

Chapter 5

Statistics Finland

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5.1 Introduction

The promotion of skills in statistical literacy and use of statistics is one of Statistics Finland's strategic goals. Statistics Finland's mission is to combine statistical data with the expertise in producing statistics and information services for the needs of society, to promote the use of statistics and to develop the national official statistics.

From the perspective of customer service the strategic challenges are to understand the needs of different customer groups and the means of meeting them, to instruct customers in how to use statistics as well as facilitate understanding of the various possible uses of statistical data. A successful customer relationship is a partnership which benefits both parties.

The target group of instruction in the use of statistics comprises all those who need statistical data. Statistical literacy is necessary in both everyday and working life. For instance, finding a news broadcast in which statistical key figures or concepts are not mentioned is a real challenge. Those working in the information society need to have more in-depth skills. In addition to the basic concepts, information users must also be familiar with data collection methods and presentation modes such as tables and graphs.

Certain target groups such as educational institutions and the media are particularly important from the perspective of understanding statistics and using them correctly. Educational institutions and the media redistribute statistical data and "educate" their own customers. It is vital that they receive Statistics Finland's support in this task.

Statistics Finland's co-operation with educational institutions takes both short- and long-term forms. In the short term Statistics Finland produces inputs to different teaching programmes, teachers' further education and research. In the long term Statistics Finland co-operates with educational institutions to educate young people into future information users, decision makers and data providers. This co-operation is also important for recruitment purposes; statistical offices compete with other employers for skilled labour force.

The media are the main distributor of statistical information in society. They are responsible for how people understand statistical information. The hectic nature of journalistic work sets its own limitations on the presentation of statistical information; in all the rush, too little attention is given to methods and concepts, and consequently they will not be communicated to those following the media. This makes it vital that services are developed which provide easy access to all the metadata related to statistics when they are needed. This is a key goal in the development of Statistics Finland's web-based service.

This article describes Statistics Finland's three key measures for promoting statistical literacy: training customers, production of online learning materials, and co-operation with educational institutes.

5.2 Description of the program's website

The resources for statistical literacy are given under three separate links:

Courses and Tailored Training

(http://tilastokeskus.fi/tup/tilauskoulutus/index_en.html),

eCourse in Statistics (http://tilastokeskus.fi/tup/verkkokoulu/index_en.html) and

Tools for Learners (http://tilastokeskus.fi/tup/oppilaitokset/index_en.html).

There are also other useful links, but those are more conventional and more closely related specifically to using data from Statistics Finland.

5.2.1 Courses and Tailored Training

Statistics Finland has been providing fee-based training for its customers for 20 years. Around 30 courses are organised every year. The main themes of Statistics Finland's customer training are:

- How to read and use statistics
- Statistical methodology
- Use of statistical software
- Topical themes related to statistical subjects
- Data sources of statistics
- Statistical graphics
- Dissemination and publication of statistical data

The courses are primarily intended for researchers, teachers and librarians, or generally for anyone in the public or private sector who has to work with statistics.

Tailored training is also arranged for various organisations. Such training is mostly offered about statistical methods and how they could and should be applied to each organisation's statistical needs.

Most of the training events last one or two days. Some of the courses are given as multiform training, in which conventional classroom teaching is supplemented with web learning periods, during which students study in a guided e-learning environment together with other students.

5.2.2 eCourse in Statistics

eCourse in Statistics is open to anybody and contains learning materials for independent studying. At the moment the online course offers lessons on 9 modules:

- How to use and read statistics
- How to search for statistical information
- Introduction to statistical thinking
- Introduction to demographics

- Labour market statistics
- National accounts
- Indices
- Thematic maps
- Statistical graphics

The eCourse in Statistics provides an introduction to the backgrounds of statistics, the purposes for which statistics are used and basic statistical methods. Each module is accompanied by exercises and examples. The English version was launched in 2005¹. The eCourse in Statistics is one of Statistics Finland's most popular services and receives continuous positive feedback from the users of the agency's Internet services. The modules are suitable as supporting material for mathematics and social science classes at secondary schools, as self-study material for orientation in statistical science courses at the tertiary level of education, and in general for anyone needing statistical information in their work.

The eCourse in Statistics service is currently being renewed. Online teaching technology and websites have evolved considerably since the establishment of the eCourse in Statistics in 2002. The teaching content of the eCourse has not changed, but the service's user interface was outdated. Web products have short life cycles and continuous product development is necessary. The purpose is to develop a more interactive and visually appealing user interface than before to meet the needs of especially the users at educational institutions. The work on linking also other Statistics Finland web pages such as the concept database to the eCourse on Statistics is currently underway. Further work includes also planning exercises for different fields and levels of education which function as seamless supporting materials in teaching. The idea is to engage teachers in the planning of the exercises. A good network of teachers interested in statistical teaching has been created e.g. through the Statistical Literacy Competition and the ongoing collaboration with teachers' organisations.

5.2.3 Tools for Learners as part of co-operation with educational institutions

Statistics Finland started the systematic development of its services for educational institutions in the beginning of the 2000s. Statistics Finland's customer work is based on the Customer Relations Management concept, which includes the segmentation of key customers. Educational institutions are one key customer segment alongside local government, central government, companies and research institutions. Statistics Finland has divided educational institutions further into the following sub-segments:

- Universities and institutions of higher education
- Polytechnics
- Vocational education
- Upper secondary schools
- Comprehensive schools
- Early education, and

¹The English language version does not include the examples and exercises.

- General education

At present co-operation focuses on universities and institutions of higher education, polytechnics and upper secondary schools. The long-term intention is to extend the measures to all education sectors.

Statistics Finland's Tools for Learners pages contain e-learning resources, statistics classified by subject and statistical services which can be used in teaching various subjects and to support the management of educational institutions. The pages also contain news on events and other current issues in the field of teaching. The *Tools for Learners* pages can be used by comprehensive schools, upper secondary general schools, vocational institutions, polytechnics and universities alike. The pages can benefit teachers, students, headmasters and those engaged in the planning and developing of teaching.

The learning resources are free of charge and can be used as

- a) teaching material
- b) source material for planning teaching
- c) source material links in e-learning courses
- d) links from the pages of statistical institutions
- e) a guide for thesis work.

5.3 An activity that encompasses the mission statement and the competencies.

The *How to read and use statistics* module is a good example of the basics everyone should know about statistics when we consider statistical literacy. The module is a section under the eCourse in Statistics². The module has been compiled by an experienced Statistics Finland expert, Mr Jussi Melkas, who regularly teaches statistical literacy to users of statistics at different levels and from different professions.

The aim of the *How to read and use statistics* module is to provide the basic tools and skills that are needed to understand statistics. Students learn about the basics of statistical research and key statistical concepts. The module provides a succinct description of what kind of information can be communicated by means of statistics and what kind of conclusions can be drawn from statistics about different phenomena. It also looks at the representation of statistical data and offers some useful clues about searching for statistical data. The module is composed of four lessons outlined below.

- The *fundamentals of statistical thinking* teaches the basics necessary to be able to interpret statistics. The lesson covers the implementation of statistical research and the most common methods of describing statistical data.

² The English language version of the How to read and use statistics module does not include the illustrative examples and exercises that are included in the Finnish language version.

- The *concepts of social statistics* introduces some of the concepts that citizens are bound to come across in the media and the news on a daily basis such as population, income, welfare and well-being, labour market, inflation and GDP. The lesson deals with these concepts from a statistical point of view.
- *Ways of displaying statistics* teaches what a statistical table is like and how statistical graphics are used. Students learn about the most important types of graphic data displays and see how they are compiled. The lesson also covers the quality criteria of statistics.
- *Searching for statistical information* provides basic directions for anyone who needs to find reliable sources of statistical information. The lesson offers useful advice for searching both national and international statistical data.

5.4 Genesis/History of the project and alliances made for its completion

Statistics Finland has a 20-year-long tradition in teaching statistical literacy. Customer training has become an integral part of the services Statistics Finland offers to its customers. Unlike other statistical offices Statistics Finland's customer training is a fee-based service, but customers still continue to want it. This does not mean that free-of-charge seminars would not be organised for key stakeholder groups and users of statistical information - quite on the contrary. The Head of Customer Training responsible for planning the training provided and two Customer Training Secretaries who assist in marketing and the practical realisation of the courses work in the customer training unit. The trainers are recruited from among the agency's own experts (some 50 persons each year). Co-operation partners from e.g. university Statistics departments are also used as trainers. Organising courses has become a well established activity at Statistics Finland.

The eCourse in Statistics was produced during a three-year project financed with the agency's development project funding. The development project had its own project manager and a web technology expert at its disposal. The contents of the eCourse in Statistics were compiled by over 10 Statistics Finland's experts alongside their other duties. The service could not have been realised without separate funding. The eCourse in Statistics is updated annually. Separate funding will be sought for the updating of the eCourse in Statistics to be launched this year. The work involved will be outsourced to an external provider.

Active collaboration with educational institutions was launched with the project funding granted by the European Social Fund. Funding was received for the period 2002-2006 during which a large group of polytechnic teachers were trained and web materials tailored for their needs were produced. The project was staffed by a project manager (a teacher of mathematics) and a training officer (a pedagogue). Three statistical experts also received project funding to produce the basic contents of the online learning materials. For a few months the project was supported by an online editor, who edited the online learning materials.

After the project was finalised the collaboration with educational institutions has continued as a part of regular duties. So called segment teams are responsible for the development of the customer service provided to different customer segments. The educational institutions segment team comprises various Statistics Finland experts who work together to design and realise services aimed at educational institutions. The key projects of this current year are the updating of the eCourse in Statistics, the Statistical Literacy Competition and the systematic organising of university student organisations' visits. Separate funding has been applied for from the Finnish National Board of Education for the statistical education of teachers at the upper secondary school level as well as other persons.

The pace of development slows down noticeably when the work is adopted as part of regular duties. It is, however, important to continue the efforts to advance this good cause. The tasks must be broken down into smaller entities and over a longer time period. Following up on possibilities of obtaining external funding and actively applying for it are of key importance.

5.5 Assessment and Dissemination

Statistics Finland conducts regular surveys into customer satisfaction, the image of the agency as well as how citizens understand key statistical concepts. According to the customer satisfaction survey, educational institutions make up the most critical customer segment. Collaboration with Statistics Finland is, however, seen as meaningful and educational institutions report being especially satisfied with the online services provided.

According to the report on using digital technology in teaching (*Digitaalitekniikka opetuskäytännössä*, 2005), teachers in Finland most often use the Internet pages of the publishing industry and general government. Statistics Finland's Internet pages (stat.fi) were the most used among vocational education institutes and polytechnics. Statistics Finland's Internet services ranked high also among other educational institutions.

Feedback is collected on individual courses as regards their contents, usefulness and practical organisation. When designing courses and e-learning materials for educational institutions, the needs of teachers have also been surveyed with inquiries and interviews. Educational institutions' representatives have been involved in the project design teams. During the design phase of the eCourse in Statistics its user interface and the navigation structure were tested by Statistics Finland's Survey Laboratory. Customers also have the possibility to give direct feedback, e.g. via the Internet pages.

Successful co-operation requires close familiarity with the needs and tasks of educational institutions. Genuine interaction through concrete projects is needed. Various competitions and joint projects with educational institutions are well-suited to promoting co-operation.

5.6 Marketing

Marketing of products and making them familiar to customers are important. Statistics Finland markets its services by email and direct marketing, by participating in fairs and writing articles to periodicals and by arranging customer events and networking with various actors. Co-operation with educational institutions has started with the associations of school principals, teachers of mathematics and teachers of history and social sciences. Statistics Finland's collaboration with Finnish universities is extensive and involves various forms of co-operation, such as mutual research and teaching co-operation and guidance for tertiary education students' traineeships and diploma work at Statistics Finland. The work has also been presented at National and International Statistical Societies' meetings such as the American Statistical Association in Salt Lake City, 2008 and 55th Session of the International Statistical Institute in 2005.

Statistics Finland's contacts with educational institutions and the launching of various forms of co-operation have been welcomed in a very positive spirit and preconditions for co-operation are favourable.

5.7 The Future

The general tendency seems to be that more and more is being invested in services for educational institutions and different co-operation modes. The Internet and e-learning environments create increasingly good opportunities for this. Several statistical offices already offer e-learning materials on the Internet.

Learning from one another and utilising solutions already found by colleagues in other offices should be more effective than at present. All offices battle with decreasing resources, and it makes no sense to re-invent the wheel. Many exercises and learning materials can, with some fine-tuning and translation work, serve educational institutions in different countries. A good example of this is provided by the exercises of the Statistical Literacy Competition.

A practical tip can be given here. The national statistical offices have their own web pages within the ISLP project: Descriptions and links to training programmes and learning materials sponsored by national and international statistical offices. At the moment, the pages contain descriptions of the training programmes and learning materials produced by almost 30 national statistical offices or international organisations.