section in the textbook and tests, can get lost. Also, other learning areas make demands on the learners who then cannot complete any of their 'normal' or project work properly. Another problem is that lessons can be too short. Just as the learners are getting into their project work, the bell goes for the next lesson. It can be very difficult to get projects completed on time. There are always unexpected delays and disruptions that can make it impossible to finish on time. And when a project has been going for a while, learners can get bored, even though they are not finished.

Getting Started:
Learners can approach a project in a superficial manner. They might not take responsibility for making the project work. If the learners do not have a clear picture of where the project is heading, what is required of them and how it will be assessed, they can approach the project in a directionless manner.

Self Management:
When an educator tries too hard to stay in control in a PBL class, the learners can lose interest and can make it difficult for the class to happen smoothly. But on the other hand, when an educator adopts a PBL approach, she cannot assume that the learners will manage to cope without help. Learners do not naturally manage their time well and do not have established learning skills. Because they do not have a clear idea of what a completed project will look like, they don't know what to aim for. They do not usually know what steps to go through to produce a good project.

Group Work:
In PBL, the learners work in groups, but the groups often do not work well. Some groups never manage to achieve anything, while in other groups, the project is completed well, but some of the group members do not do anything, rather leaving all the work to the 'clever' and hardworking learners. Because learners are not used to working in groups, they lack the skills to work with others and to solve the inevitable disagreements that arise. Because learners are working in groups and doing PBL, they can make a huge noise and disturb the rest of the school.

Communication:
Projects can go wrong if there is insufficient communication. Lack of planning among the educators responsible for the project, and with the rest of the staff, can cause conflict and can also lead to undue pressure on the learners. If the parents are not informed about the project, the learners may feel that there is no parental support for their work and they may find it hard to complete a project that requires

them to do anything over and above what is normally required. Parents may also complain to school authorities if they do not understand the project, and demand that their children are 'taught properly'.

Communication with people outside of the school, such as experts, can be unsatisfactory and a waste of time for all concerned if there is insufficient preparation.

Use of Technology:
The Internet can be a distraction, and can lead learners to a lot of useless information. It can lead learners to biased information and to objectionable things such as pornography. They can also waste a lot of money if the school is on a dial-up connection. If the learners use computers, they can waste a lot of time using computer tools which are not appropriate for the project, and in using the computers for the sake of it. It can also be very embarrassing for an educator to be 'caught out' by a learner who knows more than the educator about a particular software tool.

Assessment:
When learners do group work, they are often disappointed because the weak members in their group make the stronger members do badly. Another problem is that a group can make a mistake early on in the project, and then this makes the rest of their project weak, and they get a bad final score. Assessment can be very narrow if only the learners are assessed. The organisers of the project cannot learn for future projects if there is no assessment of the project itself.

Adapted from: Mergendoller, J.R. & Thomas, J.W., *Managing Project Based Learning: Principles from the Field*.

3. In a group, share some ideas about how to overcome the challenges identified above. Spend some time discussing those you identified and then look at some of the other potential challenges identified by others in the group.
4. Read the summary article *Tips for Teachers Starting PBL*, below, and fill in whatever solutions you can find on your table.

Tips for Teachers Starting PBL

Time:
- Ensure that the project and assessment of it forms part of the syllabus.
- Avoid scheduling projects at the same time as major tests and exams.
- Avoid having learners involved in major projects in different learning areas at the same time.
- Arrange the school day differently so that learners have large blocks of time to work on projects.
- Plan for extra time so that there is room to cope with the unexpected.
- Have other activities planned so that you can give learners a break from the project if they get bored.
- Be prepared to be flexible about deadlines if learners are genuinely battling to complete work.

Getting Started:
- Prepare learners for the project by talking about it well in advance.
- Provide a rubric which makes it clear what is required of them, e.g.

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Working as a group, learners are able to find and reference Internet information.	Group finds plenty of useful, relevant information from reliable sources and references them correctly.	Group finds some useful, relevant information from sources which are not clearly reliable, and references them partially.	Group finds a small amount of useful, relevant information from questionable sources, and references the information inadequately.	Groups finds hardly any information and does not make any attempt to reference it.

- Make the kinds of assessment and criteria clear to learners at the start of the project.
- Where possible, involve the learners in drawing up the criteria.
- Work to a research plan, an overview that provides guidance as to what steps are required, and what information is needed. Involve learners in drawing up this research plan.
- Build in checkpoints where you can see how a group is progressing with the project, so that they can get back on track if they are not doing what is required.

Self Management:
- Involve the learners in the design of the project, in order to get them to buy in from the beginning.
- Teach them to make decisions about the project, rather than making decisions for them.
- Develop time management skills, study skills and project management skills by actively teaching the learners these.
- Establish high standards by showing the learners professional quality work, as well as good learner work. Possibly develop your own sample project.
- Use scaffolding, supportive tools and explanations, which will help the learners see how to achieve the high standards you set.

Group Work:
- Use heterogeneous groups, by mixing learners of different abilities, different skills, and different strengths and weaknesses, depending on the project. If they need to work a lot out of school, using groups of friends can work well (as long as you ensure that the 'unpopular' learners get incorporated into groups).
- Use a jigsaw design: have **expert groups** which investigate a particular aspect of the project, and then report back to **home groups** which depend on the expert information from all group members.
- Have realistic consequences for not contributing to the group, e.g. allow a group to fire a member after two warnings.
- Make exercises aimed at understanding group dynamics a part of the project process.
- If a group loses direction, discuss with them why they have lost focus, and try to get them to accept responsibility for making the group work.
- In the course of the project, have group members evaluate each other's contribution so that non-contributors have a chance to get involved before it is too late.
- Monitor the progress of groups by meeting regularly with each group, and keeping a record of the various milestones for the project. A chart on the classroom wall recording each group's progress can aid motivation.

Communication:
- Educators involved in the project need to meet regularly and frequently to coordinate activities and share ideas.
- Educators in the school who are not part of the project team need to be informed about the project, and need to be given a chance to raise issues. This will facilitate planning around possible conflicts with other learning areas. Prepare colleagues for a different kind of classroom which might seem noisy and chaotic if the school tends to be traditional.

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- Parents need to be informed about the project, particularly if they will be involved (e.g. in arranging for the learners to interview relatives, to work with friends, get hold of resources, etc.).
- Explain to parents why the learners are not being taught in the traditional manner which they probably expect and associate with 'good education'.
- Try to involve the parents in the project, if possible, as resource people, helpers, etc.
- Identify experts in the community who are prepared to assist with the project. Let learners get to a point where they really need expert advice and assistance before involving the experts.

Use of Technology:
- Use the Internet in a focused manner by teaching the learners effective search techniques.
- Have a collection of websites which you have already visited and found to be useful.
- Keep a vigilant watch on the sites they are visiting (particularly if the school has no method for blocking undesirable sites).
- Teach techniques of detecting bias, and website evaluation.
- Ensure that the learners are taught how to be safe online (not disclosing full name, address, phone number, etc.).
- Ensure that a project makes use of computers only where this is the best tool for the job.
- Be familiar with the technology to be used in the project, or find someone to help you.

Assessment:
- Use various kinds of assessments.
- Use individual as well as group assessments, with a weighting towards the individual scores.
- Use formative assessments which will help a group get back on track if they are not doing well in the early stages.
- Allow learners to evaluate the project so it can be improved.
- Get the learners to reflect on what they have learned and how they have developed through the project.

Adapted from: Mergendoller, J.R. & Thomas, J.W., *Managing Project Based Learning: Principles from the Field.*

Task 2: Commonwealth Certificate for Teacher ICT Integration Tutorial (90 minutes)
Complete the following CCTI tutorial.

Elective Module 9 – Learning With Projects
Adapted from Activity 5: Assessment of Projects

Consider these issues:
- How do I ensure that learners keep working at their projects, and how do I assess their work?
- When do I assess?
- What do I assess?
- Who do I assess?
- Who does the assessment?

As you design activities, you need to build in an assessment for that activity.
- Think of *who will be assessed*: the individuals in your class, or the groups they are working in.
- Think of *who will conduct the assessment*. Note that the assessment does not need to be conducted by you, as it could be a self assessment or peer assessment.
- Think of *how* you can assess the learners while they are busy with an activity in a way that helps them to improve their work (formative assessment).

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- Think of the outcome(s) you wish your learners to achieve, and then devise a *rubric* that allows the assessor to measure how well the outcome has been achieved.

1. Read this article on Assessment and Monitoring:

Assessment and Monitoring

Traditionally, a project or assignment is only assessed when it is finished. The assessment is done by the educator, and each individual is assessed individually. In PBL, assessment is seen differently. It is seen as an important way of monitoring how the group is progressing, and how each individual within the group is contributing.

The assessments are formative – that is, they are done so as to help the groups and the individuals in the groups do their projects better. It is aimed at helping them correct mistakes early on. In accordance with OBE, assessments look at how well learners have performed a specific task. The criteria are spelled out in a rubric, a document that specifies what a learner or group needs to do. Some assessments will be of the group's performance, whole others will assess an individual's performance. Because assessment happens all the time, there is too much of it for the educator to be fully responsible for doing it. The educator, as the learning facilitator, assists the learners to assess each other (peer assessment) and themselves (self assessment) for some of the tasks.

2. Complete the assessment overview in your *Project Planner*, which you have saved in your home folder.
3. Choose one possible activity from your project, and fill in an assessment plan for that activity in your *Project Planner*.

B] Assignment (Total 5 hours)

It is time to pull our PBL together.
We have done our initial planning so let us review the plan and start to build this lesson.
Note that this assignment is a recommended **Portfolio Task** and should be submitted on completion.

Portfolio Task

Your first consideration is to reassess the effectiveness of your questions. Remember that PBL is investigative by nature and the questions you pose must engage and galvanise the class into action. In some respects the question(s) is the engine behind the PBL strategy but questioning is essential to the teaching process whether you are using PBL or not. Learn more about the central role of questioning by reading this article of *Why do We Ask Questions* (Ref: CCTI)

1. Reflect on the quality of the questions you have posed for the project.

- Are they real world questions?
- Do they tie your subject or teaching area to the students' experiences? Research has shown that if you link your curriculum content to the local context, students are more likely to see the relevance in your subject and be more engaged in the activities you set for them.

- Another consideration is, have you posed an open or closed question? If you are not sure of the difference review this article on *Types of Questions* (Ref: CCTI)

2. Now consider your role as facilitator. Can you construct the 'scaffold' of the lesson? For example what resources will you need to help the students investigate your questions?

   - Are there sufficient books in the library?
   - If so, which ones are worthwhile? Identify them.
   - Can you book time in the library for the students?
   - Will the children have access to the Internet? Do you need to book the computer lab?
   - If so, can you focus the students on a number of quality sites? Which ones?
   - Are you going to encourage them to look for information at home?
   - If so, should you alert the parents to their needs?
   - Are you going to encourage them to create their own evidence using digital cameras, video or cell phones to document their environment?
   - Again are you going to alert parents to this requirement?

3. Once they have collected data you will need to facilitate the reporting of their findings and helping them draw conclusions.

   - Do the students have a range of tools to help them organize their data? (Remember Gardiner's theories?)
   - Do they have a range of choices on how to report to the class? What is acceptable?
   - How will you organize them so that they have opportunities to work together to organize their reports.
   - Are the students required to present their findings.

4. In light of all the arrangements required above don't forget that the assessment strategy you designed must also be satisfied.

   - Were the students made aware of the assessment strategy early in the process?
   - Were there opportunities for formative assessment so that they could feed what they had learned back into the learning process?
   - Does the final reporting and summative assessment work cohesively?

Assignment Activity:

Using your project planner now try to flesh out the various components as fully as possible. Keep in mind that you can use this plan and the resources you collect for use during your teaching practical as well as later when you are stationed at your first school. This is not an exercise! This assignment is for real. Also as it is a recommended Portfolio Activity you will need to submit your preparations for evaluation.

Resources Used in this Lesson Unit

SchoolNet SA/SCOPE. (2011). *Commonwealth Certificate for Teacher ICT Integration: Learning with Projects Module*. Available online at http://www.schoolnet.org.za/CoL/ACE/projectbased/activities/pbl.index.htm. Accessed 16/08/2011. (© All Rights Reserved. Free to use online.)

SchoolNet SA/SCOPE. (2011). *Commonwealth Certificate for Teacher ICT Integration: Learning Teaching and Thinking with ICT*. Available online at http://www.schoolnet.org.za/CoL/ACE/ukzncore1a/activities/core1a.index.htm Accessed 15/11/2011. (© All Rights Reserved. Free to use online.)