

X4L SDiT

Survey Data in Teaching

enhancing critical thinking and data numeracy

TUTOR GUIDE

July 2004
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Introduction to this Tutor Guide

The Survey Data in Teaching (SDiT) project produced by the UK Data Archive provides a range of resources which aid in the teaching of basic data literacy for both A level and introductory undergraduate level students in a range of social science related disciplines, including government and politics, sociology, management and general studies, psychology as well as areas such as public service GNVQ and media studies. The project is also relevant to citizenship studies.

The basic objectives of this pilot project are twofold - to increase the ability and confidence of students in producing and communicating data, thereby enabling them to be intelligent and critical consumers of data, and in addition to show how the extensive resources of the UK Data Archive repositories could be re-purposed and utilised to support college and university teaching.

This Tutor Guide accompanies the Resources Pack containing the teaching and learning resources and is divided into three sections:

- **Section A: The Survey Data in Teaching (SDiT) Resources Section**
 - **Introduction** to the teaching and learning resources: Investigating Crime.
 - **An overview of the teaching and learning resources** available for the use of tutors and students, including instructions for accessing the online files and downloading of software.
 - **A synopsis of the subject matter** in the modules, examples of use including model answers and suggestions for classroom exercises.
- **Section B: Using Data Resources in Your Teaching**
 - A description of ways of **using data resources in your teaching.**
 - **Model answers** to module 1.
 - A mapping of the material onto aged 11-16 **key skills** requirements.
 - **SPSS syntax** for the data analysis exercises.
- **Section C: Evaluations**
 - **Case studies** based on feedback and usage of the resources in the classroom by tutors and students.

A full description of the project can be found in the **Resources Pack** that accompanies this guide.

Section A: The Survey Data in Teaching (SDiT) Resources

Introduction to the teaching and learning resources: Investigating Crime

Introduction to the teaching and learning resources: Investigating Crime

The objective of the SDiT resources is to integrate the mechanics of data analysis with theoretical material. Data are never isolated from theory, and it is *not* the case that data ‘speak for themselves’.

It is intended that the resources span both A level and undergraduate level, so that while the levels of learning are clearly demarcated, the better A level students could investigate the latter modules, while many undergraduates (or postgraduates) may benefit from seeing this as a basic revision session.

As such, the topic *Investigating Crime* was designed to dovetail with a variety of A level syllabi and university courses in which social research methods are often taught. In addition, the provision of a teaching version of the British Crime Survey will be of particular use in either undergraduate or postgraduate courses.

There are also two general user guides to exploring and accessing the data collections housed at the UK Data Archive.

Permissions

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All other material may be reproduced and used in other publications with appropriate acknowledgement. See the section ‘Using the SDiT resources in your teaching’ on page 14 of the Tutor Guide.

Acknowledgements

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Louise Corti, Jon Mulberg, Nadeem Ahmad and Jack Kneeshaw, SDiT X4L Project Team, July 2004

Overview of the teaching and learning resources

Overview of the teaching and learning resources available

There are three types of resources for the use of tutors and students:

- four modules on the use of crime data, plus an appendix on sampling and statistical inference, as well as a glossary of statistical terms;
- two modules as general guides, one on the use of the **Nesstar** online data exploration system, and another on how to find data and documentation (resource discovery) in the **UK Data Archive**;
- a free demonstration version of very simple and user-friendly data analysis software, which is utilised in the last two of the teaching modules.
- A teaching version of the **British Crime Survey** dataset is also available.

The four learning modules are available as:

- ✓ online, interactive self-paced modules
- ✓ Adobe Acrobat PDF files
- ✓ Microsoft Word documents
- ✓ Microsoft PowerPoint displays

A word document for tutors with **model answers** to the open questions in Module 1 is also available, as are tutors' versions of Modules 1 and 2 which contain the **answers** to the multiple choice questions. Explanatory graphs that give explanations of the answers are included in the PowerPoint presentations. The two general guides are available as PDF files, to view on-screen or to print and duplicate. There is also a **Glossary** of terms to accompany the resources.

The free software is a demonstration version of **NSDstat**. This program was developed for use in schools and colleges by the Norwegian Social Science Data Archive, and is the analytical engine behind the Nesstar web site, hosted at the University of Essex. The program automatically installs the SDiT teaching version of the British Crime Survey, which is greatly simplified from the full version. This teaching version of the database can also be downloaded from the Nesstar web site without any registration.

Synopsis of teaching and learning modules: subject areas covered

Synopsis of teaching and learning modules: subject areas covered

The first two modules are aimed at A level students, while Modules 3 and 4 progress to a more complex level that would be appropriate to introductory undergraduate and postgraduate courses. However, in the evaluation phase of this project, some A level students did undertake all six modules without a problem.

There is a separate **Glossary** which explains statistical terms.

Module 1: Tracking Crime: Police Recorded Crime Figures, Trends and Reasons for Change

This module looks at the trend in recorded crime. It charts the trend in crime for each of the last three political administrations, and concludes with an exercise linking policy decisions with possible explanations for changes in crime levels.

- Find out what has been happening to crime rates
- Find out how crime is measured
- Examine the effectiveness of different governments on crime
- Try to figure out what you would do

Skills covered

- ✓ Line graph reading
- ✓ Interpretation of trends
- ✓ Internet usage
- ✓ Group discussion skills
- ✓ Problem analysis and evaluation skills

Module 2: Theories About Crime: Public Perceptions of Crime Rates

The module considers an alternative method of measuring crime to the previous module, examining the British Crime Survey, and comparing the two measures of crime levels. It then shifts emphasis to look at perceptions of crime trends, and examines different theories as to why the public perception of crime levels may not match the actual risk of victimisation.

- There are different ways to record crime
- The official report says that although crime is really falling, the public think it is increasing
- Actually when we look at time graphs the position is complex
- A usual explanation is that the media create unnecessary worry
- There are other factors involved, such as social class

Skills covered

- ✓ Comprehension of basic measurement guidelines
- ✓ Trend comparison

- ✓ More complex graphical analysis (stacked bar charts, time indices, paired bar charts)
- ✓ Understanding of theoretical concepts and evaluation of evidence
- ✓ Understanding of simple statistical concepts

There is also an appendix to Module 2 for politics and government students which looks at UK party policy on crime.

Module 3: Gathering Evidence: How to Investigate Crime Statistics

This module is concerned with the concepts of operationalisation and validity, and with basic descriptive statistics. It shows how to use the Nesstar site to find out information about the British Crime Survey, to constructively criticise the validity of data used in reports, and to use the simple computer program to generate descriptive statistics, frequency tables and graphs.

- Learn about devising measures for concepts
- Learn how to describe large sets of numbers using only one or two numbers
- Learn how to make and interpret straightforward tables and graphs
- Learn how to cite sources properly
- Learn how to use an undemanding data analysis program

Skills covered

- ✓ Understanding of concepts of operationalisation and validity
- ✓ Understanding of content and usage of metadata
- ✓ Use of internet to explore metadata
- ✓ Understanding of basic descriptive statistics and frequency tables
- ✓ Use of computer program to generate descriptive statistics, graphs and univariate tables

Module 4: Examining Evidence: How to Interrogate Crime Statistics

This is a skills-based module concerned with explaining the analysis of associations between two variables.

- Learn how to alter data
- Learn how to examine associations between two variables
- Learn how to present and analyse data in tables

Skills covered

- ✓ Understanding of concepts of association and independence
- ✓ Use of computer program for recoding data
- ✓ Use of computer program for construction of two-way table
- ✓ Analysis of two-way tables

There is a separate appendix to Module 4, which looks at statistical significance and also shows how to use NSDstat to investigate this.

There are also two modules which act as general guides to finding and investigating data and documentation on the UK Data Archive site:

Module 5: Searching For Evidence: Sources of Crime Data

This module shows how to search the UK Data Archive web site to find out which studies have been conducted on any given topic

- Tour some of the resources available on the web, including
 - UK Data Archive (UKDA)
 - Social Science Information Gateway (SOSIG)
- Learn how to search for other data
- Get a long list of links to other useful sites

Skills covered

- ✓ Resource discovery on the web
- ✓ Finding surveys at the UK Data Archive (UKDA)
- ✓ Exploring the Social Science Information Gateway (SOSIG)

Module 6: Browsing And Analysing Evidence: A Guide to Using Nesstar

This guide shows how to use the online interactive Nesstar web site to obtain information about studies, such as data collection details, related publications and even the questionnaire itself. The guide also shows how to use the site to establish which variables are in a dataset, and to produce tables and graphs from the data.

- Get an introduction to the online data system Nesstar
- Find out how to access and browse data using Nesstar
- Become familiar with the British Crime Survey dataset
- Learn how to produce tables and graphs online

Skills covered

- ✓ Accessing and browsing data using Nesstar
- ✓ Familiarity with the British Crime Survey dataset
- ✓ Producing tables and graphs online

Glossary

There is a short glossary of statistical terms which are referred to in modules 1-4. The electronic versions of the materials (e.g. in Word or the web) link directly to this glossary.

Section B: Using Data Resources in Your Teaching

Using the SDiT resources in your teaching

Using the SDiT resources in your teaching

The approach underpinning the creation of the SDiT materials is that tutors will wish to use the materials in a wide variety of ways, and this is part of the objective in providing a variety of formats. The material is copyright free, under the Creative Commons licence, which means you may freely download, copy, distribute and even edit it yourself (although you should always include an acknowledgement, and especially when citing the British Crime Survey data, e.g. tables and graphs). The only exception is the set of images of Prime Ministers in Module 1 may only be re-used in newly created printed or web-based materials with additional permission.

Most tutors who agreed to test the SDiT materials reported that they tended to use them in a **mixed mode** manner. So, for example, while they may use the online format to bring variety to their class, they found that group discussion was also beneficial to consolidate knowledge and develop evaluative skills, and that presentation or paper facilitated these skills and knowledge best. Others with fewer IT facilities believed that using paper for the main teaching would be simplest, backed up by printing the quiz answers onto overhead projector acetates from the PowerPoint files for class discussion.

Other uses suggested were:

- material for classes to cover teacher absence
- using the online interactive modules for:
 - additional self-paced revision exercises to help enhance concepts already taught in the classroom
 - preparatory revision for undergraduates or postgraduates beginning a course (mature students in particular are frequently rusty on their numeracy and IT skills)
 - gifted A level students wishing to further their knowledge of the uses of data analysis
- using the resource discovery Modules 5 and 6 to aid with A level coursework

Innovative Exercises

Several innovative exercises using the materials were also described:

Whiteboard Quizzes: One tutor used an electronic whiteboard for which all students had wireless handsets to stage a 'millionaire' style quiz.

Newspaper Headlines: Students were asked to write a newspaper headline describing the 'story' behind the data in one of the graphs.

An additional or alternative exercise would be for the students to write a short (2-3 paragraphs or perhaps a maximum of 100 words) newspaper-style article reporting the results from the data in a table or graph.

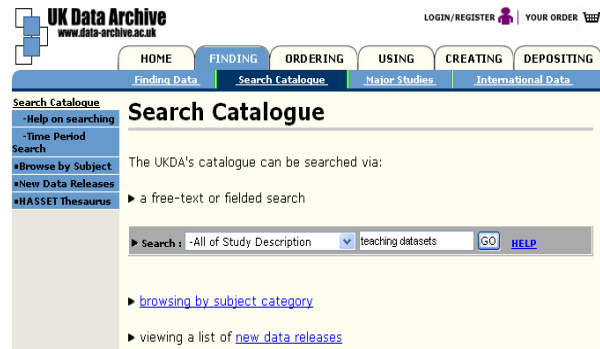
A simpler version of this exercise would be to ask the students to consider a graph for five minutes and then write two obvious points about it.

A template for other topics

The SDiT materials could easily be adapted for other topics such as Health, Race or Education. It may be possible for the UKDA to develop teaching datasets for other topics on request. Other teaching datasets and resources that cover issues surrounding using social science data in teaching are also available, and are covered briefly below.

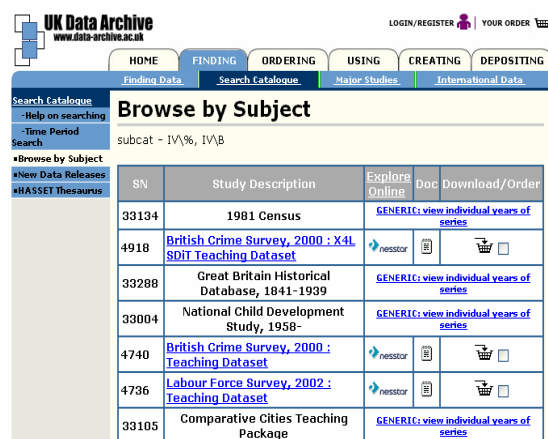
Other learning resources: Data in social science teaching

Teaching datasets can be found at the UK Data Archive by typing **teaching dataset** into the Search Catalogue box at **www.data-archive.ac.uk/search/searchStart.asp**



or through browsing by subject category , by choosing **Reference and instructional** and then underneath this option, **Teaching packages and test datasets**

Teaching datasets include those based on UK Census data and other major government surveys, such as the Labour Force Survey.



Contact help@esds.ac.uk to request teaching datasets or to discuss using data in your own teaching.

Other learning resources: Data in social science teaching

RDN Virtual Training Suite

A set of free online tutorials designed to help students, lecturers and researchers improve their Internet information literacy and IT skills. Authored for many disciplines, including sociology, politics, business studies and psychology etc, and across HE and FE educational levels.

University of Bristol and authors, 2000 - 2004

www.vts.rdn.ac.uk

INTERNET FOR: Business Studies

WELCOME TO INTERNET FOR BUSINESS STUDIES

A free, "teach yourself" tutorial that lets you practise your Internet Information Skills

- start using this tutorial
- tour key Internet sites for business studies
- discover how to search the Internet
- judge what to trust on the Internet
- plan how to get the most from the Internet for your work

Let the experts guide you to the best of the Web
Your tutorial guides are:

Andy Hargrave, Research Officer, Biz/ed, ILRT, University of Bristol, UK
Kate Sharp, Project Manager, Biz/ed, ILRT, University of Bristol, UK

Next

CensusAtSchool

Collecting and disseminating real data for use by teachers and pupils in data-handling, ICT and across the curriculum for learning and teaching. Produced by the Royal Statistical Society Centre for Statistical Education.

Nottingham Trent University, Jan 2003

www.censusatschool.ntu.ac.uk

Centre for Statistical Education

CENSUSAtSchool

An International Teaching and Learning Resource

Click one of the Countries to access the projects

- United Kingdom Site
- South African Site
- Australia
- New Zealand Site
- Canada

The UK site hosts the international data base, from which data can be downloaded for teaching and learning

Collection of Historical and Contemporary Census Data and Related Materials (CHCC)

A major learning and teaching resource based on UK Census data.

Universities of Manchester, Leeds, Glasgow and Essex, Sep. 2003

www.chcc.ac.uk



Biz/ed

A resource for students and teachers of Business Studies and Economics offering learning materials, company information, and datasets with a user-friendly extraction interface.

University of Bristol

www.bized.ac.uk

Date	Lesson Plan	Subject
07 Jun 2004	Business Strategy	Business Studies
07 Jun 2004	Poverty, Inequality and Income Distribution	Economics
07 Jun 2004	International Trade, Trade Barriers, Freeing up Trade and the Work of the WTO	VCE Business

Date	Subject
07 Jun 2004	Obesity, Marketing and Business Social Responsibility
31 May 2004	Child Poverty, Free Trade and Free Markets

Date	Subject
17 May 2004	A Big 'Shout Out' that Needs to be Heard
29 Mar 2004	From DIY to DAY (Do Anything Yourself) to Makeover

ESDS International

Access to, and support for, a range of international datasets - both macro data produced by intergovernmental organisations such as the World Bank, International Monetary Fund or United Nations and micro sources, such as cross national surveys.

Universities of Manchester and Essex

www.esds.ac.uk/international/

- free web-based access to regularly updated international macro datasets
- help for users in locating and acquiring international micro survey data from other archives within Europe and worldwide
- a dedicated [help desk](#)
- web-based support materials including user guides, International data FAQs, case studies and exemplars
- a programme of courses to raise awareness of international datasets and their research potential
- an annual conference on international datasets
- an interactive visualisation interface for international macro datasets

Site for Instructional Materials and Information (SIMI)

An American repository for undergraduate teaching materials using ICPSR datasets. The site includes instructions for depositing teaching materials, modules and exercises for secondary use.

Inter-university Consortium for Political and Social Research, University of Michigan

www.icpsr.umich.edu/SIMI/

The goal of SIMI (Site for Instructional Materials and Information) is to develop and disseminate resources for undergraduate and graduate education. Faculty submit data-based instructional materials that they have developed for their classes. These materials become part of SIMI, and may be obtained through membership in the ICPSR. Thus, SIMI becomes another important reason for belonging to the ICPSR, highlighting the value of ICPSR data resources for instruction.

SIMI includes not only instructional datasets, but also other instructional materials that accompany the datasets. These materials may include exercises for classroom use, information about useful Web sites, notes to instructors, related publications, and any other information that could be helpful to instructors. Materials are reviewed to ensure that they are of the highest quality and that they are complete, workable, and have the proper copyright clearance.

Training Resources and Materials for Social Scientists (TRAMSS)

Sample datasets, free software, and tutorials for advanced data analysis techniques based on event history analysis and multi-level modelling.

Universities of Essex, City, Southampton and Lancaster

tramss.data-archive.ac.uk

The screenshot shows the TRAMSS website home page. At the top, the logo 'TRAMSS' is displayed in a stylized, metallic font, with the full name 'Teaching Resources and Materials for Social Scientists' underneath. A navigation menu on the left lists: Home page, Project overview, Research questions, Searching for data, Statistical modelling, Exemplar datasets, Software, Download, The project team, Feedback, and Search/Route map. The main content area contains several sections: 'Who is this site for?' (Anyone with an interest in data discovery and statistical analysis), 'What do I need to get something out this site?' (About an hour or so and an understanding of multiple regression), 'So where will it take me?' (The site provides a taste of statistical software applications), 'How will I learn?' (You can learn to search the Data Archive's catalogue), 'Am I about to get lost?' (Use the left-hand menu to explore the site), and 'Feedback your experience.' (Please take the time to let us know how you get on). A small 'E-S-R-C ECONOMIC & SOCIAL RESEARCH' logo is visible in the bottom left of the page content. The footer includes 'Top ↑' and '© 1999 TRAMSS All rights reserved.'

21st century citizen

A collection of online resources to support the new Citizenship curriculum for school students aged 11-16 in the UK (Key Stages 3 and 4)

The British Library, the Office of National Statistics and the National Archives

21citizen.co.uk/live/citizenship/

The screenshot shows the 21st Century Citizen website. The top navigation bar includes 'BRITISH LIBRARY' and '21st CENTURY CITIZEN'. Below this is a search bar with the text 'Explore | Teachers | 21CC Home | About | Search' and a 'Go' button. A secondary navigation bar contains 'Who are we?', 'Whose rules?', and 'How do we live?'. The main content area features a large blue banner with the title '21st Century Citizen' and three central questions: 'does society work?', 'is crime getting worse?', and 'have we learned from the past?'. Below these questions is the text 'can history make the future better?'. The banner also includes a silhouette of a person and several small images. The footer contains 'British and proud of it! | Who decides? | Crime and community | 21CC', 'Explore | Teachers | 21CC Home | About | Search | Privacy | Disclaimer', 'Copyright © The British Library | 21CC', and the NGfL HOME logo.

Model Answers: Module 1

Model Answers - Module 1

Section A

Q12

According to police figures, crime generally rose between 1981 and 1992. However, from 1992 crime fell until the introduction of new counting rules in 1998 - 99.

Q13

No correct answer - personal evaluation.

Section B

Group Work Exercise 1

1. Moral decline - an overall lack of respect for others and not knowing the difference between right and wrong has meant people are more likely to harm others; alternatively people might just not care about others any more.
2. Increasing unemployment - poverty due to unemployment means more people commit crime to look after their family. Inequalities might also lead to envy.
3. Too little police funding - a lack of police officers means the streets are poorly policed and criminals are given free rein; money might not be going to front-line policing.
4. Decreasing respect - if people do not respect authority they do not fear the police or the consequences of their actions; nor do they respect other peoples' property or feelings.
5. Poverty/ inequality - envy or necessity might cause people to commit crime; frustration and alienation at social and economic conditions might lead to alternative means of achieving 'success' or wealth.
6. Crime statistics - if more crimes are reported to the police or recorded by the police, then this shows more crime in police figures.
7. Insurance - if more people insure their goods and insurance companies require a crime to be reported to the police before they will pay out, there is a strong incentive for victims to report crime to the police.
8. Consumer durables - valuable, desirable and portable products are available.
9. Use of drugs - the use of drugs is itself a crime and if users have an expensive drug habit to feed, crime is a way of feeding that habit.
10. Less tolerance of crime - if people are less tolerant of even petty crime, they may be more likely to report it to the police; indeed some activities which were once accepted as 'normal' may be less tolerated e.g. drunken brawls.
11. Mass immigration - an influx of people who are poor may lead to crime due to reasons of inequality and poverty.
12. Breakdown in the nuclear family - a lack of role models and discipline within the family might lead to youngsters breaking the law.

Q2 Group Work Exercise 2 (Solutions to the problem)

1. Moral decline - instil a stronger moral code in society; morality lessons at school; better quality television programmes.
2. Increasing unemployment - have an economic policy that ensures full employment.
3. Too little police funding - more public resources could be spent on policing.
4. Decreasing respect for authority - encourage greater respect for authority through education and socialisation; the family to have an important role.
5. Increasing poverty/inequality - policies that aim to eradicate poverty.
6. Crime statistics - is there a solution?
7. Insurance - make the public aware that numbers of people insured have increased
8. Consumer durables - make durables harder to steal/use if stolen.
9. Use of drugs - prioritise policing on preventing drug abuse, legalise drug use.
10. Less tolerance of crime - Is there a solution?
11. Mass immigration - tighten immigration laws; eradicate inequalities between communities.
12. Breakdown in the nuclear family - encourage the nuclear family through social policy.

Q3 Group Work Exercise 3 (Difficulties with solutions)

1. Moral decline - improve morals of the country. Will take time. Can it be done?
2. Increasing unemployment - have an economic policy that ensures full employment. Takes time. Can it be done? Not the job of Home Secretary; costly.
3. Too little police funding - recruit more police officers. Cost, public spending/implications; diverting expenditure from the other key public services (e.g. health and education); an increase in police numbers is not necessarily associated with a reduction in crime figures.
4. Decreasing respect for authority - encourage greater respect for authority. How can this be done? A campaign?
5. Increasing poverty/inequality - eradicate poverty. Very long term objective; possible? Not the role of Home Secretary.
6. Crime statistics - is there anything that can be done?
7. Insurance - explains why reporting of crime is going up, but doesn't solve problem of crimes being committed.
8. Consumer durables - make durables harder to steal/use. Need to get manufacturers on board; might make durables more expensive.
9. Use of drugs - focusing police on drug abuse. Might be effective but public attitude to such a policy might be negative; treating drug use as a disease rather than a crime might look like being 'soft' on crime.
10. Less tolerance of crime - the public being less tolerant might be a good thing with unfortunate consequences of more people reporting crime.
11. Mass immigration - tighten immigration laws. UK laws pretty tight anyway; might scapegoat immigrants and cause race relations problem.
12. Breakdown in the nuclear family - family friendly social policies. Attempt by the Conservatives in the 1990s to focus on the nuclear family, caused them political difficulties not least because it scapegoated lone parents; no real evidence that breakdown of the nuclear family is the cause of crime.

Q4 Group Work Exercise 4 (Why crime might be going down)

1. More people employed - less poverty and inequality; people have more to lose if they are caught committing a crime.

2. Increased equality - less poverty and envy; people do not feel the need to commit crime.
3. Better policing - police create deterrent effect and catch more criminals.
4. Locking up more criminals - criminals in prison cannot commit crime; it is also a deterrent to would-be criminals.
5. Zero-tolerance policing - focusing on all crime creates a climate where crime is not tolerated; known criminals are targeted.
6. Fewer adolescent males - this social group are the main perpetrators of crime, smaller group, less crime.
7. Effective social measures - if there is a group socially excluded from engaging in the normal activities of society and feeling alienated, then providing them with the means to participate in wider society by providing them education, jobs and a future will lessen crime.
8. Longer prison sentences - criminals are incapacitated for longer and it is even more of a deterrent.
9. Sure Start scheme - aims to help the most socially excluded in our society and give them a stake in the future by helping them succeed educationally.
10. Better education - by having more children succeed educationally, more people will have the skills to find employment and will not suffer long term unemployment and poverty.

Key Skills mapping

Key Skills mapping

These resources are relevant to many of the Qualifications and Curriculum Authority (QCA) Key Skills requirements, for Level 3 and beyond. What follows in this section is an approximate mapping of the resources to Key Skills Level 3. The following web sites were consulted in constructing these mappings:

www.qca.org.uk/14-19
www.keyskillssupport.net/
www.keyskills4u.com/

Key Skills (as defined by the QCA) are an integral part of educational programmes at Key Stage 4, post-16 and of modern apprenticeships. There are six Key Skills, each of which is available at levels 1 to 4 of the National Qualifications Framework. While levels 1 and 2 are appropriate to GCSE and GNVQ, and to NVQ levels 1-3, it is **Key Skills level 3**, which is appropriate for AS, A level, VCE, or NVQ level 3, with which we are concerned here.

‘Level 3 marks a shift from being able to deal with routine tasks, to being capable of responding to the demands of more complex activities. Units at level 3 require more explicit reasoning ability and increased personal autonomy in making decisions about their learning and how tasks are organized’

Web site for Key Skills Support Programme, funded by the Department for Education and Skills

The three Key Skills qualifications are:

- **Communication**
- **Application of Number**
- **Information Technology**

which are assessed through a portfolio of the student’s work, both internally and also by an external test, marked by an awarding body.

The three wider Key Skills are:

- **Working with Others**
- **Improving own Learning and Performance**
- **Problem Solving**

which are assessed internally through a portfolio, but without testing. These skills are highly valued by employers and by universities.

Key Skills underpin much of school and college (and also university) learning experience. These resources can help students work on their communicating skills, their handling of and confidence in using numbers and IT, problem solving skills, and working in groups. Key Skills proficiency also count towards university, as UCAS awards points for the three Key Skills qualifications.

'A survey of UCAS offers made in 2002 showed that around 50% of the offers made by Higher Education Institutions (not counting the older universities) allowed key skills points to be counted. For entry in 2003, about one third of the 45 000 courses on the UCAS database are set to accept key skills tariff points.'

Web site for Key Skills Support Programme, funded by the Department for Education and Skills

It is generally recognized that there are three stages in doing Key Skills:

- learning the underpinning techniques (for example English, IT, or problem solving);
- practising and developing the skills;
- using and applying the skills to get things done.;

For the three Key Skills qualifications, students must complete a portfolio of evidence and pass a test. For the wider Key Skills only the portfolio is required. These resources can help contribute to all three stages in the doing of Key Skills, but could also be included in the portfolio e.g. completed exercises and printouts etc. Confidence in the handling of datasets, in manipulating numbers and in understanding statistics does not come to every student so easily. These resources are intended to start from first principles by looking at the issues in a real life setting. Thus the Key Skills learned are done so in a more contextualised way - hopefully, one with meaning and applicability to the real world!

Mapping of SDiT resources to Key Skills Level 3

The table below sets out a mapping of the activities and exercises in the modules to the Key Skills of interest. For reference, the actual Key Skills requirements (at Spring 2004) are set out in the section following the table.

Key Skills requirement by SDiT module

	Module 1	Module 2	Module 3	Module 4	Module 5	Module 6
Communications	✓ Group discussion skills	✓ Group discussion skills	✓ Group discussion skills	✓ Citing references and sources properly ✓ Presenting and reporting back on data analysis		
Information Technology	✓ Internet usage	✓ Internet usage	✓ Understanding of content and usage of metadata ✓ Use of internet to explore metadata ✓ Use of data analysis package to generate descriptive statistics, graphs and univariate tables	✓ Use of computer program for recoding data ✓ Use of computer program for data analysis ✓ Data analysis of 2-way tables	✓ Resource discovery on the web ✓ Finding surveys at the UK Data Archive ✓ Exploring the Social Science Information Gateway (SOSIG)	✓ Introduction to the online data system Nesstar ✓ Accessing and browsing data using online resources
Application of number	✓ Line graph reading skills ✓ Interpretation of trends	✓ Comprehension of basic measurement guidelines ✓ Trend comparison ✓ More complex graphical analysis (stacked bar charts, time indices, paired bar charts)	✓ Understanding of basic descriptive statistics and frequency tables ✓ Making and interpreting straightforward tables and graphs ✓ Describing large sets of numbers using only one or two numbers	✓ Manipulating data ✓ Examining associations between two variables ✓ Presenting and analysing data in tables ✓ Understanding of concepts of association and independence		✓ Familiarity with the British Crime Survey dataset and variable frequencies ✓ Producing tables and graphs
Working With Others	✓ Group exercises	✓ Group exercises	✓ Group exercises			
Problem solving	✓ Problem analysis and evaluation skills	✓ Understanding of theoretical concepts and evaluation of evidence ✓ Evaluation of sources of data	✓ Understanding of concepts of operationalisation and validity	✓ Analysing results from data analysis	✓ Exploring data with a hypothesis in mind	
Improving own learning and performance	✓ where used as self-paced learning or assessed	✓ where used as self-paced learning or assessed	✓ where used as self-paced learning or assessed	✓ where used as self-paced learning or assessed	✓ where used as self-paced learning	✓ where used as self-paced learning

Key Skills specifications (Spring 2004)

Communication

C3.1b

Make a presentation about a complex subject, using at least one image to illustrate complex points.

- speak clearly and adapt your style of presentation to suit your purpose, subject, audience and situation
- structure what you say so that the sequence of information and ideas may be easily followed
- use a range of techniques to engage the audience, including effective use of images

C3.2

Read and synthesise information from two extended documents about a complex subject. One of these should include at least one image.

- select and read material that contains the information you need
- identify accurately, and compare, the lines of reasoning and main points from texts and images
- synthesise the key information in a form that is relevant to your purpose

C3.3

Write two different types of documents about complex subjects. One piece of writing should be an extended document and include at least one image.

- select and use a form and style of writing that is appropriate to your purpose and complex subject matter
- organise relevant information clearly and coherently, using specialist vocabulary when appropriate
- ensure your text is legible and your spelling, grammar and punctuation are accurate, so your meaning is clear

C4

- develop a strategy for using a variety of oral, visual and written forms of communication
- monitor and critically reflect on progress
- evaluate their overall strategy and present the outcomes of their work.

Information and Communication Technology

IT3.1

Plan and use different sources to search for, and select, information required for two different purposes.

- plan how to obtain and use the information required to meet the purpose of your activity
- choose appropriate sources and techniques for finding information and carry out effective searches
- make selections based on judgements of relevance and quality

IT3.2

Explore, develop and exchange information, and derive new information, to meet two different purposes.

- enter and bring together information in a consistent form, using automated routines where appropriate
- create and use appropriate structures and procedures to explore and develop information and derive new information
- use effective methods of exchanging information to support your purpose

IT3.3

Present information from different sources for two different purposes and audiences. Your work must include at least one example of text, one example of images and one example of numbers.

- develop the structure and content of your presentation using the views of others, where appropriate, to guide refinements
- ensure your work is accurate and makes sense

IT4

- develop a strategy for using a variety of ICT skills
- monitor and critically reflect on progress
- evaluate their overall strategy and present the outcomes from their work.

Application of number

N3.1

Plan and interpret information from two different types of sources, including a large data set.

- plan how to obtain and use the information required to meet the purpose of your activity
- obtain the relevant information
- choose appropriate methods for obtaining the results you need and justify your choice

N3.2

Carry out multi-stage calculations to do with:

1. amounts and sizes;
2. scales and proportion;
3. handling statistics;
4. rearranging and using formulae.

You should work with a large data set on at least one occasion.

- carry out calculations
- check methods and results to help ensure errors are found and corrected

N3.3

Interpret results of your findings and justify your methods. You must use at least one graph, one chart and one diagram.

- select appropriate methods of presentation and justify your choice
- present your findings effectively
- explain how the results of your calculations relate to the purpose of your activity

N4

- develop a strategy for using a variety of skills in application of number
- monitor and critically reflect on progress
- evaluate their overall strategy and present the outcomes of their work.

Working with others

WO3.1

Plan complex work with others, agreeing objectives, responsibilities and working arrangements.

- agree realistic objectives for working together and what needs to be done to achieve them
- exchange information, based on appropriate evidence, to help agree responsibilities
- agree suitable working arrangements with those involved

WO3.2

Seek to establish and maintain cooperative working relationships over an extended period of time, agreeing changes to achieve agreed objectives.

- exchange accurate information on progress of work, agreeing changes where necessary to achieve objectives
- organise and carry out tasks so you can be effective and efficient in meeting your responsibilities and produce the quality of work required
- seek to establish and maintain cooperative working relationships, agreeing ways to overcome any difficulties

WO3.3

Review work with others and agree ways of improving collaborative work in the future.

- agree the extent to which work with others has been successful and the objectives have been met
- identify factors that have influenced the outcome
- agree ways of improving work with others in the future

Improving own learning and performance

LP3.1

Agree targets and plan how these will be met over an extended period of time, using support from appropriate people.

- seek information on ways to achieve what you want to do, and identify factors that might affect your plans
- use this information to agree realistic targets with appropriate people
- plan how you will effectively manage your time and use of support to meet targets, including alternative action for overcoming possible difficulties

LP3.2

Take responsibility for your learning by using your plan, and seeking feedback and support from relevant sources, to help meet targets.

- Improve your performance by:
- studying a complex subject
- leaning through a complex practical activity
- further study or practical activity that involves independent learning.
- seek and actively use feedback and support from relevant sources to help you meet targets
- select and use different ways of learning to improve your performance, adapting approaches to meet new demands
- manage your time effectively to complete tasks, revising your plan as necessary

LP3.3

Review progress on two occasions and establish evidence of achievements, including how you have used learning from other tasks to meet new demands.

- provide information on the quality of your learning and performance, including factors that have affected the outcome
- identify targets you have met, seeking information from relevant sources to establish evidence of your achievements

exchange views with appropriate people to agree ways to further improve your performance

Problem solving

PS3.1

Explore a complex problem, come up with three options for solving it and justify the option selected for taking forward.

- explore the problem, accurately analysing its features, and agree with others on how to show success in solving it
- select and use a variety of methods to come up with different ways of tackling the problem
- compare the main features of each possible option, including risk factors, and justify the option you select to take forward

PS3.2

Plan and implement at least one option for solving the problem, review progress and revise your approach as necessary.

- plan how to carry out your chosen option and obtain agreement to go ahead from an appropriate person
- implement your plan, effectively using support and feedback from others
- review progress towards solving the problem and revise your approach as necessary

PS3.3

Apply agreed methods to check if the problem has been solved, describe the results and review your approach to problem solving.

- agree, with an appropriate person, methods to check if the problem has been solved
 - apply these methods accurately, draw conclusions and fully describe the results
- review your approach to problem solving, including whether alternative methods and options might have proved more effective

SPSS syntax for data analysis exercises

SPSS syntax for data analysis exercises

The SPSS data file for the British Crime Survey, 2000 : X4L SDiT Teaching Dataset can be accessed in 3 ways:

- downloaded from Nesstar (nesstar.esds.ac.uk/webview/index.jsp). Found under the Teaching Datasets Folder, the file can be downloaded in SPSS format as 4918.zip which unzips to 4918_F1.por;
- downloaded from the UK Data Archive SN4981 www.data-archive.ac.uk/findingData/snDescription.asp?sn=4740 using the Download/Order facility;
- saved from the accompanying X4L CD in the directory \bcs_sdit_4918\spss (called crime00.por).

*** MODULE 4 SPSS SYNTAX FOR REFERENCE .

*** Information that follows *** for explanation purposes only.

*** Page 4 of 10 .

*** Recode WBURGL - How worried about your home broken into?
so that values 1 and 2 = 1 (Worried) and 3 and 4 = 2 (Not worried).
All other values set to missing .

recode wburgl
(1 thru 2=1) (3 thru 4=2) (else=sysmis) into
zwburl .

var lab zwburl 'Recorded burglary fear' .

val lab zwburl
1 'Worried'
2 'Not worried' .

*** Page 5 of 10 .

*** Recode CJSMAIN - Main source of information about justice system? so that value 1 = 1 (Broadsheet), value 2 = 2 (Tabloid). All other values set to missing .

recode cjsmain
(1=1) (2=2) (else=sysmis) into zcjsmain .

var lab zcjsmain 'Tabloid Newspaper readership' .

val lab zcjsmain
1 'Broadsheet'
2 'Tabloid' .

*** Page 6 of 10 .

*** Run crosstab Recoded burglary fear by Tabloid Newspaper readership .

Case Processing Summary

	Valid	Missing	Total
How worried about your home broken into?	1987	8376	10363
Recorded burglary fear	1987	8376	10363

How worried about your home broken into? * Recordeds burglary fear

		Recordeds burglary fear		Total
		1	2	
How worried about your home broken into?	Valid	1987	8376	10363
	Missing			
Total		1987	8376	10363

Recoded burglary fear * Tabloid Newspaper readership

		Tabloid Newspaper readership		Total
		1	2	
Recoded burglary fear	Valid	881	882	1763
	Missing			
Total		881	882	1763

crosstabs

/TABLES=zwburgl by zcjsmain

/FORMAT= AVALUE TABLES

/CELLS= COUNT .

*** Page 7 of 10 .

*** Run same crosstab, this time with column

percentages .

crosstabs

/TABLES=zwburgl BY zcjsmain

The screenshot shows the SPSS Viewer interface with the following tables:

Care Processing Summary

	Cases			
	Total	Missing	Total	Percent
Have worried about your knee braces a lot?	1707	40 (2.3%)	1747	100.0%
Have worried about your knee braces a little?	1707	40 (2.3%)	1747	100.0%

How worried about your knee braces are? - Household Income Crosstabulation

			Household Income				
			Under \$5,000	\$5,000 - \$9,999	\$10,000 - \$14,999	\$15,000 - \$24,999	\$25,000 - \$49,999
Have worried about your knee braces a lot?	Count	Very worried	62	127	93	99	117
		% within	36.3%	34.9%	45.9%	33.8%	44.6%
Have worried about your knee braces a little?	Count	Very worried	68	216	235	133	64
		% within	37.0%	37.2%	40.0%	29.8%	28.2%
Total	Count	Very worried	130	343	328	232	181
		% within	36.0%	31.9%	38.4%	45.8%	42.7%
Total at all worried	Count	Very worried	128	344	327	231	181
		% within	12.2%	5.6%	2.1%	5.9%	7.9%
Total	Count	Very worried	258	587	555	465	242
		% within	100.0%	100.0%	100.0%	100.0%	100.0%

Systemic Missing

	Value	Approx. Std.
Missing for	NA	54
Missing for	System V	204
Missing for	System V	1267

SPSS Processor is unavailable

Section C: Evaluations

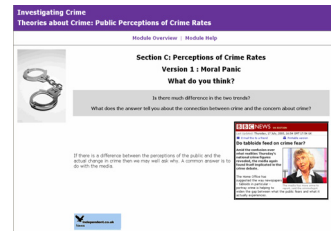
Case studies of using the Survey Data in Teaching resources

Case studies of using learning resources

During the development of the project, the resources were piloted in a variety of settings. A level teachers, university lecturers and students took part in various evaluation activities. This section sets out feedback from a number of case studies. First some quotes from various teachers are highlighted, and then following this are five structured sets of feedback from teachers, tutors, and the project steering committee.

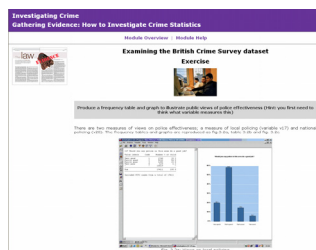
“There’s nothing else like it... I have never thought I could do statistics, but after reading this I thought I could have a go”

Member of project Steering Committee,
University lecturer in Politics



“I have looked through this website and it is excellent! As I teach criminology and crime data I struggled to get the right sort of lesson together last year, mainly because there is so much to deal with. The resources are wonderful - I shall definitely use them”

Teacher of Public Services Diploma, FE college



“This material offers units such as Data Interpretation ...in which we use real data in the classroom and IT to demonstrate methods of interpretation, analysis and presentation. The methods of analysis of such data are hard to come by”

Course co-ordinator, Uniformed Public Services Diploma,
FE college

“Students often think it’s more difficult than it actually is”

Member of project Steering Committee, FE
teacher of A level mathematics

On Module 5 - Searching for evidence: sources of crime data - “this module looks really good and is very useful”

University lecturer in Government



“I particularly liked the emphasis on thinking critically about data”

University lecturer in Sociology

“Students find writing about data difficult. They need the ability to write the story about the table”

Member of Project Steering Committee, FE
teacher of A level mathematics

Evaluation of Survey Data in Teaching Resources

FE tutor, Colchester Sixth Form College, 5 January 2004

Ian Levinson teaches A level politics at the local sixth form college. He is part of the project team and is co-author of Modules 1 and 2.

X4L Evaluation

December 2003

This module was taught to Second Year (upper sixth) students who are sitting their first A2 paper this month. The paper is entitled UK Political Issues and is Paper 4 (Route A) of the two year course. The topic taught was Law and Order.

By definition this is a well-focused topic with clear aims and objectives. This is always a benefit in teaching a specific topic. I am pleased the way specific modules deal effectively with the questions that might come in an exam. Although not having assessed any written work to date, oral questioning suggests the students have developed knowledge and understanding in line with aims and objectives. I am quite confident the students are able to answer evaluative questions.

Teaching the lessons with the aid of the Electronic whiteboard has been advantageous and has been a great addition to my teaching technique. I have tended to adopt an approach that is not too dissimilar to normal except that I and the students have ready access to information and questions. This flexibility compared to either writing on a normal board or using an OHP is significant. The class discussions that have developed out of information or points projected on to the board have assisted learning. The graphs or other information have been clear and accessible to all. I have always adopted this approach focusing around discussion but this material has aided that approach. The designated class discussion exercises have therefore been very effective.

Speaking to the students, they have echoed the above points. They like the clarity of the information placed before them, and the ability of the teacher to explain or expand on points. Likewise, they like the flexibility of the use of the interactive whiteboard to jump around to other sources. What has come out from the students, and I also think a valid point, is their lack of a 'product' or good set of notes. While they should be making notes as we go along, they have to some extent neglected to do so. When teaching normally, they take notes, however the structure of the lesson has changed and now they are more reliant on making notes when they think something is relevant or will aid them in the future. This can cause gaps in their notes. Some form of written information or handout might therefore be necessary in order to consolidate their learning.

I have liked the various exercises involved in the topic and have got the students to develop evaluative skills. What has also become quite clear is that there is a need to improve the students' graph and data skills. Working on the whiteboard has meant that I have not thus far got the students to individually answer all the 'basic' data questions. I think I have over estimated their abilities in this area. They do require me to explain what the graph is actually telling them. This necessity of having a teacher present came through in discussions with students. They liked the approach of this topic but feel the need for a teacher's presence. This has implications for the e-learning approach in general. Indeed, they seemed to like the whiteboard lessons but would not necessarily like to have done this topic by themselves online. I think a classroom and discussion approach is ideal.

July 2004

The essays that the students did in 2003 on the topic of 'law and order policy' were of a very good standard and the students show good understanding of the issue and were able to show good analysis and evaluation skills. I feel that the module provided a good opportunity to develop the abilities of the students in the run up to their external exams, in which all students passed and indeed the majority achieved A and B grades.

In June and July this year I have been using the X4L materials to teach students entering their second year of study in Politics. In precise terms, the students had just completed their AS examinations and were now starting to study A2 Government and Politics, specifically work on Paper 4 Route A of the Edexcel's Government and Politics examination. There are three teaching groups, two of which I taught using the Powerpoint materials and one group who had their lessons in a computer room.

Dealing with each teaching approach in turn

The results of using the PowerPoint material and using a teacher-led approach echoed the evaluation of December 2003. The quality of the materials was good and the path through the topic was clear and developed well. Various teaching and learning strategies were employed including teacher questioning, group-work and individual work. While I have had no chance to assess written knowledge, understanding or skills as yet, the students were engaged in the topic and have enjoyed studying the issue so far, particularly as there has been plenty of opportunity for class discussions. Assessment of oral contributions shows good understanding. Students were told to make their own notes as they went through the materials and at times I directed them to write some salient information down. I have been comfortable using this approach as it is to a large extent the same approach as I generally use in my teaching.

The students in the computer room used the online materials and recorded important information and answers using Microsoft Word. The materials were again of good quality and the tasks are the same as with the Powerpoint materials. The students found the materials easy to use and I used a projector to display the web site on the whiteboard. The technique that I tended to use was to talk through the issue to the group, then set the task and then review the task in a plenary session. This generally worked well, however, the biggest difficulty was the room layout. The early activities require group work, but as the computers were in clusters of 4 facing each other in a square, the students had difficulty seeing each other. So while the students were eager to discuss the topics in actual fact it was difficult to do so. Furthermore, there was no space or time to get the students to move around the classroom to do the group work. Another practical issue was when I was addressing the class students had to crane their necks and adjust their seating in order to see me. Overall, this meant that despite the teaching materials being good, there were practicality issues to do with classroom management and the learning environment, something that individual teachers would need to address in their own contexts.

One final point that is worth making is that, as the students were trying to develop new skills and a new approach to their studies, a more teacher-led approach might be more appropriate so students can see more clearly what is expected of them for their first module. These modules I think would work slightly better with more experienced students who were more aware of the assessment standards of A2 politics.

The materials and approach, in my opinion, have been excellent. They have helped me lead the students through the topic and helped them acquire the necessary skills for their examination. They have addressed the issue of data and numeracy skills, as well as bringing up discussions of reliability and validity of data to students who have never thought about them. Above all else, the students have been engaged by the issues and found the learning enjoyable but demanding.

Thoughts for the future

These are very useful resources but the teacher still needs to address the issues of teaching and learning strategies, paying attention to classroom management if using the online resources in a classroom setting. Assessment is another area that could be developed by placing these materials in a Virtual Learning Environment where student's work can be closely managed and assessed.

Evaluation of Survey Data in Teaching Resources Project Steering Committee, 1 March 2004

1. Method Following the materials presented at the JISC usability workshop (November 2003), it was decided at this iteration of the evaluation to employ a non-user formative evaluation of prototypes through expert review. This method was deemed appropriate given that the evaluation concerned the content of the deliverables as much as system analysis. It was considered that the project steering committee had suitable expertise to conduct such an assessment. Consequently the evaluation process could be described as an informal version of a 'cognitive walkthrough', whereby the evaluators made judgments of the suitability of the materials for potential end-users.

End-user profiles In conducting this form of assessment, it was confirmed that there were a variety of possible end-users. The project brief was to attempt to focus on both FE and HE students, as two distinct user groupings. The evaluators confirmed that, as expected, FE and HE students will vary widely in ability in the areas covering the resources (e.g. comprehension of research methods and data analysis, and data handling). However, the skills differences cannot be easily predicted, due to the disparate nature of teaching approaches, syllabi and the extent of 'hands-on' numeracy/numerical data handling covered in courses. In addition, the evaluators also considered the needs of lecturers who would be developing classes using the materials, which might be considered as two distinct groups of end-users.

2. Overall assessment The overall evaluation of the material was extremely positive: "there's nothing else like it...I have never thought I could do statistics, but after reading this I thought I could have a go". The committee felt that the level of the material was more or less correct. Although there was something of a jump between the FE and HE material, it would still be possible for a bright A level student to follow the advanced material. It was also felt that undergraduates or postgraduates might well benefit from a brief look at the introductory material.

IT components All the IT materials downloaded from the web without any problems being reported. However, it was suggested that a user guide be drafted for download and installation of the software component (NSDstat), as it would NOT be appropriate for use over LANs (requires simple, local PC installation). Print-friendly version of word documents and web pages should also be borne in mind.

NSDstat While only one of the evaluators had attempted to use NSDstat, he reported that in his judgement the programme would be suitable for the novice users that the SDiT project is aimed at.

Web site and PowerPoints None of the evaluators had had an opportunity to examine the web components. However, it was agreed that attempting to add an interactive component to the PowerPoint presentations was an unnecessary complication, since this duplicated the interactive elements of the web site. The addition of illustrative model answer screens was suggested instead.

3. Modules The assessors did not suggest drastic changes to the general content of the modules, and in broad terms were satisfied with their ordering. However the resource discovery module, while regarded as a very valuable resource in itself, did not readily fall into the sequencing of the other modules. It was therefore suggested that this module should be marked out as a stand-alone unit.

In addition, it was suggested that making the modules a more even length

would be helpful, possibly to cover about 10 classes. To this end, it was decided to merge the second and third modules into one.

The evaluators found the 'pop-up' notes on-screen useful, and suggested the team try to expand these.

There were a number of useful suggestions for stylistic improvements and corrections, as well as several suggestions for changes to terminology. There were also debates over which statistical measures should be included in the material. It was suggested that some inappropriate measures be removed, and that explanations be included as to why particular measures are regarded as appropriate and useful.

It was agreed to include a final module on sampling as a downloadable document.

4. Teacher's guide

The core teacher's guide would provide guidance on the content and practical use of the resources. It was suggested that this guide could be sectioned according to the potential teaching subject/topic area in mind. They could include suggestions for exercises, and should emphasise the usefulness of group discussions.

It was also suggested that a bulletin board should be set up for the dissemination of best practice in the usage of the SDiT materials, for example where tutors could submit exercises they had used or examples of repurposing for their own needs.

5. Specific suggestions

Modules

- Merge Modules 2 and 3. Remove multiple choice questions start of Module 3 (duplicates skills)
- Remove interactive elements from PowerPoints
- Add multiple choice model answers on next slide
- All interactive elements to go on web version
- Printout facility for multiple choice questions on web?
- Print/email facility for user entry questions on web?
- Investigate web resources for definitions and add pop-up boxes for web
- Module 4: investigate shortcuts to get straight to X4L on Nesstar
- Part of Module 4 to be flagged as stand-alone module.
- Module 6: revise jargon/terminology. Add material regarding properties of association. Fewer examples of re-coding
- Explain rationale for percentages and emphasise differences
- Add Module 7
- Module 6: refer to Module 7 re: sampling and ecological fallacy

Teachers guide

- Include emphasis on need for group discussion
- Ideas for class use: e.g. cordless answering on whiteboard etc.
- Break guide into subject sections
- Establish teachers' bulletin board
- Identify which key skills the material covers

General Style

- Verdana fonts
- Replace clip art with 'youth-friendly' images
- Check fonts on tables and size of extract fonts
- Consistent sub-headings

Evaluation of Survey Data in Teaching Resources Hills Road FE College, Cambridge, March 2004

1. Recruitment The initial contact with the college occurred through the JISC Eastern Region Regional Support Centre (RSC) (the RSCs were a valuable resource throughout the project). A teacher from the college contacted the regional staff about the SDiT project, who forwarded the email to us.

However, when we attempted to make contact again after the materials were completed we received no response. Only after several follow-up calls was contact made. It transpired that the teacher had moved to a part-time post, and relinquished his position as head of department. As he no longer had responsibilities for curriculum development he referred us to the current departmental head. She was enthusiastic about the project, and agreed to review the paper versions of the SDiT modules. We had previously set up an interim web site for the distribution of the materials in order to avoid the problems we had encountered with emailing large files to colleges, which may have low attachment limits.

After viewing the paper-based materials and looking at the presentation slides, she agreed to conduct a series of trial lessons using the online version of the materials, and to forward a written evaluation.

2. Evaluation The evaluation process fell into three levels: evaluation of individual students, complete class evaluation and teacher evaluation.

Individual student evaluation This varied considerably, since the abilities of the students themselves had wide variation.

The majority of the students appeared to find the earlier modules useful and interesting (although one student found the material too easy). They often put the Question and Answer element as the best feature in these modules, along with the use of graphical representation of data.

The main improvement that was suggested (which coincidentally we were working on at the time) was for explanations of why some of the choices in the module questions were incorrect. They also commented on the placement of hyperlinks.

The later modules (which included guides to the online resources at the UK Data Archive) showed up practical problems for on-screen usage, in that it proved difficult to move back and forth between windows.

Class Comment The class reports were generally affirmative, although interestingly enough one of the classes requested greater depth to the questions. They did find the material useful in understanding both crime and data analysis, which was one of the objectives of the project.

Teacher evaluation **Overall:** The teacher was positive about the trial, and intended to use the materials again.

Usage: The teacher was of the view that teacher direction remained important, even with the interactive versions of the materials.

She also reported that students sometimes wanted to follow up the material in greater depth, which did suggest group discussion was an important element.

Time frame: The teacher reported that each module would take up a

lesson (about an hour), with the possibility of some homework.

Content: According to the report the interactive elements maintained the students interest well. The students felt 'more involved' in the statistics after using the material, and as a result had a better understanding of both the data analysis and the substantive issues.

The two modules aimed at undergraduates were regarded as something of a rise in degree of difficulty.

The teacher also believed it would be possible to customise the materials herself for future use.

IT Elements: These ran adequately without any glitches.

The class did report that the pop-up technical definitions on the PowerPoint slides were too small to be fully legible in a projected class presentation.

3. Problems and Solutions

Access

The problems with content and access formed a pattern that was to be repeated throughout the study. Access was difficult at the best of times, but in addition staff often either changed responsibilities, became overloaded and unable to continue their initial interest, or in some cases had even left their job. The practice of logging contact details and following these up on a regular basis was extremely important to enable access to evaluators.

Content

Several of the comments made by the testers had been made previously by the SDiT steering committee, and changes were in progress.

The module progression was simplified, to leave a pair of FE-level modules, followed by a pair of HE level modules. The guidance for online resource usage was moved into to separate, stand-alone modules.

IT Resources

The window-switching problem for on-screen versions of the online resources proved difficult to solve. If frames were shrunk to aid easy navigation between programs, then the graphical illustrations became too small to be legible. It was decided that, since the two resource guides were now published as stand-alone modules, the paper versions of these would be promoted. These could then be used simultaneously with the use of the resource 'live' online.

The difficulty with the inclusion of pop-up definitions in PowerPoint slides was that PowerPoint was not really designed to incorporate pop-up windows. The work-around of using comments for the pop-ups was not adequate, since the font size is too small to be legible when projected, and cannot be altered.

The solution that was eventually devised was to include all the terms for which definitions were to be included in a separate MS Word bookmarked file, which was embedded in the PowerPoint slide and which opened up when selected by the user. This glossary can then be magnified by the user to enable legibility when projected.

Graphs were also added after every multiple-choice question to explain how the answer was obtained.

Evaluation of Survey Data in Teaching Resources University of Essex Lecturers, 19 Apr 2004

1. Evaluation Design

Sampling design Lecturers themselves form a distinct group of end-users, in that they are effectively making decisions as to which teaching materials to include in courses and to recommend to their students. In this respect they can be viewed as constituting what methods researchers refer to as 'gatekeepers', in that their decisions are a large determining factor in what materials are accessed by students.

In light of this the project team sought the views of lecturers who might include the SDiT materials in their syllabi. Two lecturers at University of Essex agreed to review the materials for possible inclusion in their courses - Dr Paul Iganski, who teaches quantitative research methods in the Sociology Department, and Dr Sheila Black, who teaches research methods in the Department of Health and Human Sciences.

Assessment Design

The assessment was conducted as a joint informal interview in view of the constraints of the time limitations of busy university lecturing staff.

2. Overall Assessment

General While our initial request was for an assessment of the teaching materials, the assessors were also very keen on the project as a whole. One of the main issues for them was the lack of statistical experience of any kind on the part of many of the students who were entering university courses. Dr Black estimated that only one in four of the undergraduate students she taught had any prior knowledge of even elementary statistical usage, and invariably most of these were psychology students. There is no longer any requirement for any mathematics qualification to enrol on a social science degree course at Essex. The lecturers were therefore extremely positive about the FE component of the project, believing 'if this could be done in schools it would be brilliant'.

Overall the assessors thought that the material was of high quality. They were especially taken with the explicit link in the modules between theoretical concepts and data analysis, which they believed in turn led students to examine data critically. This critical element was repeatedly stressed by Dr Iganski.

Both lecturers were very disappointed that the project was not at present scheduled to continue.

IT components

NSDstat Dr Black downloaded the program without any problems. She reported that the software was remarkably easy to use, requiring only a few minutes to learn. Furthermore, although the software was initially designed for teaching purposes, Dr Black believed that the software would be quite adequate for the majority of users requiring statistical analysis, 'it covers everything that most of the people I deal with are likely to want to do'.

However, both Dr Iganski and Dr Black believed that there was a considerable inertia regarding the use of SPSS at degree level. SPSS is to a considerable extent the industry standard, and as a result gaining experience in using SPSS is

in part a transferable skill in itself. There may therefore be some resistance to its abandonment.

Nesstar and the British Crime Survey

Dr Iganski welcomed the resource discovery guide, although he did stress that few undergraduates (he estimated less than five per cent) employed quantitative methods in their final-year project. Part of the long-term objective of projects such as SDiT is, of course, to alter that trend, so he suggested that this should not be a discouragement in itself.

Both of the assessors agreed with the view that lecturers would welcome the provision of more teaching databases, particularly at postgraduate level.

3. Modules

While the teaching materials were on the whole pitched at the correct level, it was reiterated that the usage of and demand for HE materials is extremely idiosyncratic; indeed the two assessors themselves had extremely different requirements. Unlike the FE sector, there is no national syllabus, neither is there any co-ordination of syllabi. There is therefore even greater stress on the need for materials to be, in the words of Dr Iganski, 'flexible'; 'I don't want a course package'. Dr Iganski believed he might wish to use 'elements' of the materials on his course, in a seminar, for example. Both assessors stressed the notion that lecturers would want to use different parts of the materials in different ways to suit a variety of different courses with individual approaches.

They believed that there would be a demand for other substantive topic areas, such as health (they viewed criminology and health as major markets). However, they suggested that the format of the modules could easily be adapted to other areas. In particular, Dr Black liked the possibility of problem-based learning for the professionals who tended to come into health studies.

The lecturers did agree with the steering committee view that the online version of the early modules may be useful as a self-paced 'catch-up' programme, given the lack of statistical experience of many students, or even as a revision session for mature students. However, the materials still need to be subject-based.

Specific suggestions

- Insert end-chapter summaries and also re-cap of skills learned, perhaps as a checklist.
- Further readings/links at chapter end.
- More definitions, even if only to recap on concepts covered. Could use both as links and as summary materials.

Evaluation of Survey Data in Teaching Resources

Workshop focus group, University of Cambridge, 21 June 2004

1. Method

Sample population The evaluation was conducted as part of a workshop aimed at higher education and further education tutors. We have previously identified teachers, lecturers and associated support staff as being ‘gatekeepers’ to the selection of learning materials by students, and this workshop might be viewed as a self-selecting sample of such staff with a particular interest in e-learning and either quantitative data analysis or crime analysis in the social sciences.

Ten lecturers attended this workshop, which was designed to allow hands-on usage of the e-learning SDiT materials and to facilitate a focus group evaluation¹.

Assessment Design The evaluation was conducted as a focus group, with a structured interview guide of relatively unstructured questions designed to enable the participants to isolate and focus upon individual key elements in the resources immediately after their usage, while avoiding unduly narrowing the discussion of these elements².

An evaluation pro-forma for more reflective feedback was also included, and participants were contacted about 10 days later and prompted to return these.

2. Focus Group Evaluation³

Overall Assessment The overall view of the materials was very positive, and indeed one of the participants intended to use the materials as a template for their own degree course and requested a teaching database.

The group thought that the level of the material was correct, and that even some degree-level students who may be unfamiliar with numerical analysis would benefit from the earlier modules. In this respect, the differing formats of the materials was felt to be an advantage, since the modules could be used either as tutor-led or as self-paced ‘those who know the earlier material can go fast, others can take their time’.

The group also pointed out that the material would be suitable for study-skills packages aimed at incoming undergraduates.

IT components

Nesstar The Nesstar online repository and analysis site had been entirely re-designed just a week previously, which had necessitated a re-write of several modules. However, both our materials and the new Nesstar service were commended, and Nesstar was regarded as a valuable resource⁴.

NSDstat The installation of the software onto LANs and servers appears not to be entirely straightforward. Rectifying this may require either better guidance on installation, or possibly a technical ‘tweaking’ of the installation software. It may even require a re-design of the software by the Norwegian Data Services (NSD).

While the SDiT demonstration version is free, the group believed that institution-wide licences for any other material would be necessary before they could even contemplate using the software, especially since part-time students must be able to work on it at home; 'they need a CD to take away'.

In addition, the focus group re-iterated previous judgments that there remains considerable inertia around the use of SPSS: 'the students would be reluctant to learn two packages, and SPSS is regarded as a transferable skill'.

Web site The group suggested improvements to the navigation and web layout of the modules, as well as checking links.

3. Modules This focus group showed similarities to the previous SDiT evaluation sessions in that the group members became most animated when discussing the content of the modules.

While overall the group commended the content 'very engaging', there were several suggestions as to extensions to the material. The glossary entries on pop-up screens were particularly popular, and it was recommended these should be extended. It was also suggested that slightly greater depth should be given to the explanation of contingency tables.

In addition, the provision of alternative and improved formulations of those measures that were criticised in the text would be welcome.

Any future work might consider extending the coverage of statistical processes to include other areas, such as more significance testing, higher levels of measurement and multivariate analysis. In addition, while the group viewed crime as a good choice of topic, other topics on their 'wish list' included health and social attitudes.

Specific Suggestions

- Add further text on contingency tables
- Publish SPSS syntax for crosstab exercise

¹ Stewart S. and Shamdasani P., *Focus Groups*, London: Sage 1990

² Ibid

³ A 'cut and paste' analysis on handwritten notes has been used here; a transcript was unavailable due to equipment failure

⁴ Subsequent to this workshop, a delegate at a conference wanted to know why such a 'wonderful' resource was not more widely publicised, saying 'it was worth coming here just for this'.

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664 56 214 998 875 21337572 12 4756 7 9067 232315 64 78 4 24 58708956243 769
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