

The Paradigmatic Roles and Pedagogical Functions of IT in Mathematics Education in East Asia

Percy Lai-yin KWOK

Dept. of Education, University of Hong Kong, Hong Kong, China

Abstract

In East Asia comparative perspectives, the paradigmatic roles and pedagogical functions of various components of IT (e.g. internet web-sites, CDROMs, multi-functional computer software and graphing calculators) have not been conceptually discussed and empirically evaluated, despite its increasing importance.

In this paper, section (I) depicts the 4-level paradigmatic roles of IT in mathematics education. Section (II) brings out a 3-dimensional conceptual framework for systemic classification of the pedagogical characteristics of various components of IT in mathematics education. In section (III), based on one in-depth case study of 8 high secondary school students' learning process on complex numbers in Cabri Geometry, a cognitive model for conceptualizing their thoughts is speculated. By pointing out some crucial socio-cultural features, far-reaching implications are drawn in mathematics education. Special focus will be placed on IT assessment, which is beneficial to curriculum development in East-Asia countries in the next century.