Learning Mathematics in context

Peterborough Regional College

Case study – representing data for IT learners

Peterborough Regional College

Case study – representing data for IT learners

Peterborough Regional College is a large college of further and higher education that enrols approximately 15,000 learners annually. The information technology (IT) area provides many opportunities for learners to progress, including BTEC First ICT Practitioners (four fulltime groups) and BTEC National IT Practitioners (four fulltime groups). Learners can also progress on to degree programmes delivered at the college.

Three members of staff took part in the project. Two of the staff, Jim, an IT teacher*, and Cynthia, the Subject Learning Coach for Mathematics, had worked together over a number of years delivering a Free Standing Maths Qualification (FSMQ) in statistics. They planned sessions together, and sometimes team-taught, so working together was part of their normal routine. They had both also taken part in the Improving Learning in Mathematics (ILIM) project.

> 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.

For this project, Jim and Cynthia chose session S5 Interpreting bar charts, pie charts and box and whisker plots from the Improving Learning in Mathematics (ILIM) resource. In this session, learners compare pie charts, bar charts and box and whisker plots as ways of representing statistical data.

They found that, with a small amount of editing of the session, they could introduce examples that were relevant to IT and so put the session in a vocational context. They also reduced the emphasis on box and whisker plots.

Jim used the session with a group of learners studying the BTEC First for ICT Practitioners. One of the Learning Mathematics in context project team acted as an observer.

The session provoked some lively discussion, both in small groups and in the group as a whole. All the learners said that they enjoyed working as a member of a team and the discussion that took place. Contrary to expectations, the discussion about the box and whisker plot was productive and felt genuinely exploratory.

After the session, learners were asked what had made the lesson enjoyable. Their responses included the following:

`It was more of an interactive lesson'.

`I like getting involved in a debate as opposed to just answering questions in a book'.

`I liked joining in as a group'.

`It was a practical lesson that got us more involved'.

`For me it was challenging'.

One learner made a key comment:

`It is better to learn in this way as it sticks in your head. You get involved, as opposed to learning from a text book where it is in one ear and out the other'.

In a project with another BTEC First group, the teacher used an activity called 'The Great Race'. In this activity, learners have to organise information into a logical order to find out who won the race. In this activity, a key question about averages was particularly useful and led the teacher to use one of the new activities on data handling in a follow-up session. In both sessions, learners were engaged in the activity and made progress. One learner summed up his experience:

`This is better than listening to teachers making speeches about maths'.

Lessons learned

- Activities designed for use in Mathematics can readily be adapted to vocational contexts.

- When a vocational teacher becomes familiar with the approaches exemplified in ILIM, they can easily contextualise the activities and present their learners with real challenges. This will help them to support Learning Mathematics in context.

- Learners respond to a challenge and engage with Mathematics when it is used in non-mathematical activities.

- It is helpful to have an observer who can record progress and identify issues that need further attention.

See Jim's reflective journal, which includes an account of some of the unforeseen benefits of this activity.