

在數學簡報系統上設計數學教材之研究

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摘 要

數學簡報系統 (Mathematical Presentation System, *MathPS*) 以 PowerPoint 為系統平台，外加繪圖輔助及互動設計的功能，只要具備最基本的資訊素養，即可透過最普及的軟體，提供教師準備教材及課堂教學之用，以克服數位落差的影响。該系統功能簡單易學，定位功能強大，同時可以當作教師工作與教學展示平台。本文針對如何在數學簡報系統上設計數學數位教材，引入教材設計概念，進行初步研究，歸納出一些教材呈現的原則，比如：結構性、層次性、步驟性、關聯性、對比性、互動性、隨機性、定位性等等。在適當時機，適度運用這些原則，以不同的模式呈現設計教材，得以提升視覺及動態呈現的效果；本文也將呈現依據這些原則設計出來的教學模組。

A Study of Mathematic Materials Design
on Mathematical Presentation System

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Abstract

MathPS is a PowerPoint system platform with the function of picture-drawing and interactive design, requiring a minimum of information skill and the most popular software, providing teachers with a way to prepare materials and class instruction, in order to overcome the deficiency in digital technology. The system is easy to learn, with great pinpointing function and can be used as a demonstration platform for teachers in working as well as in teaching. This thesis discusses how to design mathematical digital teaching materials on a mathematical PowerPoint system, introducing the idea of teaching materials design, proceeds with primitive research, and summaries some principles of demonstrating teaching materials, such as, structure, layers, steps, association, comparability, interactivity, randomness, pinpointing. Visual and live effect can be improved if the principles are used moderately on the right occasion, with different modes of teaching material demonstration. The thesis will also demonstrate the teaching modes whose designs are based on those principles.