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**Applying Knowledge Management in Education:  
Teaching Database Normalization**

**A thesis presented in partial  
fulfilment of the requirements for the degree of**

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## **Abstract**

In tertiary education, Information Science has been attracting more attention in both teaching and learning. However, along the course on the database design theory, learners always find it hard to grasp the knowledge on database normalisation and hard to apply different levels of the normal forms while designing a database. This results poor database construction and difficulties in database maintenance.

In regard to this teaching and learning dilemma, academic teaching staff should, on the one hand, pay more attention to organising different teaching resources on database normalisation concepts and making the best use of the existing and newly developed resources so as to make the teaching environment more adaptive and more sharable, and on the other hand, apply different teaching methods to different students according to their knowledge levels by understanding the nature of each learner's behaviour, interests and preferences concerning the existing learning resources. However, at present there is no effective Information Technology tool to use in considering the dynamic nature of knowledge discovery, creation, transfer utilisation and reuse in this area.

This provides an opportunity to examine the potentiality of applying knowledge management in education with the focus on teaching database normalisation, in terms of knowledge discovering, sharing, utilisation and reuse. This thesis contains a review of knowledge management and web mining technologies in the education environment, presents a dynamic knowledge management framework for better utilising teaching resource in the area of database normalisation and diagnoses the students' learning patterns and behaviours to assist effective teaching and learning. It is argued that knowledge management-supported education can work as a value-added process which supports the different needs of teachers and learners.



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## **List of Publications Appeared as Part of Work on this Thesis**

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Zhang L., Sridharan B. & Kinshuk (2003). Knowledge Management on Database Normalization. In K. T. Lee & K. Mitchell (Eds.) *Proceedings of the International Conference on Computers in Education 2003* ( December 2-5, 2003 , Hong Kong ), Norfolk , VA , USA : AACE, 804-805 (ISBN 1-880094-51-7).

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