

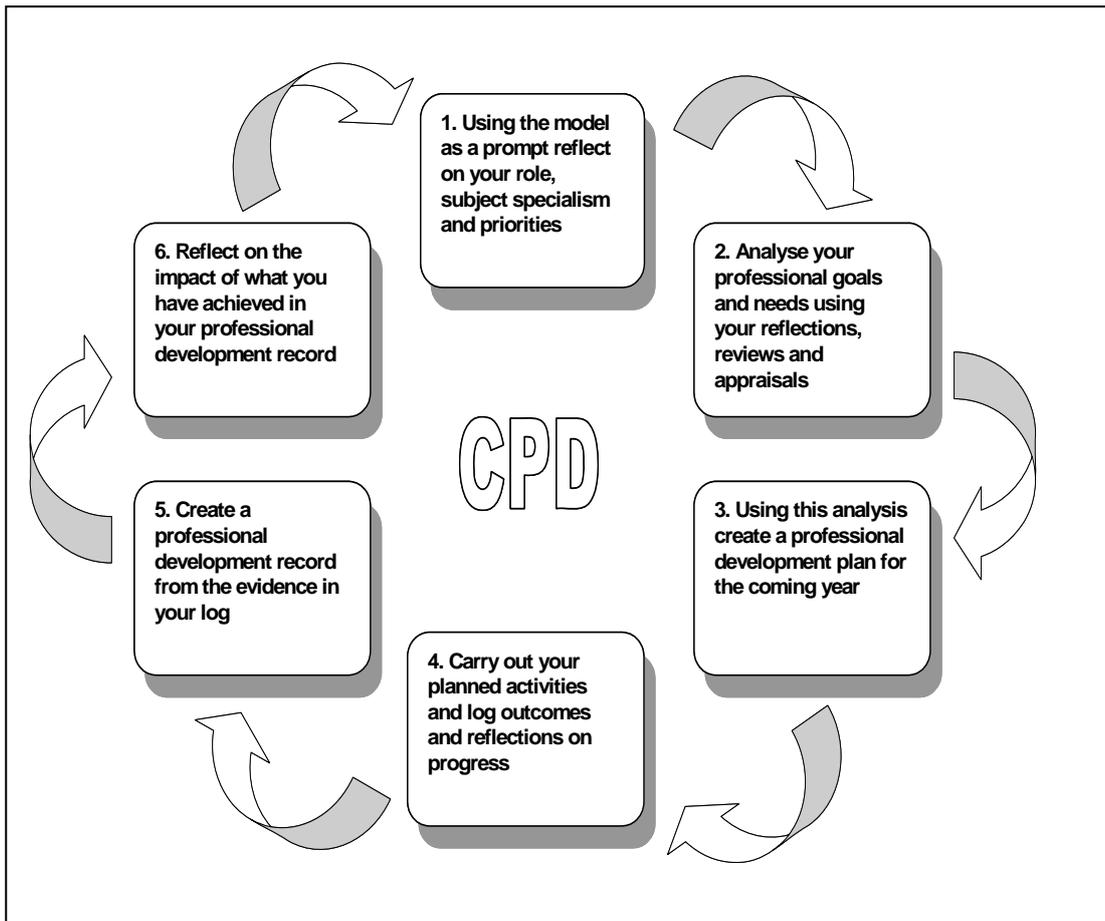
## **Learning Mathematics in context**

### **Supported experiments**

## Supported experiments

Trying out new approaches or strategies in our teaching is invaluable in helping us to grow and improve as teachers\*. However, this process is enhanced by spending time reflecting on the whole process and documenting our thoughts and reflections. This not only helps us to clarify thoughts but it can contribute to your own personal reflective diary and form part of your continuing professional development (CPD). It is of course even more powerful if you can work collaboratively with others in working through this process.

### Institute for Learning CPD Cycle



### Using Mathematics sessions as a starting point for CPD

- Select a group you will be teaching in the near future and think about the Mathematics content of a forthcoming topic.
- Discuss your ideas with a colleague who has specialist Mathematics knowledge.
- Explore together Improving Learning in Mathematics and Thinking Through Mathematics to identify a resource that you can adapt.
- Plan a session that uses the adapted activity to teach the vocational topic but check with your colleague that the mathematics content remains intact.
- Record your thoughts on the process as part of your CPD record.

We use 'teaching and learning' and 'teacher' as generic terms to include:

- teaching, training and learning
- teachers, tutors, trainers, lecturers and instructors in the further education (FE) system.

## 1. Planning the activity

**Title: Interpreting bar charts, pie charts and box and whisker plots.**

**In this section you should describe what is being planned, who you are working with and what you, your learners and your organisation or college hope to gain from the process. It will also be helpful to give an idea of timescale, and an explanation of why you have chosen this particular strategy or strategies.**

**It is particularly important that you also give some thought to how you can measure how successful the strategy is? This will particularly help when it comes to the review process.**

### **What will you try out?**

Improving Learning in Mathematics module: S5 Interpreting bar charts, pie charts and box and whisker plots.

### **What specifically are you hoping to achieve?**

Teach learners when to use each diagram to represent data by using an approach that supports engagement, enjoyment and understanding.

### **Which group of learners will you try it out with?**

BTEC First Diploma in IT Practitioners.

### **Who can you work with on this project and what can they do to support you?**

Cynthia Bradley, Subject Learning Coach for Mathematics.

### **How will you evaluate your 'experiment' (for example, feedback from learners, self-assessment, peer review and evaluation)?**

- learner feedback (verbal and written)
- observer feedback (provided as part of the project)
- comments on written feedback form for the module.

## 2. The activity

**Briefly describe the activity.**

Learners use a set of data related to rating a computer game. They use cards that show representations of pie charts and bar charts and match those that are equivalent. They then look at box and whisker plots to illustrate spread of data.

**An account of what happened**

The cards were not sorted as expected; all the pie charts were together and all the bar charts were together so we had some time at the beginning of the lesson where the learners had to make sure that they had a set of cards that showed different representations. This meant that even before the activity really got under way the learners were talking about the cards and started to understand what they were being shown. Although we spent some time before the lesson relating the 1 – 6 number system to the grading of computer games, this was largely ignored by learners, who were engaged in discussions from the beginning. Including the box and whisker plot went better than I expected, as did the place where the learners have to draw their own chart to match a missing one. Three learners stayed behind to discuss what they had done, and tell me that this way of teaching Mathematics was better than the way they had been taught before.

**Who else was involved and what was their role?**

Alan Cossins was present as an observer and to interview learners.

You might like to attach a copy of any artefacts used in the session or activity

## 3. Review

**In this section you should describe any significant events focussing in particular on what went well or not so well, why you think this happened and how you came to these conclusions? You should also reflect on any issue that arose including ethical issues. Include thoughts on what you might do differently next time. You should also focus on what you as a teacher have learned from the process, referring back to your original aims in section 1. How well did the planning process work, and how do you plan to build on this. How do you intend to share these experiences with colleagues?**

**Feedback and evaluation (based on evidence)**

The engagement, enjoyment and understanding was present. I used this as a revision of the work we had done so far and the learners adapted to this way of working well. If I can get this response from every lesson, I won't go far wrong.

**What went well? Why do you think it went well and how do you know that it went well? Are there any particular learner responses you want to highlight? (for example, learners who are normally lacking confidence, bored or disruptive, now responding well, or more able learners progressing to higher levels of understanding or skill. If possible keep a representative sample of the range of responses.)**

The cards were not in order and this got the learners discussing the contents cards before the session got under way. This went well despite being unplanned. Some learners thought that an aerial view of a bar chart led to a box and whisker plot and this led to some good discussion about what the box and whisker plot did show. I did not really want to include lots of box and whisker plots but I am glad I included one or two because the learners' curiosity got the better of them and they took part in some interesting discussion.

The challenge was at the limit of their ability, which meant that they had to stretch and question and argue, just to come up with the fact that they were right. You could say that the learning was at a higher level than I expected because I included the box and whisker plot.

**What have you learned?**

If you get something that the learners get interested in, take a chance because you expand their understanding.

**Next steps**

**What will you do next to extend and develop this work?**

Migrate the methods used in the lesson into IT and other areas of teaching.

**Date**

You might like to attach a copy of any artefacts used in the lesson or activity