

DEVELOPMENT AND USABILITY OF A MULTIMEDIA COURSEWARE:  
LINES AND PLANES IN 3-DIMENSIONS

by

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A Thesis

Submitted to the Postgraduate Studies Programme

as a Requirement for the Degree of

MASTER OF SCIENCE IN INFORMATION TECHNOLOGY  
COMPUTER AND INFORMATION SCIENCES DEPARTMENT

UNIVERSITI TEKNOLOGI PETRONAS

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APRIL 2012

## ABSTRACT

Information Technology (IT) and multimedia has been proven to be able in assisting learning and teaching process like in this context which is to enable better understanding for the topic of Lines and Planes in 3-Dimensions (LaP3D). The LaP3D courseware has been developed by incorporating learning and design theories with ADDIE as the development methodology. Among the learning theories that have been applied for the instructional design of the courseware are cognitivism and constructivism. A special consideration on Van Hiele geometric thinking theory has been applied in LaP3D courseware to assist the students in visualization. In ensuring the quality, usability and effectiveness of LaP3D courseware prototype, a Quasi-Experimental Design was employed. Two groups, namely the control ( $X_1$ ) and experiment ( $X_2$ ) groups were identified, followed by a comparison towards the students' performance based on their pre-test and post-test results. A questionnaire was also distributed to the students of experiment group to evaluate the courseware in terms of usability. The results and analysis of the pre-test and post-test have shown that  $X_2$  students have done better in the assessment that indicates the effectiveness of LaP3D courseware as a learning aid for Lines and Planes in 3-Dimensions topic. Majority of the students further agreed that LaP3D courseware is usable for them in learning the topic of Lines and Planes in 3-Dimensions.