Developing work based competences for numerate Graduates

– an international comparison for Actuarial trainees

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Abstract

*Organisations that recruit trainee actuaries invest significant amounts in ensuring that those selected are capable of passing some of the most difficult professional examinations in the world. Besides the ability to pass difficult examinations, the numerate graduates recruited need to develop work based competences to help them succeed in the international financial services business environment.*

*The paper reviews the approach that is taken by the UK actuarial body [the Institute and Faculty of Actuaries [IFA]] and the US actuarial body [the Society of Actuaries [SOA]] to ensure that those qualifying as actuaries are fit for purpose, particularly in relation to work based competences that trainees have to demonstrate in order to qualify. These skills have been developed in consultation with employers and cover a range of both technical and softer skills that employers need their qualifying actuaries to possess in order to repay the heavy investment in their training.*

Keywords

Actuaries, Competences, Graduate, Mathematics, Professional, Qualification.

# INTRODUCTION

This paper reports on how the two leading actuarial associations in the world, the Society of Actuaries in the US and the Institute & Faculty of Actuaries in the UK, prepare numerate graduates through work based training to be fit for purpose as qualified actuaries. In addition to passing some of the most difficult technical professional examinations in the world, trainee actuaries need to demonstrate competence in the workplace across a range of key dimensions.

It is important that the public can have confidence in the work of qualified actuaries, not just in technical capability but also in professionalism and ethics, judgement and communication skills for example. The training of actuaries encompasses all these skills which are based on employer needs and regulatory requirements.

The Society of Actuaries has recently developed a competency framework based on research with employers and qualified actuaries which enables trainees to use a self diagnostic tool to identify perceived weaknesses in their skill base.

The Institute and Faculty of Actuaries uses a work based skills system which requires trainees to keep a Learning Log over at least three years covering seven key dimensions and uses a reflective practitioner approach to ensure that trainees learn by doing and discuss their experience with a work based supervisor. The completed learning log is evaluated before a trainee can qualify as a Fellow.

The paper reviews the approaches used to identify similarities and differences and in so doing will identify guidelines for undergraduates wishing to enter this career path in terms of the type of skills employers expect them to have on entry and those they need to develop during their traineeship.

1. **THE IFA APPROACH TO COMPETENCE DEVELOPMENT**

The work based skills [WBS] process for the Institute and Faculty of Actuaries has been in place since a major review of the qualification process which was introduced in 2005. It has been judged a success since then by employers and the IFA has recently introduced an accreditation process for employers to give them more freedom in managing the WBS process for their trainees.

The aim of the WBS process is to ensure that when trainee actuaries have passed the 15 examinations they need for qualification, they have accumulated, in addition, a range of skills to ensure they are fit for purpose as practicing actuaries. In particular the intention is to ensure that qualifying actuaries:

* understand the interaction between theory and practice when using actuarial techniques;
* understand the commercial environment;
* work within a professional and ethical framework;
* communicate with stakeholders and colleagues;
* satisfy the public need for competence;
* understand the need for continuing development;
* develop processes for reflection and self-assessment of competence.

The profession has identified 7 key dimensions in discussion with employers, which trainee actuaries need to develop satisfactory skill levels if they are to qualify as a Fellow. These are:

* technical application of actuarial skills;
* judgement;
* professional and ethical;
* communication;
* commercial;
* information communications technology [ICT];
* management.

The ways in which these skills are evaluated are based on a requirement for regular progress reviews with a company supervisor. A series of review questions, 12 in all over the minimum of three years experience required to be a fellow, need to be completed and discussed with the supervisor and recorded in a learning log. The learning log needs to be signed off both by the company appointed supervisor and by the Profession before qualification can be attained.

The aims of the learning log are to provide:

* a self assessment of the skills developed for each of the seven dimensions;
* a record of formal learning activities including computer based training, training events and courses attended with reasons for attendance and comments on what was achieved;
* a record of review questions answered and supervisor discussions on the questions;
* a sign off by the supervisor for each period recoding skills successfully attained and those needing to be covered in the next period.

The review questions are intended to encourage reflection on the trainees current work experience in a “learning by doing” sense. Typically the response to a review question would be 500 – 1000 words but could take the form of a presentation and discussion. A selection of review questions is provided but alternates can be agreed with the supervisor. In addition, each of the seven key dimensions is broken down into a variety of skills relevant to good actuarial practice. For example the management dimension includes:

* appraise own performance and identify future objectives;
* accept personal responsibility for work;
* work as a member of a team;
* plan a work stream;
* manage projects effectively;
* develop controls to manage risk;
* manage own time effectively;
* manage other people.

Clearly some of these skills build on earlier ones and are intended to cover at least a three year period of work experience. Thus ‘manage other people’ is a skill for senior trainees to develop.

1. **THE SOA APPROACH TO COMPETENCE DEVELOPMENT**

The Competency Frameworkfor Continuing Professional Developmentproject reflected a 2008 strategic SOA objective. Specifically, the goals of the project were to:

* assess and validate stakeholder and member professional development needs;
* build a framework comprising knowledge, skills and behaviors that will guide systematic and sound approaches to designing, developing and delivering effective professional development learning solutions and options.

With guidance, input and ongoing review from an Advisory Group, along with active participation by over 3,100 members in every phase of the project, competency frameworks were created as the result of the following project steps.

* Stakeholder Interviews: conducted to assess the overall perceptions and needs related to professional development.
* Professional Development Member Survey:The stakeholder interview responses were used to create an electronic survey instrument to gather the membership’s views about current practices, continuing professional development and the knowledge, skills and behaviors that actuaries need to stay relevant and add value to employers and clients.

* Data Brainstorming, Structuring and Rating:The interviews and survey responses were used as input to three larger-scale data collection rounds designed to define the conceptual domain, identify critical competencies, assess perceptions of current performance and ascertain gaps.
* Data Analysis and Interpretation:The data were compiled and analyzed and the practice-specific frameworks were tweaked and validated by volunteer groups. To develop the overall Competency Framework, the data were decomposed and recomposed and additional cluster analyses were performed.

The overall Competency Framework, which included a group of 100 competencies (synthesis of knowledge, skills and behaviors) common to all practice areas and required for the effective performance as an actuary, was distilled to eight key competencies:

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| **COMPETENCY** | **DEFINITION** |
| **Communication** | Demonstrating the listening, writing and speaking skills required to effectively address diverse technical and nontechnical audiences in both formal and informal settings. |
| **Professional Values** | Adhering to standards of professional conduct and practice where all business interactions are based on a foundation of integrity, honesty and impartiality. |
| **External Forces & Industry Knowledge** | Identifying and incorporating the implications of economic, social, regulatory, geo-political and business changes into the design and delivery of actuarial solutions. |
| **Leadership** | Initiating, innovating, inspiring, creating or otherwise acting to influence others regardless of level or role toward a common goal. |
| **Relationship Management & Interpersonal Collaboration** | Creating mutually beneficial relationships and work processes toward a common goal. |
| **Technical Skills & Analytical Problem Solving** | Applying the actuarial knowledge, skills and judgment required to provide value-added services. |
| **Strategic Insight & Integration** | Anticipating trends and strategically aligning actuarial practice with broader organizational business goals. |
| **Results-Oriented Solutions** | Providing effective problem solving that addresses relevant interests and needs. |

Society members were then asked to rate the relative importance of each of the 100 competencies and then, in a separate exercise, rate their assessment of the level of performance of actuaries against each. The aggregate results are summarized under the eight key competencies in Figure 1. below:



**Figure 1. Assessment of Actuaries’ level of performance on each competence**

There are quite a few competency areas with gaps between the overall relative importance and the performance levels as perceived by actuaries. For example, relative importance and performance ratings for the *Professional Values* competency area are very close together, which indicates that all actuarial ratings reflect both high relative importance and performance. *Relationship Management and Interpersonal Collaboration, Communication* and *Results-Oriented Solutions* competency areas have the widest gaps.

A self-assessment tool was designed and made available to members to help them identify their relative strengths and weaknesses. The tool asks individual actuaries to rate the 100 competencies in terms of how important they are to their work and how well they are able to perform them. At the end of the assessment, a PDF file is generated that graphically shows their results along with supporting detail. This provides information on which competencies the individual member is meeting or excelling in, and in which ones they have gaps. The competencies with the largest gaps are areas where individuals may want to focus their professional development efforts.

Members are encouraged to develop a professional development plan to address areas in which they feel weakest. A personal planning workbook is provided which offers pro­fessional development suggestions for each com­petency. The workbook contains a listing of all SOA profes­sional development offerings by their primary competency, but also encourages a broad consideration of professional development such as: in-company mentorship, readings, social networks, volunteering and communities of practice.

The Self-Assessment Tool is intended to improve members’ personal and professional development and make them a more valuable resource for their employer. From an employer perspective, the Self-Assessment Tool will allow actuaries to focus their development opportunities on their gaps. This should make more efficient use of the investment a company makes into professional development for its employees.

To provide greater detail to enable more accurate selection, all of the Society’s professional development offerings, from large meetings to webinars and e-learning courses, are tagged with both primary and secondary competencies.

1. **SIMILARITIES AND DIFFERENCES IN APPROACHES**

While an obvious difference is that the SOA framework uses 8 rather than 7 key dimensions, this can be explained by the SOA framework applying to qualified members as well as to students while the IFA model applies only to students. Thus the SOA identify ‘Leadership ‘while the IFA refer to ‘Management’ which could be explained in terms of seniority of experience. In other words, qualified fellows would be expected to develop leadership competences rather than students. Otherwise, the mapping between the two models is close as might be expected given that both organisations are aiming to achieve the same goal of qualifying actuaries who are fit for purpose. In the UK, the oversight body the Professional Oversight Board which oversees actuarial training on behalf of the Financial Reporting Council has recently identified “Judgement” as a key skill for qualified actuaries working on UK business.

This comparison is part of a wider benchmarking project between the IFA and the SOA, which is comparing the two systems of qualification. The project identified similarities and differences in approach and then agreed 16 metrics to be used in measuring each body comparatively over time. The project now has two years worth of data and the next step is carry out an in-depth analysis of the WBS/Competences approaches described in this paper.

1. **IMPLICATIONS FOR MATHEMATICS UNDERGRADUATES**

At present there is a buyer’s market for actuarial trainees. If Maths graduates are seeking such a post then they typically need a first or 2:I from a Russell group university [or similar]. Employers assume both a technical ability in numeracy and an enthusiasm for applying mathematics and statistical concepts in a commercial environment. Thus, the differentiating factors between applications tend to be in the softer skills areas. Thus actuarial consultancies are looking for people they can eventually put in front of their clients. Softer skills such as communications, team work and business acumen are often tested by potential employers in assessment centres. Thus graduates need to be able to highlight activities which demonstrate potential competence in these areas if they are to be successful. The days when actuarial trainees sat in back rooms developing complex mathematical models are gone and the ability to take output from computer models and synthesis and present it to less technically able colleagues has replaced pure technical ability.

1. **IMPLICATIONS FOR MATHEMATICAL DEGREE SYLLABUSES**

While the distinctive competence of an actuary will always be technical ability in numeracy applications in business, the more learning approaches can incorporate group work, presentation skills and application to business settings, the more undergraduates can be well prepared for employment as trainee actuaries.

1. **CONCLUSION**

This paper has outlined the way in which one profession tries to ensure that work based training enables trainees to become fit for purpose in a profession that places public responsibility and ethical and professional behaviour very high on its list of important attributes. The approaches taken by the two main examining bodies, the IFA and the SOA show more similarities than differences and both have been developed from an employer-led perspective.

It is hoped that the paper gives some insights into the wider needs of professions and employers in terms of the development of work based competences.