

# **TERTIARY EDUCATION AND PROFESSIONAL CERTIFICATION IN ERGONOMICS: AN INTERNATIONAL EXEMPLAR IN NEW ZEALAND.**

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## **ABSTRACT**

Professional certification and education in occupational safety and health is a very topical issue, yet the New Zealand Ergonomics Society (NZES) has had a professional certification scheme in place for many years, through its Board for Certification of New Zealand Ergonomists (BCNZE). The NZ certification scheme is benchmarked against a European scheme (the Centre for Certification of European Ergonomists (CREE)) and was formally endorsed by the International Ergonomics Association (IEA) in 2008, according to an internationally agreed set of guidelines concerning core competencies for ergonomists. The only complete tertiary academic education in ergonomics in New Zealand is via Massey University's Postgraduate Diploma in Ergonomics and its Master of Ergonomics degree which is an internationally accepted academic programme and has been in existence since the 1990s. It has been designed to cover the educational components of BCNZE professional certification as well as some of the BCNZE professional practice requirements, so as to facilitate student progression towards professional certification. This paper provides an exemplar of the advantages of linking tertiary educational programmes, professional certification and related international academic and certification schemes that could be a useful model for the NZ occupational health and safety profession to consider, based on the existing situation for ergonomics in New Zealand.

## **INTRODUCTION**

Professional certification and education in occupational safety and health (OSH) is a very topical issue. The same has been true for the profession of ergonomics (Bullock 1995, ESA/NZES 1998). New Zealand has had an internationally accepted tertiary academic programme in ergonomics at Massey University since the 1990s and the New Zealand Ergonomics Society (NZES) has had a professional certification scheme in place for many years, through its Board for Certification of New Zealand Ergonomists (BCNZE). The NZ certification scheme is benchmarked against a European scheme (the Centre for Certification of European Ergonomists (CREE)) and was formally endorsed by the International Ergonomics Association (IEA) in 2008, according to an internationally agreed set of guidelines concerning core competencies for ergonomists (see references).

The only complete tertiary academic education in ergonomics in New Zealand is via Massey University's postgraduate diploma in Ergonomics and its Master of ergonomics degree. These have been designed to cover the educational components

of BCNZE professional certification as well as some of the BCNZE professional practice requirements, so as to facilitate student progression towards professional certification. The aim of this paper is to provide an exemplar that could be useful for the New Zealand occupational health and safety (OSH) profession to consider, based on the existing situation for ergonomics in New Zealand, of the advantages of linking tertiary academic programmes to professional certification schemes at national and international levels.

## **PROFESSIONAL CERTIFICATION OF ERGONOMISTS IN NEW ZEALAND**

The New Zealand Ergonomics Society's (NZES) Board for the Certification of New Zealand Ergonomists (BCNZE) runs a professional certification scheme. Its criteria for certification of NZ ergonomists is directly comparable with the European certification scheme run by the Centre for Registration of European Ergonomists (CREE). For most applicants, an entry level of a masters level qualification in ergonomics is required or at least a postgraduate diploma in ergonomics. Certification requires evidence of a specified educational component based on a set of core competencies, followed by a period of supervised training and then some years of independent practice. This is in line with the guidelines published by the International Ergonomics Association (IEA) about certification criteria (see references). BCNZE certified ergonomists can use the post-nominals 'CNZErg'. In the New Zealand scheme, ergonomists who have completed the education requirements for full certification but not the supervised training and independent practice experience components are eligible to be certified as Associate New Zealand Ergonomists. Currently there are only about ten fully certified and associate New Zealand ergonomists. This is proportionally similar to the number of certified ergonomists in the USA and UK.

## **TERTIARY ERGONOMICS EDUCATION IN NEW ZEALAND**

In 1986 Massey University established a Diploma in Ergonomics. It was targeted at university graduates from a wide range of disciplines as well as encouraging enrolment by professionals in allied fields (very commonly OSH professionals) but without degrees. In 2000, Massey University introduced a Postgraduate Diploma in Ergonomics (PGDipErg), a Master of Ergonomics (MErg) degree and a doctoral programme in ergonomics. It continues to be offered only in the extramural mode of study for domestic students.

The Massey ergonomics programme provides a comprehensive postgraduate ergonomics education in New Zealand that is recognised internationally. It encourages the development of increased research activity in the field of ergonomics, and provides the educational and some of the supervised professional practice components of the certification scheme of the BCNZE. It exemplifies interdisciplinary, cross-college/faculty co-operation and multi-campus delivery. The structure of the programme is flexible part-time/full-time extramural study.

The postgraduate diploma in ergonomics (PGDipErg) covers most of the taught ergonomics educational requirements of the BCNZE certification scheme and is usually completed over a number of years of part time study. It contains five taught papers: work capacity and performance; ergonomics analysis; micro/macro ergonomics; people, technology and design, and; advanced research methods. Each paper is composed of a number of discrete modules aligned with and aiming to cover all of the educational components for professional certification in the BCNZE, IEA and CREE guidelines.

The master of ergonomics (MErg) degree builds on the postgraduate diploma. It is characterized by the inclusion of a masters thesis, a research report, an ergonomics professional practice paper, optional advanced taught papers, and provision for four alternative routes to graduation: a) a masters thesis - to encourage research in ergonomics leading to a doctorate, b) a research report and two taught papers – a research focused alternative for students who wish to supplement their thesis with taught papers in an area allied to their research field, c) a research report and an ergonomics professional practice paper - specifically designed in recognition of the supervised professional training components of the NZ professional certification scheme and involving supervised professional training in the practice of ergonomics under joint academic and external industrial supervision, and d) an ergonomics professional practice paper and two taught papers.

All of the papers are offered in the extramural mode and include 1-5 day block 'contact' courses to supplement the course work that is assigned in study guides that are sent out at the beginning of the academic year. This approach optimizes contact between the teaching staff and the students, yet retains the advantages of the distance learning nature of the programme. There is provision for some students to have ergonomics papers taken at some overseas universities credited towards their coursework, or to undertake their research projects at overseas universities.

Students graduating with the Master of Ergonomics have demonstrable competence in the educational, professional practice components of the requirements for professional certification as a New Zealand Ergonomist. This includes the following topics: ergonomics principles; human characteristics; work analysis and measurement; people and technology; ergonomics applications; professional issues; professional practice and research. They are well placed to apply for certification as an Associate New Zealand Ergonomist, requiring just additional supervised training and unsupervised work experience in independent practice before becoming eligible to apply for full certification under the Board for Certification of NZ Ergonomists scheme.

## **DISCUSSION**

Most students with an ergonomics qualification from New Zealand expect that it will be recognised internationally (Legg and Moore, 1999). Linking or benchmarking the NZ tertiary education to other international academic programmes and to the IEA guidelines for tertiary ergonomics programmes and the BCNZE professional

certification scheme to the CREE scheme and the IEA guidelines helps to assure international acceptance of both. The IEA endorsement acts as independent international assistance needed by academic programmes and certification schemes in small countries like New Zealand (Wilson, 1999). New Zealand has currently only a few suitable practising ergonomics companies where an aspiring ergonomist could work full time under a certified ergonomist in order to gain supervised practice experience. There is a need for continuing professional development (CPD).

New Zealand has an increasing need for professional ergonomists who are qualified and trained to international standards. This need is being met by the current NZ professional certification scheme and masters degree academic programmes which go a long way towards meeting the demands for high professional standards required by professional certification, both in New Zealand and internationally but there is a need for the development of suitable continuing professional development (CPD).

## **CONCLUSION**

The current New Zealand model of linkages between tertiary training, professional certification and international academic and certification programmes in ergonomics might be a useful one for the OHS profession to consider in its quest for a suitable professional certification schema.

## **References**

- Bullock, M.I (1995). Harmonising professional standards in ergonomics while recognising diversity. *Ergonomics* 38(8) 1558-1570.
- ESA/NZES (Ergonomics Society of Australia / New Zealand Ergonomics Society) (1998). Competency based standards for ergonomists.
- Legg, S. J. and Moore, D.J. (1999). Ergonomics education and professional certification in a small country: developments in New Zealand. Proceedings of the International Ergonomics Association and Hellenic Ergonomics Society Symposium: Strengths & Weaknesses, Threats & Opportunities of Ergonomics in front of 2000. Santorini, Greece, pp 101-109, 31 Aug-1 Sept, 1999.
- Wilson, J. (1998). Education and recognition of ergonomists. In the IEA Newsletter, *Ergonomics* 24(3) 528-530.
- International Ergonomics Association (IEA) , Professional Standards and Education (PSE) Committee: Minimum Criteria for the Process of Certification of an Ergonomist Version 4, October 2001; Core Competencies in Ergonomics: Introduction, Version 4, Oct. 2001; Full version of Core Competencies in Ergonomics: Units, elements, and performance criteria, Version 2, October 2001; Guidelines on standards for Accreditation of Ergonomics Education Programs at Tertiary (University) Level, Version 2, January 2003.