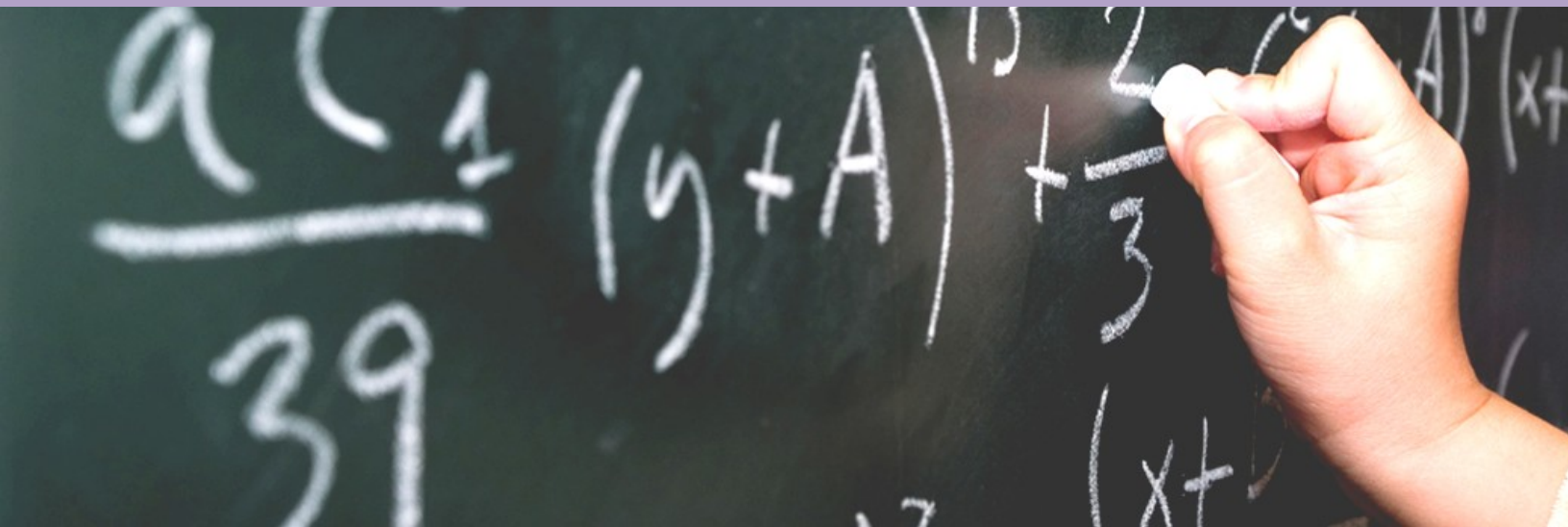


Making History Count

Simple Steps towards Understanding Numbers in History

Richard Rodger



Executive Summary

The project sought to develop simple numeracy and elementary statistical skills of value to history students at all levels. The emphasis was on building confidence in the use of elementary measures as a means of enhancing historical analysis and understanding. This was achieved by devising screencasts (with transcriptions), worked historical examples, and simple explanations of the data sets and results. Overall, in a test group of 60 students, the entire set of modules took 3 hours to complete. Feedback from these students was extremely positive and minor improvements have been incorporated as a result.

Project Aims and Objectives

The parameters of the project were as follows:

Aims:

- To introduce students to the use of simple statistics and arithmetical operations that will enhance their historical understanding
- To utilise new technologies – improved bandwidths, software tools – to deliver web based teaching in the History subject area
- To derive economies of scale by making teaching materials available to all Higher Education institutions

Objectives:

- To provide students with an understanding of how basic numerical manipulations add considerable productivity to their studies, to their Personal Development Plan, and to career opportunities.
- To provide a comfortable learning environment in an area still thought to be intimidating to many humanities students.

Personnel

Professor Richard Rodger was the Director of the project; Dr Jan Oosthoek acted as a part-time researcher and technical developer in relation to the audio-visual elements of the project. Stuart Nicol provided web base support once the modules had been prepared, and Karen Howie, e learning officer in the School of History, Classics and Archaeology provided advice and assistance on the preparation of exercises and assessments.

Project Design

Specific areas of numeracy were identified from past classroom experiences and discussions with others experienced in this teaching areas. Illustrative exercises were identified, solutions and visual representations planned, and screencasts recorded. Self-assessment questions were authored as QTI XML. The audio and video elements were then edited and visual materials and self-assessment exercises added to the individual course elements. Each element was incorporated into web pages.

Numerical techniques

A variety of components were developed to provide historians with a tool kit of techniques. These were broken down into manageable elements included:

- 01 Introduction to numeracy
- 02 Percentages
- 03 Index numbers
- 04 Histograms
- 05 Averages
- 06 Coefficient of variation
- 07 Correlation
- 08 Linear regression
- 09 Growth rates
- 10 Annual growth

Features of the Numeracy Modules

Each numeracy element contains:

- (i) Information about pre-requisites, if any, including information on the use of the Data Analysis pack in Microsoft Excel, the software for which materials are designed. Other platforms and software were considered but were discounted for a variety of reasons. It was disappointing that Excel on Macintosh OSX does not now support the Data Analysis Pack
- (ii) a screencast, showing each stage of the operation with a voice over providing instructions
- (iii) simple datasets relating to a historical problem
- (iv) a self-assessment practice exercise, indicating whether a student completed the task accurately, and giving feedback on whether his/her results are correct.
- (v) an electronic data sheet containing the data used in the worked examples and which can be cut and pasted into another workbook for the student to use.

Time Allocation

Each screencast is between 2-5 minutes; overall the set of numerical routines takes about 3 hours. The screencasts presents the principles and practical methods by which simple numeracy tasks can be performed.

Management and Maintenance

A variety of worked examples is used to encourage historians of various types to visualise how their students might deploy the numeracy materials. Wherever possible the principle applied was to provide materials and management that required minimum specialist input.

Web Based Delivery

The materials have been piloted using WebCT virtual learning environment. Each module can be provided as a self-contained website or as a SCORM learning package.

Interoperability and Interchangeability

Modules will be packaged as SCORM 1.2 transferable ZIP files. Self-assessment questions will be provided as QTI XML files as well as the inline rendered HTML/JavaScript versions. Interchangeability is supported in the sense of providing simple worked examples with datasets that can be substituted should a lecturer wish to do so.

Distribution

Each module will be made available via the JORUM repository.

Feedback

A decision to trial the numeracy materials in semester 1, session 2009-10 resulted in a some drift in the timetable for the completion of this project but the decision has been very worthwhile.

Trials

A website was set up to allow all 60 students in taught MSc History programmes at the University of Edinburgh to access the numeracy modules. They were asked to complete all elements, or at least as many as they could. All but students completed all modules.

Focus Groups

Two follow up focus group meetings were then held with the students, and the following issues were discussed:

- (i) Were the numeracy elements
- accessible
 - understandable
 - relevant to historical studies?

In all but one case students found the modules helpful and at an appropriate level. They were judged to be a 'gentle' introduction to 'numbers for the terrified.'

- (ii) How long did you take to complete all the elements?
- Between 2-3 hours was the response.

(iii) Technical matters were discussed:

- were the screencasts audible, suitably paced, and clear in terms of the exposition?
- were the graphics helpful for visual learners and in presenting the historical materials?
- were the exercises effective in reinforcing your learning?

In each of these respects student response was positive. The numeracy units were praised as an aid to self-learning, for clarity and simplicity, and for the reassurance they provided

(iv) were there any elements or numeracy routines that you thought should have been included?

- There were 2 respondents who wondered in ratios might have warranted a separate module.

Recommendations arising from the trials

- i. Numeracy modules should be a permanent feature of the graduate school research materials since they would be useful for future reference purposes, and especially when undertaking dissertations. *This has been implemented.*
- ii. Greater attention to the initial page of the introductory module would make the system requirements more explicit, and guidance concerning the download of the data analysis pack in Excel would be welcome. *This recommendation has been implemented.*
- iii. The Excel data sheet should be made available so that re-typing be kept to a minimum. *This has been implemented with clickable links within each module to the relevant data set for the exercises and examples in that module.*
- iv. Statistical formulae might prove helpful to those who had some maths or statistical background. *After reflection, this has not been implement because it runs counter to the introductory nature of the materials.*

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