A research proposal to assess the efficacy of initial professional development offered by professional associations, in particular, the *Computer Professional Education Program* offered by the Australian Computer Society

David LINDLEY
Australian Computer Society
just_ask@acslink.net.au

Abstract

The Australian Computer Society, which describes itself as a "professional association", seeks to initiate a research activity through which it can refine and enhance its programs of education.

This paper outlines the proposed research methodology and aims to stimulate constructive criticism from educators and researchers.

Specific questions, to which the author hopes readers will respond, are provided in the conclusion.

Background

The Australian Computer Society (ACS) is a professional association and a member of the Australian Council of Professions. It uses a program of education called the *Computer Professional Education Program* (CPe Program) to assess applicants for levels of professional membership. The learning outcomes of the CPe Program can be viewed as a definition of what the ACS deems essential in a *computer professional*.

The ACS considers the CPe Program as *initial* professional development, as distinct from *continuing* professional development, in that it defines only the essential elements of professionalism. Graduates of the CPe Program are expected to build on what they learn throughout their professional careers. Prior to joining the CPe Program, students are expected to have an ICT degree from an Australian university (or equivalent) plus at least 18 months experience employed in some form of ICT role.

Having created the CPe Program, the ACS now seeks to initiate a program of research through which to refine and enhance what it teaches, how it teaches, and how it assesses what it has taught. In part, the motivation for the research stems from the definition of a profession offered by Professions Australia, namely;

… a disciplined group of individuals who adhere to ethical standards and who hold themselves out as, and are accepted by the public as possessing special knowledge and skills in a widely recognised body of learning derived from research, education and training at a high level, and who are prepared to apply this knowledge and exercise these skills in the interest of others. (Professions Australia 2007).

The key element of this definition is "... a widely recognised body of learning derived from research, education and training at a high level ..."

Significant is that the ACS is in the process of having the CPe Program accredited as a Graduate Certificate under the Australian Qualifications Framework (AQF) and procedures to

assess the Program's effectiveness are a requirement of that accreditation.

ACS*Education* is the division of the ACS responsible for professional development of ACS Members. It delivers the four semester-length subjects, with an overarching mentoring subject, that constitute the CPe Program. It also examines a diploma qualification for non-professional membership. Staff of ACS*Education* include a full-time Academic Principal and a near-full-time Registrar. Other staff include tutors and examiners retained on a sessional basis, and volunteer mentors who are senior members of the Society at a professional level.

To underpin its educational activities, ACS*Education* hopes to establish research partnerships with universities involved in adult education and professional development; for example Deakin University; and to collaborate with professional groups such as the *British Computer Society* and *Engineers Australia*. To encourage research partnerships, the ACS believes it can offer benefits to individual university researchers in the form of linkages to colleagues in other institutions, and in the form of conference funding and support for research grant applications.

ACS*Education* hopes to gain funding for the research activity under the Australian Research Council (ARC) Linkage Projects Scheme. This scheme is described as supporting "collaborative research and development projects between higher education organisations and other organisations, including within industry, to enable the application of advanced knowledge to problems". Further, a collaborating organisation, such as the ACS, "must make a significant contribution (equal to, or greater than, the ARC funding), in cash and/or in kind, to the project." (Australian Research Council).

In addition, the ACS hopes research partners will seek research grants from their own universities, and with the ACS seek funding from other sources.

Research

The ACS describes itself as a *professional association*; which is to say, an association of professionals; meaning that its members are, or should be, professionals. Members of the ACS, and thus potential students of ACS*Education* and the CPe Program, include (from internal ACS documents);

· Practitioners; those directly engaged in the usage, delivery and management of ICT (both professionals and technologists, where technologists may not satisfy the ACS education and experience requirements for full membership),

· Educators; those developing and delivering educational, learning and development products and services for practitioners,

· Researchers and developers; of new languages and utilities, new hardware and peripherals, fundamentally new applications, new techniques and tools for IT practitioners,

· Supporters; those who regulate, provide legal and commercial support, and represent practitioners and their organisations.

Of the above, most students in the CPe Program come from the practitioner community.

The CPe Program is initial professional development (IPD) in the sense that it

aims to provide only entry-level skills. After completing their studies, graduates are expected to continue their professional development by investing at least 30 hours every year refining and extending their knowledge and skills. The CPe Program, therefore, focuses on attitudes, essential knowledge and basic skills and, in an elective subject, introduces specialisations which students can develop further after graduation.

The CPe Program can be described as *mentored and collaborative* in that the essential learning tools are online discussion forums supervised by tutors. Throughout their studies, students are in dialogue with their peers, and on a one-to-one basis, with a mentor who is a senior member of the Society.

To assess the efficacy the Program, the aim of the proposed research is to compare it against equivalent IPD programs offered by other professional associations. Specifically, the aim is to answer the questions;

· Is the ACS CPe Program effective and efficient?

· How can the ACS CPe Program be improved to achieve its objectives better?

Methodology

A hypothesis to underpin the proposed research could be;

The theories, models and methods of education used by the ACS to achieve its IPD objectives are appropriate. [1]

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[1] See Appendix: Models and Methods used in ACS CPe Program for a discussion of the *Theory of Andragogy*, the *Conscious Competence Learning Model*, and other principles and theories underpinning the design of the ACS CPe Program.

There are two possible approaches to test this hypothesis; the first being to seek the opinions of students and graduates of the CPe Program, and the other to compare the CPe Program against IPD programs offered elsewhere.

The first approach has the benefit that people making the assessment will be familiar with the research target, but the disadvantage that they are *ICT* professionals, not *education* professionals. Students and graduates, while possibly able to comment objectively on the practical application of the *Theory of Andragogy* and the *Conscious Competence Learning Model*, probably have little understanding of what the Program could potentially contain and how it could be better delivered.

To test the hypothesis, therefore, research questions will be formulated such that it is necessary to make contact with people responsible for education and professional development in other professional associations. Possible organisations, because the work of their members is closely related that of ACS members, could be;

· overseas ICT professional associations such as the *British Computer Society*.

· specialised ICT associations such as the *Australian Institute of Project Management*.

· accounting and engineering associations such as *The Institute of Chartered Accountants* and *Engineers Australia*.

Contact with these associations could be made using details published on Internet sites and by attending relevant conferences and workshops. Data could be gathered using surveys and, for

follow-up purposes, face-face and telephone interviews.

Survey and interview questions to generate data, answer the research questions, and help prove or disprove the hypothesis, could focus on the topics listed in table 1 below.

Association
- History and purpose.
- Membership categories and entry requirements.
- Number of members and recent membership trends.
- Policies concerning professional development

Professional Development Activities
- Objectives for professional development.
- Experience and history.
- Processes for recognition of prior learning, content development, course delivery, assessment and quality assurance.
- Staff and resources.
- Costs to students, subsidies, and scholarships.
- Articulation arrangements for further education.
- Marketing and promotion procedures.
- Development plans.

Specific Professional Development Program
- Rationale and desired outcomes.
- Initial or continuing professional development.
- Recognition under the Australian Qualifications Framework (or equivalent).
- Expected student commitment.
- Student numbers and number of offerings.
- formal methods and models employed.

Table 1: Survey and Interview Topics.

Answers to questions on these topics will be difficult to quantify and so analysis might concentrate on programs which have objectives most in common with the ACS CPe Program; for instance, programs aiming to provide IPD to postgraduate students using on-line distance education techniques. Of these, analysis might focus on those which have been most successful, measured in terms of student numbers, development plans and investment. The ACS Program could be compared with other programs such that points of commonality are identified; for example, similarities in methodology and underpinning educational theory; along with gaps and opportunities for improvement. From such an analysis, it should be possible to identify how the ACS Program might be improved to achieve its objectives better.

Results of the analysis could be published internally within the ACS and, by the university researchers, externally in appropriate scholarly journals.

Of course, the proposed methodology assumes that IPD programs are an important activity in many professional associations, and that other professional associations offer such programs with objectives similar to the ACS.

Conclusion

The ACS, and in particular ACS*Education*, is seeking to establish a research culture to support its education activities; specifically, its initial professional development program. It hopes to achieve this in partnership with university researchers and to fund a research project with grants from the ARC Linkage Projects Scheme.

Findings of the research, if useful to ACS*Education*, should be of interest to other professional associations and education practitioners active in professional development programs and adult education.

This paper has outlined a research methodology with the aim of stimulating constructive criticism from educators and researchers. Particular questions the author hopes readers will comment upon include;

a. Is the research warranted?

b. Are the research questions and hypothesis adequate?

c. Is it appropriate to test the hypothesis by surveying people responsible for education and professional development in other professional associations?

d. Can it be expected that analysis based on successful programs with objectives similar to those the ACS CPe Program will yield useful results?

Appendix: Models and Methods used in ACS CPe Program

Design of the CPe Program is underpinned by Knowles' *Theory of Andragogy* or "self-directed learning" (National-Louis University, 2005). The principles of andragogy are that;

· Adults need to be involved in the planning and evaluation of their instruction.

· Experience (including mistakes) provides the basis for learning activities.

· Adults are most interested in subjects that have immediate relevance to their job or personal life.

· Adult learning is problem-centred rather than content-oriented (Kearsley, 2007).

Applying the principles of andragogy specifically to online learning is *Salmon's Model of Online Learning* (Salmon, 2000). Through her work at the UK Open University, Salmon identified five stages through which successful students pass; beginning with *Access and Motivation* and then progressing through *Online Socialisation*, *Information Exchange*, and *Knowledge Construction* until reaching the stage of *Construction* where "participants become truly responsible for their own learning" (Holmlund).

In terms of content, the CPe Program is based on the principles of the appropriately-named *Outcomes Based Education* (OBE). Two essential principles of OBE are; "clarity of focus" and "designing back", or deconstruction from outcomes (Killen, 1998).

The teaching (or tutoring and mentoring) methodology used in the CPe Program is derived from the *Conscious Competence Learning Model* (Chapman, 2007) as illustrated in figure 1 below.
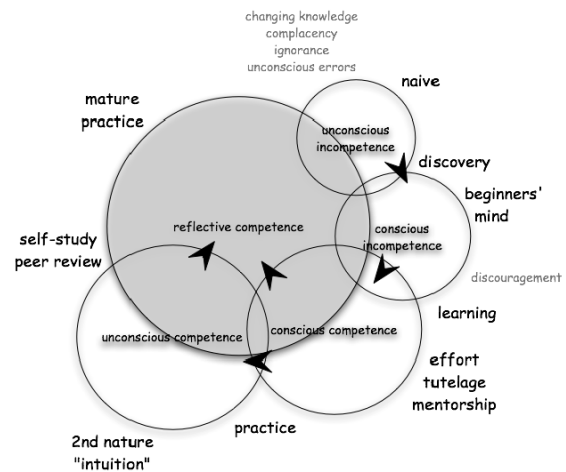

Figure 1: Conscious Competence Learning Model
(Courtesy of Will Taylor, National College of Natural Medicine, Portland, Oregon, USA, March 2007)

Finally, and most importantly, the CPe Program is designed on the principle of *Reflective Learning*. With reflective learning, learners ask themselves questions like; what happened? why? what could have been? what can I do? how can I do it? And from the answers, they develop their plans for the future. The reflective approach is useful for adult learners, particularly those engaged in professional and intellectually demanding activities. For those new to their professional roles, it offers opportunities to investigate, plan and consolidate; and for those with experience, it encourages thoughts unconstrained by routine and practice. (Hinett, 2006)

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