

KEEPING THE MOMENTUM: SUSTAINING INTEREST IN STATISTICS LECTURES FOR NON-STATISTICIANS

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INTRODUCTION

Over the last 6 years we have developed an extensive programme of training in statistical methods for non-statisticians. This includes iBSc and MSc modules, as well as short courses for PhD students and staff at our local university department and attached paediatric hospital. Topics range from basic introductions in significance testing and confidence intervals through to one-day courses on more complex methods including GLMs, Bayesian analyses and Imputation methods.

For all of our attendees, statistics is not their primary interest and they often arrive fearful of the topic. It is seen as a necessary evil or hurdle to be surmounted as quickly as possible. Our participants may come with poor memories of having sat through and been bored on many occasions by this dreaded subject and statistics lectures are commonly viewed as very dry affairs.

Our aim has been to get the participants involved, to make them feel at ease with statistics and to leave with a proper understanding of the methods rather than just knowing how to implement them or which computer buttons to press.

METHODS – REPLACING THE ‘FLAT’ LECTURE FORMAT

By incorporating innovative and creative technology, as it has progressed, we have moved away from the standard ‘flat’ lecture followed by practical format to optimise the student experience, breaking the sessions into segments with interactivity from the audience using a variety of media.

In particular, we use the following methods to maintain active participation:

- voting pad technology,
- interactive pens,
- interspersed individual and group practical activities.

These approaches have the added advantage of allowing us to continually gauge our own teaching and formatively assess audience understanding of the topics being taught. Furthermore, these technologies allow us to react swiftly to the particular class and to adapt our teaching accordingly.

In addition, we have developed data generation exercises to help bring the topics to life for our students. These exercises can be used to raise discussion about questionnaire design, biases, missing values, distributional forms and suitable analyses.

RESULTS

At the end of each course we send out a web-based questionnaire to gather anonymised feedback from participants, given as ratings on a 1-5 scale for each aspect of the course plus some open-ended questions. Student assessments of the sessions are consistently positive. We present examples of student ratings plus feedback quotes relating to usage of the various media and how breaking the lecture has helped their understanding/experience.

SUMMARY

In this poster, we show the elements of one of our typical ‘broken’ lectures. We identify how this approach improves student comprehension and application of statistical concepts compared to a traditional ‘flat’ format, and give student comment on this. We have shown these techniques to be valuable in transmitting information and in sustaining the interest of non-statisticians when learning statistical techniques.