

## **Workshop on Human Resources Management and Training in Statistical Offices 14-16 September 2010**

### **Session 2: Training in official statistics**

#### **Training Programme in Statistical Skills -towards top statistical know-how and solid professional identity**

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#### **Summary**

To sustain the professional competence of its personnel, Statistics Finland has designed a training programme in statistical skills. The programme consists of basic studies and advanced studies. The basic studies are intended for the whole personnel and form part of the job orientation system of new employees who attend it within six months of their recruitment. The advanced studies are supplementary education for statistical experts with more years of service. The studies take two years and are intended for personnel who need to deepen and broaden their professional mastery in statistics.

The contents of the training programme are derived from the description of the competences required in statistical work at Statistics Finland. The programme contains introductions to Statistics Finland's organisation and statistics, the production process of statistics and the principles that steer statistical work. From the employer's perspective the training aims to solidify coherent procedures, support knowledge transfer from seniors to younger experts and create preconditions for the personnel's internal mobility. From the employees' point the training diversifies statistical knowledge, strengthens professional identity and increases collegial interaction between co-workers. The training provides not only different abilities needed in demanding statistical work but also tools for understanding the substance of professionalism in statistics and of being an employee of Statistics Finland.

The training programme contains both classroom lessons and distance learning. The classroom lessons make extensive use of group work and dialogue between students and trainers. The exercises included in the studies support learning while working and their central aim is to embed quality thinking into statistical work.

The training programme is being evaluated continuously. The evaluations examine both the students' satisfaction with their studies and accomplishment of the learning objectives set for the programme. The efficiency of the training is evaluated by means of the students' and their supervisors' self-assessments of the experienced benefits from the training programme approximately one year after its completion. Over 100 employees of Statistics Finland had completed the training programme by 2009. It has become one of the most important and essential ways of sustaining the personnel's professional competence at Statistics Finland.

## 1. Introduction

Statistics Finland aims to be a **learning organisation**. This means that personnel skills are actively developed and that practices enabling the management of skills are maintained. One essential means of developing skills is systematic and goal-oriented personnel training. Since the year 2005, the **Training Programme in Statistical Skills (TPSS)** has played a central role in the personnel development efforts of Statistics Finland. This training programme ensures the practical implementation of many strategic goals of Statistics Finland, which are relevant to the competence of Statistics Finland personnel on one hand, and the quality of statistical work on the other. TPSS is not only about learning knowledge and skills required in statistical work, but also about applying these in practice. Learning coherent practices and internalising statistical ethics and norms as part of one's statistical professionalism are the foundation of high-standard and quality statistics. This is the goal to which the Training Programme in Statistical Skills aims to contribute.

## 2. Objectives of the Training Programme in Statistical Skills

The objective of the Training Programme in Statistical Skills is to develop the professional competence of Statistics Finland experts and to ensure a high standard of core skills at Statistics Finland. The objectives of the training programme are associated with developing **professional skills** on one hand, and **organisational skills** on the other (Figure 1).



Statistical work and professionalism have many aspects, in which you can only become skilled by means of on-the-job learning or specific training provided by the statistics sector. This is why in-house skills development measures of statistical agencies play an important role. **Professional skills in statistical work** include know-how associated with producing statistics (for example methodology), knowledge of the phenomena on which statistics are compiled, as well as competence relevant to needs for and presentation of statistical information. These aspects comprise the central learning objects of the Training Programme in Statistical Skills.

In addition to professional skills, organisational skills are needed, or **knowledge of the statistical agency** not only as a producer of statistics but also a state agency, customer service organisation and work community. Organisational skills also include an understanding of one's own department, unit and work assignments as part of the shared basic task of the organisation.

In expert work, **socialisation** and **networking** in a collegial community is vital. Students taking part in TPSS consider the opportunities for networking one of the most important benefits offered by the training. This includes getting to know other departments and co-workers, making new contacts, exchanges of experience and collegial discussions between the students and with the trainers.

From the perspective of the organisation, an important objective of the Training Programme in Statistical Skills is supporting **internal mobility of the personnel**. Besides improving the competence of the individual and his or her capacities of mastering new tasks, TPSS also enhances interest and motivation to expand the scope of one's tasks.

TPSS also supports Statistics Finland's objective of promoting the **sharing and transfer of knowledge** from senior to more junior experts. This takes place in two ways: 1) good practices in the organisation are highlighted through sample cases in the training programme and 2) in-house experts of Statistics Finland are used as trainers in the programme. On one hand, the trainers have a solid competence in statistical work and senior expertise in the learning objects of the training. On the other, their extensive careers at Statistics Finland and experiences of the different phases of the organisation provide a perspective to the agency's history in form of anecdotes related during training. This plays a role in understanding the organisational culture of Statistics Finland, the long traditions of statistical work and operating methods that are collectively regarded as important. For a summary of the objectives of the Training Programme in Statistical Skills from the perspective of the organisation and the statistical expert, see Table 1.

**Table 1. Objectives of the Training Programme in Statistical Skills from the perspective of Statistics Finland and a statistical expert.**

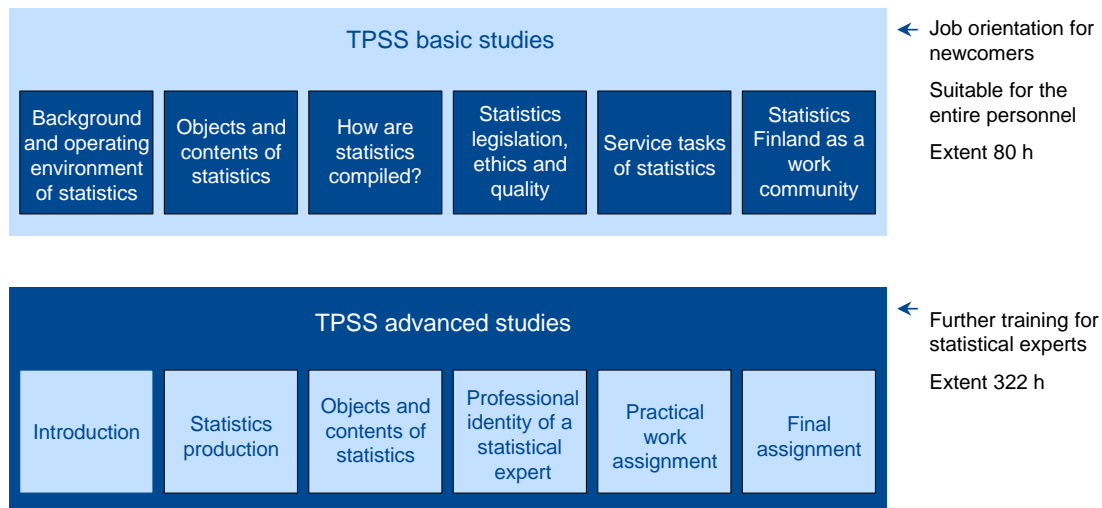
Objectives of training from the perspective of SF:	Objectives of training from the perspective of the expert:
<ul style="list-style-type: none"> <li>- ensuring a high standard of statistical skills of the personnel</li> <li>- harmonising statistical thinking and enhancing shared operating methods in statistical work</li> <li>- encouraging peer learning and cross-statistical co-operation</li> <li>- facilitating the planning of an expert career and creating preconditions for internal mobility</li> <li>- supporting transfer of knowledge from senior to junior experts</li> </ul>	<ul style="list-style-type: none"> <li>- diversifying expertise in the statistical process and its various phases</li> <li>- increasing knowledge of the social phenomena that statistics describe</li> <li>- increasing knowledge of the various statistics produced by Statistics Finland</li> <li>- facilitating the development of statistical expertise and the students' professional identity</li> <li>- increasing collegial interaction and widening the professional network</li> </ul>

### 3. Structure and learning objects of the Training Programme in Statistical Skills

The training programme consists of two modules: TPSS basic studies and TPSS advanced studies. **Basic studies** are part of the job orientation of new employees, and they are intended for the entire personnel. Employees take part in these studies within six months of their recruitment, and their extent is 80 hours. Basic studies are organised twice a year, in spring and autumn. **Advanced studies** comprise further training for statistical experts that complements their professional skills. The duration of the studies is two academic years, and their extent 322-412 hours. A new class starts once a year.

The learning objects of TPSS basic and advanced studies are based on the **competence model of statistical work**<sup>1</sup>, which describes statistical skills that are relevant for Statistics Finland. Even if the studies are similar in their content, there are differences in the focus. Basic studies prioritise organisational skills and basic capacities for statistical work, while advanced studies focus on examining the process of statistics compilation and the phenomena described by statistics. The learning objects of advanced studies are also more theoretical than those of basic studies. For the structure of the Training Programme in Statistical Skills and the themes of the modules, see Figure 2.

<sup>1</sup> For the competence model of statistical work, see Appendix 1.



**Figure 2. Structure of the Training Programme in Statistical Skills**

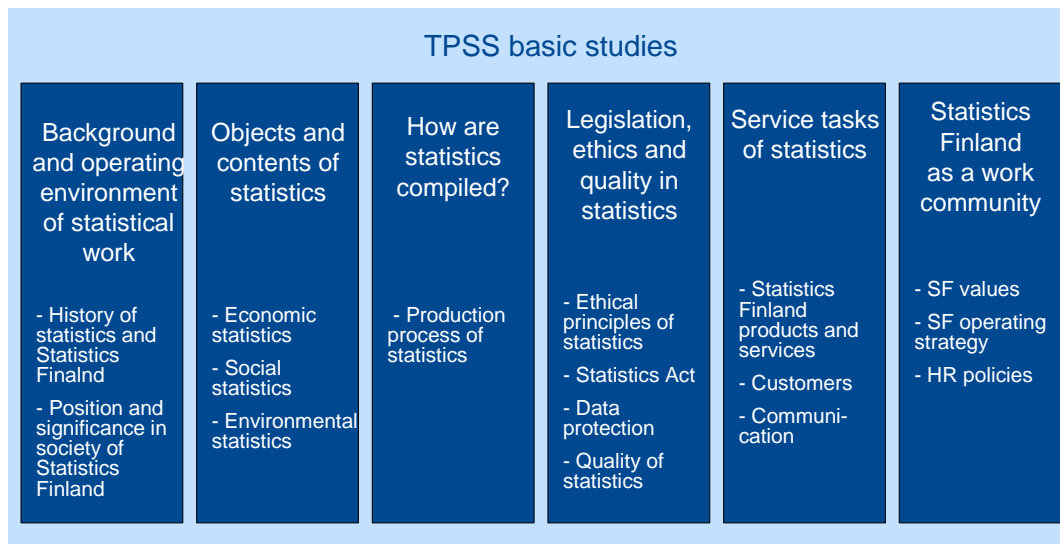
In the following Chapters, we will take a closer look at the contents of TPSS studies and the implementation of the training programme. We will first discuss TPSS basic studies, and then the advanced studies in a closer detail.

#### 4. TPSS basic studies

The basic studies in the Training Programme in Statistical Skills are primarily intended for **new recruits** at Statistics Finland with an employment contract of at least one year. The contents of the basic studies are suitable for new employees entering **all departments and various tasks**. The aim is to impart to the entire personnel the basic capacities for working at Statistics Finland. The idea is that all employees must be familiar with the basic task of Statistics Finland, whether they are involved in implementing it (statistical units) or supporting it (support units).

In addition to newcomers, **personnel having worked with the agency for a more extended period** may also take part in the basic studies. For example, the programme is suitable as revision after a long leave of absence, or for updating one's skills concerning changing practices or new themes on which statistics are produced. The extent of the basic studies is **80 hours**, and they are run over a three-month period. The studies consist of six days of lectures (40 hrs) as well as independent study and e-learning (40 hrs). Independent study includes individual and group assignments associated with the student's own work and small group meetings. In course of the studies, the students also visit the Survey Laboratory and the Library of Statistics.

As a final assignment of their basic studies, the students write an analysis of how they can in their own work influence the implementation of Statistics Finland's operating strategy and contribute to achieving the targets of their own department. For the learning objects of the Training Programme in Statistical Skills basic studies, see Figure 3.



**Figure 3. Training Programme in Statistical Skills, basic studies learning objects.**

TPSS basic studies have been organised since 2005, and more than 100 employees of Statistics Finland have completed them. Two out of three of these were newcomers. The number of those having dropped out is rather low, or as little as 8%. The total number of trainers in TPSS basic studies is 29 people, all of whom are employed by Statistics Finland. In addition, there is a basic studies leader, who also acts as a tutor for the students.

Since 2005, regular **feedback on the training programme**<sup>2</sup> has been collected as regards the basic studies. TPSS was found useful by 91% of the participants, and 74% would also recommend TPSS to their colleagues. Some comments extracted from participant feedback:

"The training gave me knowledge that opened up a new perspective to the activities and aims of Statistics Finland. It also gave me a general idea of the various topics of statistics and their essential characteristics. Previously I may not have had a very clear idea of what happens in the other units. Now I can also better understand the significance of my own unit and team at Statistics Finland."

"We had fairly good opportunities for personal participation during the training. What I liked best was unquestionably the group work and the discussions with the senior statisticians. The assignments forced us to use our own brains, which was sometimes challenging."

"After all these years, I finally had to think about what kind of actor Statistics Finland is in our society, what its role is, and all the uses to which the information collected by Statistics Finland can be or has been put. I sheepishly admit that until now, I have just myopically toiled away in my own room at my own task, with no further thought for the purpose of Statistics Finland or my own activities, or the more far-reaching social connections."

## 5. TPSS advanced studies

The aim of the advanced studies in the Training Programme in Statistical Skills is to provide the personnel with **more in-depth and extensive statistical professional skills**. The duration of the advanced studies is two academic years and the minimum extent 322 hours. In addition to

<sup>2</sup> See Appendix 2 for the training programme feedback form.

compulsory studies, the students can take optional courses. The maximum extent of the studies is 412 hours. The pilot course of TPSS advanced studies was organised in 2007-2009. The first yearly class started their studies in November 2009. **15-20 students** at a time start in this two-year training programme.

### 5.1 Target group

The target group for TPSS advanced studies is **experts working in the statistical units**. The criterion for starting the studies is that the student's current tasks require skills in statistics production and that his or her short-term professional development needs involve more in-depth and extensive skills in statistical work. Another requirement for taking part in the training is a **minimum work experience of two years** at Statistics Finland. An additional requirement is having mastered at least the following subject matters: 1) TPSS basic studies or similar knowledge, 2) basics of statistical science, 3) basics of the SAS information system, and 4) proficiency in English.

Every year, 15-20 students are selected for the advanced studies. Two places are available for each department of Statistics Finland. Decisions on who will take part in training are made by the director of the department together with supervisors. Applications are submitted on a form that details the reasons for applying for the training and the links of the studies with the applicant's current and future tasks. The **application procedure** is an effort to ensure a responsible attitude and commitment to a long study programme. In connection with the application process, it is important to show that the training has concrete objectives which require a joint commitment by both the employee and the employer.

### 5.2 Learning objects

The advanced studies in TPSS comprise **four modules**, which consist of individual **courses**. In addition, the studies include a **practical work assignment** and a **final assignment**. For the contents of the advanced studies in the Training Programme in Statistical Skills, see Figure 4.

TPSS advanced studies				
<b>Module 1:</b> Introduction  I. Orientation to studies  II. Statistics and the society  III. Statistical thinking  IV. Processes and process management  V. Quality of statistics  ( Term 1 )	<b>Module 2:</b> Statistics production  I. Operating environment of statistical work  II. Planning of statistics  III. Data collection  IV. Editing and analysis of data  V. Presentation and publication of statistics  ( Terms 2 and 3 )	<b>Module 3:</b> Objects and contents of statistics  I. Prices and costs  II. Enterprises  III. Labour Market  IV. Population  V. Living Conditions  VI. Environment and natural resources  VII. National accounts  ( Term 4 )	<b>Module 4:</b> Professional identity of a statistical expert  I. Statistical work and I  II. Statistical professionalism  III. Skills and learning in statistical work  IV. Hallmarks of expertise  V. Being part of SF and organisational culture  VI. Statistical work in transition  ( Terms 2 and 3 )	<b>Practical work assignment</b>  ( Term 4 )  <b>Final assignment</b>  ( Term 4 )

**Figure 4. Training Programme in Statistical Skills, advanced studies learning objects.**

For an advanced studies course list and the relevant workload in hours, see Appendix 3. Because the training programme is rather extensive and as a whole only targets part of the personnel, it is also possible to participate in advanced studies without completing the entire training programme. The so-called **open TPSS courses** are accessible to the entire personnel without specific application or selection criteria. Credit for individual courses completed can be given in future TPSS studies if the student intends to complete the whole training programme at a later date. In 2009, 89 employees of Statistics Finland took part in open TPSS courses. See Appendix 3 for a list of open TPSS courses.

### 5.3. Implementation of the training

The advanced study courses consist of contact and remote learning. The courses are structured around **days of classroom study**, which include lectures and activation teaching, such as discussions led by the trainers and group work assignments to be completed during the training day. **Distance studies** consist of studying literature, group meetings and individual exercises. The purpose of the exercises is to support on-the-job learning, and they require personal consideration of the issues to be learnt and application to statistical work of the studies. The distance learning partly takes place in the e-learning environment of Statistics Finland.

Each student taking part in the training programme prepares a **personal study plan (PSP)** to support his or her TPSS studies. The PSP defines the student's personal learning objectives in TPSS and the schedule of completing the studies. The PSP also helps the student to examine the link of the TPSS studies with his or her own tasks and career plans at Statistics Finland. The PSP is also important from the point of view of the employer; it provides information on the students' expectations of the studies and helps to assess the efficiency of the training after the studies.

As a course book, the students study the handbook *Quality Guidelines for Official Statistics* throughout their advanced studies. **Quality thinking** is also embedded in the studies through the practical work assignment. In the pilot training programme (2007-2009), the assignment consisted of producing a DESAP evaluation of the statistics selected by the students. In 2009-2011, the **practical work assignment** will be about statistical auditing. Statistical auditing is part of the assessment and development of internal statistical and general quality at Statistics Finland. In the statistical auditing process, the production process of an individual set of statistics is examined, as well as the criteria set on the statistics and the fulfilment of these criteria. The practical work assignment includes participation in assessing the quality of the statistics and writing an evaluation report.

The **final assignment** of the studies is to write an essay on the student's own TPSS studies: how the objectives set for the training were achieved, what benefits the student has derived from the training so far and how he or she would like to, or intends to, make use of the TPSS studies in the future.

### 5.4 Resources

Implementing the advanced studies of TPSS is a major investment for Statistics Finland. Majority of the TPSS trainers are in-house experts of Statistics Finland. In addition, visiting lecturers are also invited from other agencies, universities and research institutes. Currently, there are 22 **main trainers** involved in the advanced studies, who are responsible for leading the courses and planning the training together with the Chief Training Officer. In addition, some 80 **lecturers** take part in the training provision. Administration of the training is the duty of the Chief Training Officer and Training Secretary from HR.

For the costs of the studies for one yearly course (two academic years), see Table 2. Majority of the costs are incurred as the working time spent on training by the students, trainers and organisers. A study programme of two academic years takes up 2.3-3 person-months per each TPSS students depending on the number of optional courses. One lecturer spends 4-7 hrs/course on teaching and

preparing learning materials. The time spent by a main trainer is 3.9-5.7 person-days depending on whether the course takes one or two days. Training administration accounts for 12 person-months, including the working time of the Chief Training Officer and Training Secretary. Additionally, other training maintenance costs are incurred: fees of visiting lecturers, annual trainer coaching and the maintenance costs of the e-learning environment.

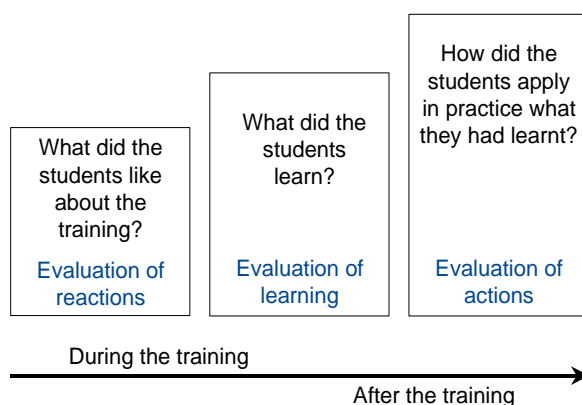
**Table 2. The costs of advanced studies for one yearly course.**

	Person-months	Payroll cost, € *)
1) Total working time requirement of TPSS students (1 person)	2.3 - 3.0	( 1 person) 12.300 (20 persons) 246.000
2) Total working time requirement of main trainers (22 persons)	4.3 - 6.3	30.100
3) Total working time requirement of lecturers (80 persons)	2.3 - 4.0	19.100
4) Administration of TPSS (Chief Training Officer and Training Secretary)	12.0	50.800
5) Coaching of TPSS trainers, an outsourced service		5.000
6) Fees of outside lecturers		4.500
7) E-learning environment maintenance costs		1.500
		<b>Total 357.000</b>

\*) Calculation of payroll cost based on average basic salary of the group (including overheads).

### 5.5 Evaluation of the training

As TPSS is a major investment for Statistics Finland, it is important to assess the benefits it provides both for the individual and the organisation. The TPSS training is evaluated at three levels (Figure 5). On one hand, the studies can be evaluated while they are in progress, and on the other, benefits derived from the training may only be recognised over the longer term after the studies have been completed.



**Figure 5. The levels of training efficiency.**

The most common way of assessing the success of training is to evaluate **participant satisfaction**. Feedback requested immediately after training or an individual course provides information on participant satisfaction with such as the learning objects, teaching methods and general arrangements of the training. In the TPSS training, student satisfaction with the training is gauged numerically by means of a feedback form (Appendix 2), based on which feedback summaries for each course are produced for trainers and training organisers. This feedback is used for planning the training, mainly as regards development of content and implementation.

A good level of satisfaction with the training promotes learning. Training that has been evaluated as successful (for example, a lecture experienced as interesting) does not, however, necessarily provide information on whether the training objectives have been reached, on learning or on



efficiency of the training. What is significant in personnel training is the **application of the knowledge and skills learnt** in practice and utilising what has been learnt in new situations, such as new tasks. Learning and achievement of learning targets are monitored while the training is still in progress, for example through exercises assigned to students. Table 3 gives some examples of TPSS exercises. On one hand, doing the exercises is part of the learning process, and they promote the practical application of what has been learnt. On the other hand, exercises completed by the students help the trainer to assess how well the students have understood the entity to be learnt.

**Table 3. Learning objectives and examples of TPSS exercises.**

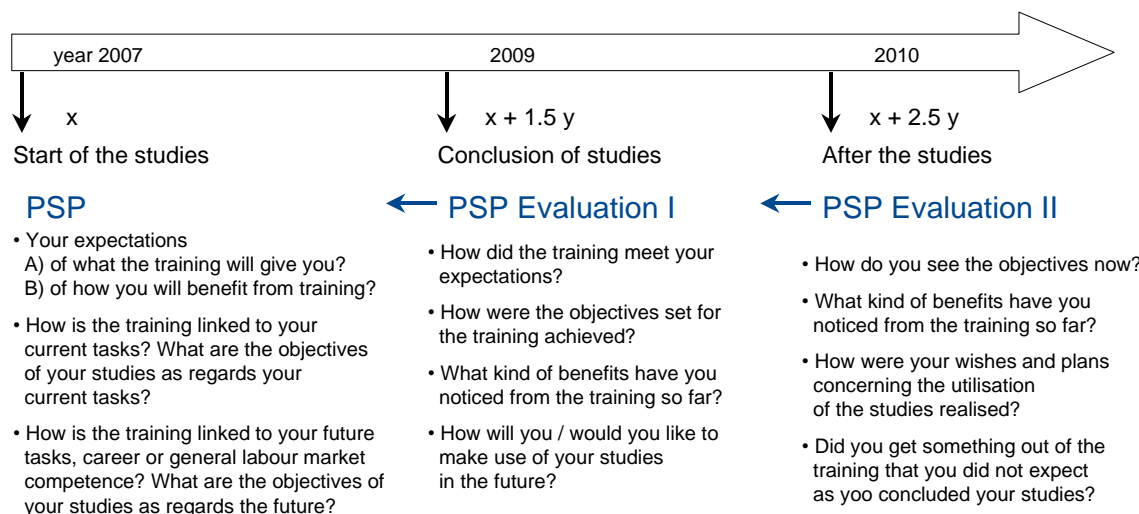
Building of knowledge, memorising of knowledge	"What are the criteria for OSF?"
Mastering and application of knowledge	"How can I contribute to the implementation of the SF strategy in my own work?"
Resolving real-life situations and practical challenges	"Evaluate the requirements of statistics legislation and possible risks in your own statistics. How could you influence the risks?"
Development of working methods and renewal of operating methods	Practical work assignments: DESAP Statistical auditing

The assessment of learning also includes a **self-assessment** of learning by the students. In feedback collected after an individual course, the students are asked to evaluate the course in terms of their own learning (Appendix 2, Question 4). It is difficult, however, to evaluate the usefulness and efficiency over the long term immediately after the training.

When assessing the efficiency of personnel training, what is particularly interesting is establishing if the participants apply in their work what they have learnt as desired, or **how the learning has been translated into actions**. To enable a reliable assessment of the long-term impacts of learning, an adequate time period has to pass. It has been suggested that the long-term impacts of training could only be assessed at the earliest 6-12 months from completion of the training. As regards TPSS advanced studies, one of the objectives is to promote the internal mobility of experts. The career paths of those having completed TPSS training can be followed, but this alone will not be sufficient to gauge the efficiency of the training; it is difficult to prove that a certain type of a career path is specifically due to TPSS training, as the development of competence and the career paths are influenced not only by training but also many other simultaneous factors.

In TPSS, the long-term impacts of training are monitored using the students' **personal study plans** (Figure 6). The personal goals of the students are written down in the PSP at the start of the studies. As plans may become more specific or change while the studies are in progress, the plan is reviewed at the end of each academic term. At the end of the studies, a comprehensive evaluation of the TPSS studies is produced in form of an essay. This essay doubles as a **final assignment** of the TPSS studies, in which the students look at how the objectives set for the training were achieved, what benefits the student has derived from the training so far and how he or she would like to or intends to make use of the TPSS studies in the future. One year after concluding their studies, the students complete another comprehensive evaluation of the TPSS studies (Evaluation II) by going back to the final assignment written earlier. This allows them to **reflect** in relation to present on their experiences and plans of a year ago. This provides information on the **long-term impacts** of

the studies, also those that could not be perceived at the time of conclusion of the studies. In addition to the evaluations produced by students themselves, the supervisors of the TPSS students may also take part in assessing the efficiency of the studies. The **supervisors** assess the efficiency of the TPSS training on the professional expertise of their personnel (e.g. multiple skills), work results (e.g. quality of the results) and other development (e.g. new tasks, career plans).



**Figure 6. TPSS efficiency evaluation: how has the learning been translated into actions? Pilot training as an example (2007-2009).**

## 6. Creation of TPSS -what have we learned?

The Training Programme in Statistical Skills was planned in course of a two-year project. Statistical experts from all Statistics Finland departments took part in the project work; from the beginning, the contents of the courses were planned in close co-operation with the future TPSS trainers. The participation of all departments in planning the training was a prerequisite for the project's success; TPSS became a joint project of the entire organisation with a shared commitment to its implementation. The commitment of management and supervisors to the project and their support for the training programme, also in its implementation phase, similarly played a major role. Sustaining and developing personnel skills are considered important at Statistics Finland, and this is reflected as appreciation for TPSS.

In terms of the success of TPSS, however, the most important factor is likely to be the **TPSS trainers**, whose expertise and enthusiasm translates as an outstanding training programme. The TPSS trainers collectively assume responsibility for developing the personnel of Statistics Finland, and they wish to be involved in sharing their own knowledge with their colleagues. The best reward for the trainers is likely to be the interest and active role of the TPSS students in the training, and the appreciation shown for the trainers' expertise.

As much as possible, TPSS strives for **dialogic learning**. This means a great deal of discussions and interaction between the students and trainers in the learning situation. Dialogic learning differs from learning by conventional lecturing in that the trainer is a co-learner of the students and an equal participant in discussions in the training situation. Dialogue takes place on reflective questions, and the students gather around for discussions in which different perspectives are encouraged. An attempt is made to personalise the subject, to make it significant for each student. A number of TPSS courses include dialogic sections; such as the "Professional identity of a statistical expert" course is completely based on this method.

Dialogic learning requires a **new way of thinking** as regards training. The TPSS trainers have debated the question of whether they should be teaching their students about how things should be or how they really are. An aim for good practices and their assimilation is one of the training programme's objectives. What is equally important, however, is highlighting the problems of the organisation and a critical look at the organisation's operating methods. Collegial reflection of various needs for change in the organisation and looking for solutions are learning in its best form. This way of thinking is also likely to encourage the trainers in openly learning together, as they can focus on slightly unfinished issues, or questions to which there is no answers with the students.

TPSS is a major investment both for the student and the employer. Taking part in the training is a **psychological agreement** showing that the employer is willing to invest in their employees and, on the other hand, that the employee is willing to invest in his or her competence at Statistics Finland. Even if TPSS does not automatically guarantee a certain type of career development at Statistics Finland for the student, it nevertheless helps to orientate the employee's own skills and interests in the future. From the employer's point of view, completing the studies is an indication of the employee's skill potential and capacities to master certain themes. TPSS is also an indication of the employee's interest in developing his or her professional competence and motivation to learn.

The impacts of a long training programme that enhances professional skills on the student often are comprehensive. The impacts of the training may emerge as new tasks and even career advancement, but the students' subjective experiences of developing their own competence and enhancing their expertise and professional identity are equally important. The following summary of how TPSS students felt about the programme at the end of their advanced studies aptly describes the strengths of the training:

"I applied for the training programme so that some time in the future, I could call myself a professional of statistics. During the programme, I realised how useful it is to take an in-depth look at the activities of Statistics Finland, various stages of statistics production and, in particular, different statistics. My understanding of a uniform Statistics Finland and the importance of joint operating methods is considerably clearer."

"During the lectures, it was a pleasure to realise how skilled, competent and expert personnel we have here working with statistics. My appreciation for the expert work performed at Statistics Finland increased considerably during the training."

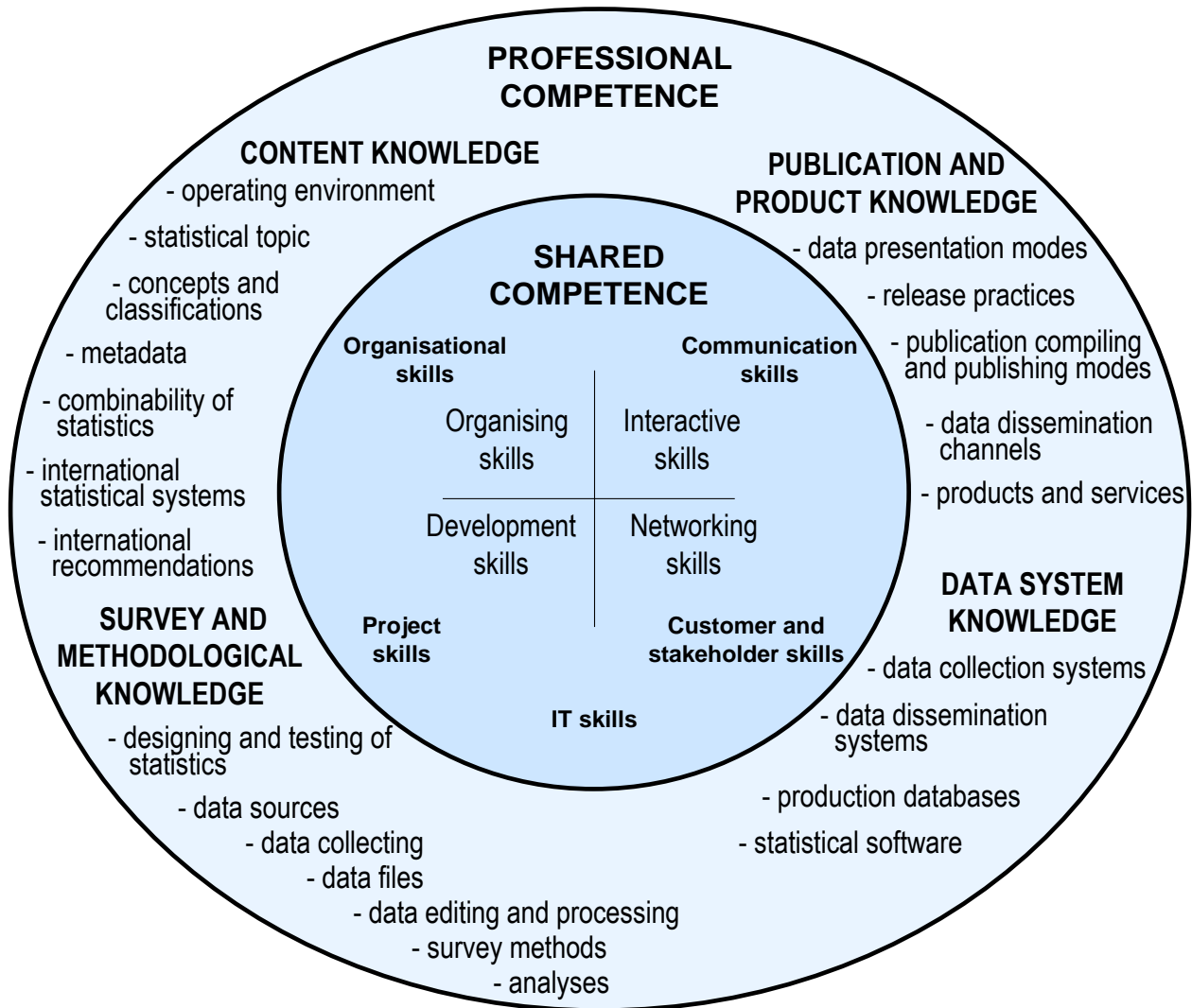
"It was a joy to see how many good and inspiring trainers we have in the agency. Both experts that were already known to me and enthusiastic young talents were involved. I particularly value those who took up problems and objects for development. Indeed, the best part of the training was discussions, which sometimes were critical, and lecturers who dared also talk about problems."

"Some of the best parts of the training programme were the expert lectures and group work. We completed group assignments successfully and had fruitful discussions. The work was carried out in an open atmosphere, and all participants were brave enough to bring up their own ideas."

"I feel my work motivation has increased, and taking part in the studies has enhanced my wellbeing. I am sure TPSS studies have also improved my self-confidence: I felt that I am still capable of learning, and I see myself in a more positive light than before."

"Surprisingly often, I find myself quoting one of the TPSS students or lecturers in discussion at work, and I am proud to have information that is new to many others. I can warmly recommend the training programme to all experts of statistics. Even if the journey is long and sometimes feels tortuous, it is worth making."

Appendix 1. Competence model of statistical work



## Appendix 2. Feedback form

### TPSS/Course feedback

Please give your evaluation of the TPSS course xx below.  
 Your feedback is vital to enable us to improve our TPSS training.  
 Please fill in the form during the course day and return to the organisers.

1. Your department \_\_\_\_\_

#### 2. Your evaluation of various aspects of the course

	Excellent				Poor
	5	4	3	2	1
a) your level of interest in the contents of the course	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) the way the learning objects were dealt with	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) the training providers' expertise in their subject	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) course schedule	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### 3. Feedback on the course in general and its individual days:

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#### 4. Please give us below your evaluation of the course in terms of your personal learning. On a scale of 1 to 5, indicate to what extent you agree with the following statements.

	Fully agree				Fully disagree
	5	4	3	2	1
a) I find the information the course provided useful.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) I learnt a sufficient amount of new things on the course.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) The course was in right proportion to my earlier skills.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) I can apply what I learnt on the course in my work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) I would recommend the course to my colleagues.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### 5. What was the best aspect of the course?

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**Thank you for your feedback!**

Personnel and legal services

### Appendix 3. Advanced studies course list

Module / Course	Extent	Compulsory/optional	Participants
<b>1. Introduction</b>	32 h		
I. Orientation to studies	4 h	<b>Compulsory</b>	TPSS
II. Statistics and society	7 h	<b>Compulsory</b>	Open
III. Statistical thinking	7 h	<b>Compulsory</b>	TPSS
IV. Processes and process management	7 h	<b>Compulsory</b>	Open
V. Quality of statistics	7 h	<b>Compulsory</b>	Open
<b>2. Statistics production</b>	130 - 180 h		
I. Operating environment of statistical work	( 10 h + 10 h)		
Ia. Statistics in a changing world	10 h	<b>Compulsory</b>	TPSS
Ib. Software and hardware environment of statistics compilation	10 h	Optional	Open
II. Planning of statistics	( 20 h)		
IIa. Statistics as an aim	10 h	<b>Compulsory</b>	TPSS
IIb. System work and information technology	10 h	<b>Compulsory</b>	TPSS
III. Data collection	( 40 h + 10 h)		
IIIa. Means, technologies and challenges of data collection	30 h	<b>Compulsory</b>	TPSS
IIIb. Sample and estimation I	10 h	<b>Compulsory</b>	TPSS
IIIc. Sample and estimation II	10 h	Optional	TPSS
IV. Editing and analysis of data	( 40 h + 20 h)		
IVa. Editing and using observation data	10 h	<b>Compulsory</b>	TPSS
IVb. Training course on editing and imputation	10 h	Optional	TPSS
IVc. Descriptive data analysis	10 h	<b>Compulsory</b>	TPSS
IVd. Time series and adjustment for seasonal variation	10 h	<b>Compulsory</b>	TPSS
IVe. Time series and adjustment for seasonal variation II	10 h	Optional	TPSS
IVf. Statistical data protection	10 h	<b>Compulsory</b>	TPSS
V. Presentation and publication of statistics	( 20 h + 10 h)		
Va. Facts for the people	20 h	<b>Compulsory</b>	TPSS
Vb. Statistical graphics	10 h	Optional	Open
<b>3. Objects and contents of statistics</b>	80 - 120 h		
Prices and costs	16 h	Optional	Open
Enterprises	16 h	<b>at least</b>	Open
Labour market	16 h	<b>five courses</b>	Open
Population	16 h		Open
Living conditions	16 h		Open
Environment and natural resources	16 h		Open
National accounts	24 h		Open
<b>4. Professional identity of a statistical expert</b>	15 h		
I. Statistical work and I	2.5 h	<b>Compulsory</b>	TPSS
II. Statistical professionalism	2.5 h	<b>Compulsory</b>	TPSS
III. Skills and learning in statistical work	2.5 h	<b>Compulsory</b>	TPSS
IV. Hallmarks of expertise	2.5 h	<b>Compulsory</b>	TPSS
V. Being part of SF and organisational culture	2.5 h	<b>Compulsory</b>	TPSS
VI. Statistical work in transition	2.5 h	<b>Compulsory</b>	TPSS
<b>5. Practical work assignment</b>	40 h	<b>Compulsory</b>	TPSS
<b>6. Final assignment</b>	25 h	<b>Compulsory</b>	TPSS