LANGUAGE IN CLINICAL REASONING: LEARNING AND USING THE LANGUAGE OF COLLECTIVE CLINICAL DECISION MAKING

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"There are no facts, only interpretations"

(Nietzsche)

SUPERVISOR'S CERTIFICATE

This is to certify that the thesis entitled "Language in Clinical Reasoning: Learning and using the language of collective clinical decision making" submitted by Stephen Loftus in fulfilment of the requirements for the degree of Doctor of Philosophy is in a form ready for examination.

Professor Joy Higgs School of Physiotherapy University of Sydney March 2006

CANDIDATE'S CERTIFICATE

I, Stephen Loftus, hereby declare that the work contained within this thesis is my own and had not been submitted to any other university of institution as a part or a whole requirement for any higher degree.

Stephen Loftus

March 2006

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ABSTRACT

The aim of the research presented in this thesis was to come to a deeper understanding of clinical decision making from within the interpretive paradigm. The project draws on ideas from a number of schools of thought which have the common emphasis that the interpretive use of language is at the core of all human activity. This research project studied settings where health professionals and medical students engage in clinical decision making in groups. Settings included medical students participating in problembased learning tutorials and a team of health professionals working in a multidisciplinary clinic. An underlying assumption of this project was that in such group settings, where health professionals are required to articulate their clinical reasoning for each other, the individuals involved are likely to have insights that could reveal the nature of clinical decision making. Another important assumption of this research is that human activities, such as clinical reasoning, take place in cultural contexts, are mediated by language and other symbol systems, and can be best understood when investigated in their historical development.

Data were gathered by interviews of medical students and health professionals working in the two settings, and by non-participant observation. Data analysis and interpretation revealed that clinical decision making is primarily a social and linguistic skill, acquired by participating in communities of practice called health professions. These communities of practice have their own subculture including the language game called clinical decision making which includes an interpretive repertoire of specific language tools and skills. New participants to the profession must come to embody these skills under the guidance of more capable members of the profession, and do so by working through many cases. The interpretive repertoire that health professionals need to master includes skills with words, categories, metaphors, heuristics, narratives, rituals, rhetoric, and hermeneutics. All these skills need to be coordinated, both in constructing a diagnosis and management plan and in communicating clinical decisions to other people, in a manner that can be judged as intelligible, legitimate, persuasive, and carrying the moral authority for subsequent action.

PUBLICATIONS ARISING FROM THIS THESIS

Peer Reviewed Papers/Book Chapters

Loftus S, Higgs J, (2005) Reconceptualising Problem-Based Learning in a Vygotskian framework, *Focus on Health Professional Education: A Multidisciplinary Journal*. 7(1): pp. 1-14.

Loftus S, Higgs J, (2006) Clinical Decision Making in Multidisciplinary Clinics, In H. Flor, E. Kalso, J.O. Dostrovsky (Eds.), *Proceedings of the 11th World Congress on Pain*, International Association for the Study of Pain, Seattle: IASP Press, (forthcoming)

Conference and Seminar Presentations

Loftus, S. & Higgs, J. (2002). Vygotskian ideas and medical education. In D. Neyle & J. Higgs (Eds.), *Proceedings of the ANZAME conference "Change Imposed and Desired*", July, Sydney, p. 30.

Loftus, S., Higgs, J. & Rothwell, R. (2003). Creating a hermeneutic phenomenological study informed by Taylor, Vygotsky and Wittgenstein. In *Proceedings of the AQR Conference "Qualitative Research: Creating Spaces for Understanding"*, July 16-19, Sydney, p. 43.

Loftus, S., Higgs. J. & Rothwell, R. (2003). Learning and using the language of collaborative clinical reasoning. In *School of Physiotherapy Research Symposium*, University of Sydney, December 1, p. 17.

Loftus S, Higgs J, (2004) Learning and Using the Language of Collaborative Clinical Reasoning, *From Cell to Society 4*, 4th Research Conference, College of Health Sciences, Leura, Nov, 2004. p.29-9.

Loftus, S. & Higgs, J. (2005) Learning and using the language of collaborative clinical reasoning. In *Dean's Research Seminars: Delivering Better Health Care*, May 11, Faculty of Health Sciences, The University of Sydney, p. 46.

Loftus, S., Higgs, J. & Rothwell, R. (2005) Clinical decision-making in multidisciplinary clinics. In *Dean's Research Seminars: Delivering Better Health Care*, May 11, Faculty of Health Sciences, The University of Sydney, p. 45.

Loftus S, Higgs J, Learning Decision Making in Interprofessional Settings, *Proceedings* of the EdHealth Conference, The College of Health Sciences, The University of Sydney, Terrigal, 16-17 Nov. 2005, p.23.

Loftus S, Higgs, J, (2005) Learning Decision Making in Interprofessional Settings, *Research for a Healthy Future*, Faculty of Health Sciences HDR Colloquium, 1-2 December 2005, Lidcombe, Sydney, p.19.

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