

Development of an On-Line Learning-Problem Diagnostic System Using a Confidence-Scoring Mechanism

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Abstract

In conventional testing systems, students usually take a test by selecting one or more answers for each test item. Nevertheless, the confidence degree of individual student in answering each test item is usually ignored, which might affect the accuracy of diagnosing student learning problems. Researchers have attempted to cope with this problem by developing test systems that allow students to show their degree of confidence regarding the answer to each test item. Such a confidence scoring mechanism has been proved to be effective. However, the existing confidence scoring mechanism is mainly based on the subjective judgments of the students, which may reduce the degree of diagnostic accuracy. In this study, we attempt to develop a new confidence-scoring model by taking the “time spent answering each test item on the Internet” factor into consideration while determining the confidence degree for individual students to answer each test item. To evaluate this innovative approach, an experiment has been conducted using a Chinese word-identification course. Experimental results showed that our approach can provide more accurate learning suggestions to students, and hence is more helpful in improving their learning performance than previously proposed approaches.

Keywords: Chinese language instruction, remedial instruction, diagnosis test, computer-assisted learning, web-based learning