

## ABSTRACTS

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### **Investigating product-oriented versus process-oriented worked examples to support understanding of quality teaching principles**

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Research has shown that process-oriented worked examples, which present a step-by-step solution with accompanying rationale, lead to improved performance in well-structured domains (Sweller, Ayres, & Kalyuga, 2011). What is not well researched is whether similar patterns of results can be demonstrated in ill-structured domains. This paper presents research investigating the use of process-oriented and product-oriented worked examples (Van Gog, Paas, & Van Merriënboer, 2008) in an ill-structured domain. The research investigated the use of process and product worked examples to support “novice” and “expert” pre-service teachers’ understanding of the principles of quality teaching, referred to as the New South Wales Quality Teaching Model (QTM).

The QTM is an evidence-based model that describes the elements of quality classroom pedagogy (Gore, Griffiths, & Ladwig, 2004). Eighteen elements are included within the three dimensions of the QTM: Intellectual Quality, Significance and Quality Learning Environment. Pre-service teachers in this research developed an understanding of one of the elements, Substantive Communication and how it can be facilitated in the classroom.

The research question guiding the research was:

What type of Worked Example best supports pre-service teachers’ understanding and application of the NSW Quality Teaching Model when:

- (a) identifying the presence of a selected element during a classroom lesson
- (b) applying knowledge of the characteristics of the element to provide teaching strategies of how to enhance the quality of the selected element.

Two experiments were conducted; in the first experiment participants were “novice” pre-service teachers who had just commenced the Master of Teaching, in the second experiment participants were “expert” pre-service teachers who were at the end of their two-year Master of Teaching. Both experiments had the same learning and test phases and instructional conditions. The instructional conditions were:

- Conventional Problem Solving
- Product-oriented Worked Example
- Process-oriented Worked Example

The learning phase of both experiments involved participants watching video-recordings on the targeted QTM element of Substantive Communication. The video-recordings served as worked examples. Following this, participants viewed video-recordings of PDHPE and Languages lessons and were required to score the level of Substantive Communication and provide teaching strategies to enhance communication.

The research contributes to an understanding of the application of worked examples within ill-structured content domains and specifically what types of worked examples may support pre-service teachers’ preparation for the teaching profession. A discussion of preliminary results from both experiments will be provided at the conference.