In partnership with Devon County Council, Plymouth University and the Royal Statistical Society Centre for Statistical Education, with funding from the National HE STEM Programme, have developed a work-based statistical literacy course. These materials are aimed at increasing the confidence of a wide range of employees in using statistics in their day-to-day work.

The course has been developed largely with public sector needs in mind, hence the applications examined include understanding patterns in road collisions. Using administrative data requires that we understand the difference between reality and reports of reality. Making sense of complex data requires that we understand more technical ideas such as ‘confounding variables’. Statistical literacy is therefore critical in interpreting observational/administrative data. As the purse strings have tightened in the public sector, statistical literacy is also required in order to interpret research findings concerning the effectiveness or otherwise of any services that are procured. It is no longer possible to offer a wide range of services on the basis that ‘while they may do little good, they can’t do any harm’. Money has to be spent in areas where it will be effective. More than ever, public sector professionals are required to assess the level of demand for a service, and evaluate the effectiveness by which it is delivered. This does not necessarily require hands on data handling skills, but it does require in depth statistical literacy.

As a result of this project, courseware has been developed by the project team which encourages people to ask questions of data analysts, and then interpret the results provided. The emphasis is on critical statistical thinking rather than arithmetic and computational procedures. A large part of the approach is to use newspaper headlines and carefully look at the data behind them. This is done to make the course accessible to a wide range of people. Few people have been exposed to statistical literacy as the UK tends to emphasise arithmetic skills that are readily examined, rather than deeper critical thinking skills.

The kinds of learning materials developed by the team are based on pedagogically informed developments which are now used at an undergraduate level in the US and at a school level in New Zealand, but adapted for a work-based learner – here they are part of a much shorter course with an emphasis on communicating key conceptual issues.

The project team were also interested in comparing blended learning (where there is some interaction with a tutor) with entirely web-based activities. They took 24 employees, in two groups of 12 and compared both delivery modes using a focus
group and online web survey to collect responses. They found that there was a preference for the blended delivery mode because certain concepts required face-to-face discussion. The team received positive feedback from employees about what they had learnt through the course, and Devon County Council are now delivering Critical Appraisal Skills courses which cover many of the key aspects of statistical literacy.

As a result of its work with Plymouth University, Devon County Council is planning to continue to expand its provision of critical appraisal courses to partner organisations in the South. In addition, elements of the work-based course are now being used within undergraduate courses at Plymouth University.

The statistical courseware developed by the project team can be viewed via the SW Spoke website at http://www.hestem-sw.org.uk/workforce-development/wfd-projects/?p=21&pp=Progress+Report++July+2011.

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