

**IMPACT OF  
EDUCATION FOR SUSTAINABILITY  
AT A MONTESSORI  
PRIMARY SCHOOL:  
FROM SILOS TO SYSTEMS THINKING**

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**This thesis is presented for the degree of Doctor of Education  
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# DECLARATION

I declare that this thesis is my own account of my research and contains, as its main content, work which has not previously been submitted for a degree at any tertiary education institution.

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Elaine Lewis  
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## **ABSTRACT**

This research investigated Education for Sustainability (EfS) at an independent Montessori primary school, located in the Perth metropolitan area of Western Australia. A longitudinal case study involving analysis of data from a twenty year period was conducted to determine the effectiveness of EfS. Historical information about EfS at the school from 1990 to 2005 was examined, with the main focus of the study being on the impact of the Australian Sustainable Schools Initiative (AuSSI) between 2005 and 2009. AuSSI promotes a whole school, whole systems thinking approach to EfS.

Three school-based issues in EfS were studied. Firstly, the research aimed to determine what elements of EfS were in operation in the school prior to involvement in AuSSI. Secondly, student outcomes including engagement with whole systems thinking, attitudes and values, knowledge and understandings, and skills and behaviours related to EfS, were investigated during the first five years of participation in AuSSI. Thirdly, teacher perceptions of the EfS program, including engagement with whole systems thinking, were examined during this same time period.

A case study approach was employed to enable in-depth investigation of EfS in the life of the school prior to, during and post implementation of AuSSI. This approach facilitated revelation of participants' lived experiences, their perceptions and understandings of EfS, as well as detailed information about student outcomes in EfS. Case study methodology was also compatible with the culture and processes of the participating school and provided an opportunity for utilising a whole systems thinking approach. Data was gathered from a range of sources, through surveys, interviews, observation and document analysis over a five year period. The total participants included eleven teachers and seventy five students.

The research identified particular antecedents of EfS in the Montessori Method of education that existed in the school prior to AuSSI, including the whole child approach, together with the Montessori learning environment, curriculum and values. Following participation in AuSSI, student attitudes and values, knowledge and understandings, and skills and behaviours related to EfS were enhanced for all year levels. However, after three years when specific EfS actions and projects ceased, student EfS outcomes were

limited. Furthermore, students' thinking and behaviour indicated a 'silo', rather than whole systems thinking approach to EfS. Teachers perceived the EfS program as highly effective in the initial three years after joining AuSSI. Key elements that enhanced EfS included EfS staff champions who had access to EfS networks, leadership support, and active school community involvement in all EfS processes. However, after three years of being an AuSSI school, the culmination of reduced leadership support for EfS, lack of staff training, vague designation of staff with EfS responsibilities and inadequate community involvement, resulted in cessation of the EfS program. Teacher perceptions on whole systems thinking revealed alignment between Montessori philosophy, EfS and whole system thinking was more in theory than in practice.

Through an in-depth longitudinal case study of a school this research highlighted the importance of whole school EfS professional learning, embedding EfS and whole systems thinking across the curriculum at all year levels, whole school support, and the usefulness of a sustainability continuum that recognizes the complex, dynamic interplay of issues involved in a school's EfS journey. It is strongly recommended improvements to pre-service teacher education in EfS are implemented, and a review of the AuSSI toolkit is conducted to refine EfS evaluation processes and to target the specific EfS needs of teachers at different stages of schooling, as well as to enhance understanding and implementation of the whole systems thinking approach. Finally, EfS professional learning for all school staff in all schools is warranted to enhance depth of EfS engagement.

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## PUBLICATIONS

Aspects of this thesis have been previously published or presented as follows:

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- Lewis, E. & Baudains, C. M. (2007). Whole systems thinking: Education for sustainability at a Montessori school. *Eingana: Journal of the Victorian Association of Environmental Education*, 30(1), 9-11.
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Lewis, E. & Baudains, C. M. (2007, July). You show me yours and I'll show you mine: Raining frogs: An education for sustainability project. *World Conference on Science and Technology Education: Sustainable, Responsible, Global*. Perth, Australia.

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