DEVELOPING A PROGRAMME OF STATISTICAL TRAINING TO SUPPORT A COMPETENCY FRAMEWORK IN THE ONS

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The United Kingdom Office for National Statistics (ONS) has recently committed to modernising its Learning and Development infrastructure and has introduced four 'job families' and associated competence frameworks. This new structure has raised the need for a programme of Statistical Training that develops the expertise of staff in accordance with ONS business needs. The resulting teaching programme is diverse; using a variety of teaching sources ranging from internally led statistical training modules and courses, to a collaborative MSc programme, which is delivered jointly by the ONS and University of Southampton. Links are also made within this paper to the infrastructure that has been put in place at the ONS to support staff as they progress with their statistical/methodological careers.

INTRODUCTION

In April 2002, the ONS embarked on an ambitious programme to modernise its infrastructure and to review the development of its human resources. The former has involved the modernisation of the methods and tools used to process statistical survey data; the latter has involved collecting ONS posts into one of four job families, reviewing all competence frameworks, reviewing the learning activities associated with competence frameworks and has made some progress towards the mapping out of careers for its staff. This paper focuses on the progress made to date in modernising the development of ONS Statistical staff through the introduction of job families and a related programme of statistical training that meets the needs of the business.

BACKGROUND

A study by the Chartered Institute of Personnel and Development published in 2000 entitled 'Study of broad-banded and job family pay structures,' promoted grouping jobs with similar characteristics within an organisation into specific 'job families.' The paper comments on how the process, which was originally driven by the need for different pay strategies within an organisation, is becoming increasingly driven by the need for a stronger focus on competence based career development. This is one of the key reasons why ONS Senior Managers have embraced the job family phenomenon. Implementation of the new infrastructure is due in April 2006, with four job families being devised for ONS staff:

1. Research, Analysis and Statistical (RAS);
2. Business Operations (Ops);
3. Corporate Services (includes finance, project management, human resources, etc); and
4. Information Management and Technology.

This paper will focus on the Research, Analysis and Statistical (RAS) job family. The types of post contained within this job family include: social research, methodological research, data collection methodology, estimation methodology, data analysis tools and techniques, economics, national accounts, and demography. These posts require a high level of competence, and, more often than not, employ people with a qualification at degree level in a statistical, mathematical or economics based subject.

New competence frameworks have been devised for each of the four job families. For the RAS job family, external Consultants were employed to assist, working closely with ONS key stakeholders and Senior Managers. The process was lengthy, taking up to 20 months, due to the breadth of the RAS job family. The process had added complications as some post holders within the RAS job family also belonged to one of three wider professional groups that are present throughout the UK Government service: the Government Statistical Service; the Government Economic Service; and Government Social Research Unit. These professional bodies have their own competence frameworks and development programmes, hence these had to be absorbed into

the new RAS competence framework where appropriate. Four levels of competence have been identified for posts within the RAS job family, as outlined in Table 1.

Table 1: Competence levels and descriptions for RAS posts

Competence level	Competences required for post
1	Requires basic knowledge and skills in competence
2	Requires a working knowledge in competence and must demonstrate a normal range of skills
3	Must be highly knowledgeable within competence; able to coach others and solve problems
4	Must be an expert within this competence; represents best practice and is innovative.

THE DELIVERY OF TRAINING

In an ideal world, a large team of ONS Statistical Trainers would be available internally to develop and deliver statistical training as and when required, for all four levels of competence as set out in Table 1. It is ONS Policy that all internally delivered training courses are free to ONS staff, hence this would also be an efficient route. However, neither the resource nor the expertise are often available internally for this to happen, hence some sort of balance is required between the internal and external delivery of statistical training courses, combined with other learning activities such as on the job activities, coaching and mentoring. The general balance between the delivery of internal and external statistical training for the RAS job family at the ONS is shown in Table 2.

Table 2: Competence levels and delivery of statistical training for RAS posts

Competence level	Competences required for post	Delivery of training
1	Requires basic knowledge and skills in competence	Internally by ONS experts
2	Requires a working knowledge in competence and must demonstrate a normal range of skills	Internally by ONS experts or by external providers (e.g. University courses, MSc modules)
3	Must be highly knowledgeable within competence; able to coach others and solve problems	External (e.g. University courses, MSc modules)
4	Must be an expert within this competence; represents best practice and is innovative.	External (e.g. Conferences)

It is corporately felt that Level 1 courses should be delivered by internal experts, thus ensuring that this level of training is free to all. There is a Statistical Training Unit at the ONS which, although has led the work to develop the programme of statistical training for the RAS job family, does not have the expertise to develop and deliver training courses for Level 1 competences. This is due to the complexity of the RAS topic areas and the in-depth working knowledge that is required. The Unit is responsible, however for ensuring that training courses are developed, delivered and evaluated, hence it plays a key role in negotiating for the development and delivery of statistical training courses internally and leads in the provision and qualitative analysis of course evaluations.

Level 2 and 3 competences are much more difficult to meet and where the internal capacity or resource does not exist, external providers have to be sought. The types of course that

meet this level are Masters courses that are run by UK Universities. Level 4 competences are more likely to be met by other learning activities such as attendance at international conferences.

CONDUCTING THE STATISTICAL TRAINING NEEDS ANALYSIS

In the presence of an available competence framework, it is good practice to make full use of it when conducting a training needs analysis, in order that the resulting training programme satisfies the needs of the business (Bartram and Gibson, 2000; Bee and Bee, 2003). For the RAS job family, all of the recognised and recommended internal and external statistical training courses were mapped onto the new RAS competence framework. The gaps that were highlighted through this process were quality assured by competence area experts, and a Working Group of key stakeholders was brought together to discuss how best to fill the gaps and to agree the priorities.

RESULTS FROM THE STATISTICAL TRAINING NEEDS ANALYSIS

Most statistical training gaps were identified at Level 1 of the competence framework. For example, no instruction was available in 'how to present and disseminate statistics,' or in 'how to use appropriate measures to estimate standard errors.' Without any instruction being available, staff have been expected to learn as they go, through on the job activities and discussions with their colleagues and managers. The ONS is keen to turn this around and to introduce a new 'RAS Awareness course,' aimed at newly recruited RAS members. The course will also be modular based, hence old RAS members with specific learning needs will be able to dip into and out of the course, as required. The RAS Awareness course will cover:

1. Knowledge about different data sources
2. Using survey frames and designing samples
3. Data collection methods, design and testing
4. Data validation and editing procedures
5. Identifying, assessing and treating outliers
6. Imputation methods
7. Estimation methods (including standard errors)
8. Qualitative data analysis methods
9. Quantitative data analysis methods
10. Statistical disclosure control
11. Measuring and describing data quality
12. Presenting and disseminating statistics

This course will be developed and delivered internally, run by experts from the main competence areas. The modules will run as a series of formal training sessions or short seminars and the process will be continually evaluated to ensure that all Level 1 gaps have been covered.

The statistical training needs analysis identified that the Level 2 and 3 competences were already well covered by a plethora of UK University Masters level courses. The ONS supports the continued development of its staff and as such provides financial support to those who wish to continue their studies up to the Masters level. The majority of Masters courses supported by the ONS are modular based, enabling staff to attend stand alone modules if preferred. The ONS runs a joint MSc in Official Statistics with the University of Southampton. This collaborative programme has proved most useful since it allows the ONS to request the delivery of new training, in cutting edge topics, at Levels 2 and 3. For example, a module in Statistical Disclosure Control was added in 2004, and discussions are underway for a new module in Spatial Analysis. Other Masters courses exist for the RAS job family however, such as the MSc in Policy and Evaluation, provided jointly by the UK Cabinet Office and the Institute of Education in London; and the MSc in Geographic Information Systems at Salford University, Manchester.

It was difficult to map statistical training courses onto the Level 4 competences, however the wide availability of international conferences allow staff at this level to keep abreast of worldwide developments in their fields of expertise, and attendance at these is continually supported by ONS Senior Management.

SUPPORTING MECHANISMS

In order for RAS staff to benefit from the new infrastructure and programme of training, a centrally shared repository is required to make all of the required information regarding the competence framework and different training courses available. The internally led 'RAS Awareness course' and other modules of internal training need to be coordinated and administered by a central administrative area. Evaluations of courses also need to be administered centrally and good qualitative analysis should be conducted to ensure that the key themes are pulled out of the evaluations and fed back into the course development process.

A trial mentoring scheme is currently taking place with a handful of Methodologists, who form part of the RAS job family. Mentors are of a higher grade and outside the line of management of the Mentees, hence more open and confidential discussions may be initiated. Mentors are tasked to assist Mentees in the development of a five year career plan and to offer guidance and support as and when required. If this proves beneficial to the Mentees, the scheme will be implemented more widely across the RAS job family.

Continuing professional development is supported by the three professional bodies: the Government Statistical Service, the Government Economics Service and Government Social Research Unit. Staff who are members of these professional groupings are expected to undertake a certain number of hours of training per annum, with *x* number of hours being dedicated to their profession (that is, either statistics, economics or social research). A log is kept by the staff and their managers to ensure that staff are receiving the correct amount of training.

Finally, there are numerous staff within the ONS who would like to move into the RAS job family but currently do not possess the qualifications or competences that would enable them to do so. A review of the requirements of these staff has also taken place and a complete statistical training programme leading to recognised qualifications at all levels of development has existed since September 2005. The point of entry into the programme depends on the highest level of qualification already held by the member of staff:

Table 3: Statistical training programme leading to entry into RAS job family

Course	Delivery	Length of time
Numeracy Skills Level 1	Internal	3 months
Numeracy Skills Level 2	Internal	3 months
Royal Statistical Society Ordinary Certificate	Internal	1 year
Advanced Level in Mathematics and Statistics	External, on site	2 years
Royal Statistical Society Higher Certificate	External via distance learning	1 – 2 years

Once the Royal Statistical Society Higher Certificate has been obtained, staff are encouraged to compete and apply for a post within the RAS job family. This is already proving to be popular with staff and it is hoped that this route will, in the future, provide the RAS with a continual flow of experienced staff to supplement external recruitment.

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