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THINKING AND LEARNING IN JUNIOR HIGH SCHOOL:
AN EVALUATION OF SOME ENHANCEMENT STRATEGIES.

A Thesis submitted in partial fulfilment of the requirements for the
award of the degree

DOCTOR OF EDUCATION

from

UNIVERSITY OF WOLLONGONG

by

Grahame William Wagener
B.A., M.A., M.Ed. Admin.,

School of Education
January
1997.

Volume 1
DECLARATION

I declare that this thesis is my own work and has not been submitted in any form for another degree or diploma at any university or other institution of tertiary education. Information derived from the published or unpublished work of others has been acknowledged in the text and a list of references is given.

__________________________  _______________________
ACKNOWLEDGMENTS

The background work for this study commenced at the University of New South Wales and was encouraged by Professors Cooper and Sweller whom I thank for their early advice and assistance. Much of the development of this study has been influenced by the work of Professor John Edwards, whose understanding of the potential of general thinking skills programs, in particular de Bono’s CoRT program, and whose enthusiastic support for the on-going assistance such programs can give to students, has always been an encouragement to me.

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have been many ‘lost’ weekends and, on occasion, strong words spoken regarding peace and quiet. Now that the study is completed we can all say that we managed to ‘survive’ and can now look forward to catching up on some of the things we missed out on along the way.
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ABSTRACT

Through an understanding of learning and thinking strategies an attempt is made to examine whether certain cognitive and metacognitive strategies can enhance student learning and thinking skills. The debate referred to is between the advocates of domain-specific techniques and the advocates of domain-independent, generalisable thinking skills, to consider whether one technique is more effective in enhancing students' thinking skills and learning. Indications are identified in the cognitive and metacognitive literature that some students' thinking and learning might be enhanced by the adoption of certain strategies, and that these strategies might lead to successful outcomes in other learning activities. This study evaluates the effects of general cognitive and metacognitive programs which are reported to enhance student thinking and learning.

An examination is made of de Bono's ten-lesson CoRT -1 Thinking Skills Program, which has been reported to have successfully enhanced student thinking across a range of aptitudes. Case studies and research reports are analysed and the use of thinking skills to enhance learning is placed in an historical and contemporary context. The effect on student thinking and learning through developing an understanding of how students' think, learn, and how the brain functions, is also investigated.

Based on the foregoing, the problem investigated here is: Whether the teaching of general cognitive and metacognitive thinking skills strategies enhances year-seven students' thinking and learning.

A sample of 184 year seven students from a South Coast Comprehensive High school was studied in a program conducted over a total
of 30 weeks. The data from two instruments were analysed using independent \( t \) tests, paired-sample \( t \) tests, and analysis-of-variance procedures. Additionally, an analysis of questionnaire and interview data was conducted.

The analyses of the quantitative measures did not reveal a significant improvement in the constructs of the Otis-Lennon School Ability Test or the Learning Process Questionnaire. While there was statistical significance, it is argued that there might have been a trend favouring the treatment group. Interview and questionnaire data analyses revealed a positive belief, generally held by the students, that CoRT-1 strategies and metacognitive strategies assisted them with their in-class thinking and learning. There was not strong evidence that the students' transferred the strategies to out-of-class thinking and learning situations.

The study has led to certain recommendations regarding cognitive and metacognitive intervention strategies: that provision should be made for students' to practice thinking skills across the curriculum; that students' should be given every opportunity to explore their own thinking and learning processes; that more opportunities should be made available for teacher development in current cognitive and metacognitive strategies; that schools should encourage open discussion, throughout the entire school community, on thinking and learning skills and strategies; and that educators should be given every opportunity to explore cognitive and metacognitive strategies and be encouraged to use as full a range as possible in order to meet the individual needs of all students.