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## Systematic approaches to the presentation of academic studies

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**SYSTEMATIC APPROACHES TO THE PRESENTATION  
OF ACADEMIC STUDIES**

A thesis in fulfilment of the requirements  
for the award of the degree of

**DOCTOR OF PHILOSOPHY**

from

**THE UNIVERSITY OF WOLLONGONG**

by

**NIGEL COX. M.A., (Cantab), Dip. Ed. (Sydney).**

**FACULTY OF EDUCATION  
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## A B S T R A C T

The basic purpose of this Dissertation is to help to fill the gap experienced by many students between secondary and tertiary education; a gap which arises from the failure of students to understand the need for the use of the critical conceptual skills and systems analysis. These have enabled *Homo sapiens sapiens* (*Hss*) to use his experience of his environment to apply his understanding to the solution of problems presented by that environment; phylogenetically speaking, it has taken short period for *Hss* to become the dominant species.

This involves, first, the consideration of historical studies of the intellectual and linguistic means that evolved to meet these needs; complex problems always involve complex systems. Secondly, there is a consideration of the progressive development of those skills by institutionalised education and *Hss*'s outstanding intellectual mastery of his environment and the use of systems analysis and conceptual thinking. This is followed by an attempt, by tracing the development of those skills to show how they may be acquired and developed by the appropriate training and discipline of the vast complexity neurological systems of the human brain, especially in the use of language, that have evolved to deal with those problems involved in securing the survival of *Hss*. Thus the tertiary student needs to be introduced to the complexities of the infinite variety of systems, the analysis of which forms the basis of the subject matter of the tertiary student's studies.

An argument for the need for systematic approaches to modern academic studies is introduced. The increasing importance for the modern student of an awareness of the developments in systems study and conceptual analysis is emphasised. Some limited idea of the significance of such an approach, may be of value, illustrated by detailed historical examples. The thesis of this study is that students and their teachers from the outset of their tertiary education should be made

specifically aware of this historical background, especially through study of the actual contribution of scientists. Hence the emphasis on the development of systems analysis and conceptual thinking that began with Galileo and Isaac Newton, and was followed later by Einstein and others. Striking developments in academic thinking have developed with the computer age, all of which must be seen in the perspective of the development of language and thinking skills generally, in the axiomatic deductive thinking of Euclid, the systems analysis of Ross Ashby, Wiener and Beer, and the practical studies of academic thinking as exemplified in the Thomas Kuhn's book on the methods of scientists. Stimulated by these, teachers can arouse the interest and enthusiasm of students to cultivate the thinking systems of their own brains and minds, rather than use a purely epistemological approach.

It is suggested that such knowledge and its application should eventually be imparted in structured courses, with explanations and exercises in the presentation of the results of academic studies of typical problems in the form of essays, assessments and examinations. Thus students can become familiar with the structure of modern academic thinking and aware of the methods of systems analysis.

This thesis contains no material which has been accepted for the award of any degree or diploma in any University, and to the best of my knowledge and belief, this thesis contains no material previously published or written by another person, except where due reference is made in the text in the thesis.

Nigel Cox