

A New Method for Building Web-based Courseware

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With the prosperity of the Internet, Internet learning has changed the interactive relationship between instructors and learners and provided a learner-centric environment. Concept map, developed by Novak, can be used to express the relationship between different concepts. However, to avoid the information overload and the inconsistency of importance and difficulty between concept nodes in the learning context of concept maps, this study presents the Progressive Concept Maps (PCM) to be a new method for building Web-based courseware. The differences between the original concept maps and our proposed PCM are twofold. First, based on the theory of cognitive overload, the PCM classifies and reorganizes the original concept nodes to put them into a screen display. Second, according to the importance and difficulty of each concept node, the PCM adds the concept weights to each node for helping students' adaptive learning. Next, this study practically builds a Web-based learning system of high school course of basic computer concepts, and uses the "concept threshold" to determine whether a student passes a specific unit test. Based on the data empirically collected from the students of the management college at National Changhua University of Education, the results showed that students using the PCM had higher learning effectiveness and satisfaction than those using the Novak concept maps. Finally, this study discusses the implications for research and practice, and provides a number of limitations and issues that could be addressed in future studies

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