ได้ตรวจสอบความถูกต้องเรียบร้อยแล้ว
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DEVELOPMENT OF DATABASE SYSTEM PRINCIPLE AND APPLICATION COURSE BASED ON TASK-BASED LEARNING AND TEAM-BASED LEARNING TO ENHANCE DATABASE DESIGN ABILITIES OF SECOND-YEAR STUDENTS AT FUJIAN UNIVERSITY OF TECHNOLOGY

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ตรวจสอบความถูกต้องเรียบร้อยแล้ว
ผศ.ดร.เลิศลักษณ์ โอทกานนท์

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ABSTRACT

This research and development aimed to 1) study the background information focusing on course components of database system principle and application course to enhance students' database design ability, 2) develop database system principle and application course based on Task-based learning and team-based learning to enhance students' database design ability, and 3) determine the effectiveness of implementing the database system principle and application course based on task-based learning and team-based learning. The sample was second year students major of internet of things engineering in academic year 2023-2024 of Fujian University of Technology, the People's Republic of China was 30 students from 1 classroom derived by cluster random sampling. The experimental design adopted in this study was one group posttest only design. The research instruments follow from each phase of study were as follows: phase I: Interview forms for teachers and students on course-related questions. phase II: 1) database system principle and application course based on task-based learning and team-based learning with the very high level of appropriateness, 2) eight lesson plans based-on task-based learning and team-based learning with the very high level of appropriateness. 3) an evaluation form of database design ability includes the knowledge and skills. 4) a learning achievement test, and 5) a students' satisfaction questionnaire with the reliability of .897. The data were analyzed by using mean, standard deviation and the one sample t-test.

The results of the study were as follows: 1) the researcher reviewed the literatures about database system principle and application course and interviewed the 4 teachers and 20 students for problems of database system principle and application course, and the information gathered used to develop course. The database system principles and applications course in undergraduate education faces problems such as the disconnection between theory and practice, the lag in updating course content, and the single teaching method. These challenges emphasize the urgent need for a comprehensive reform of the course content, teaching methods and assessment system in order to enhance students' practical skills and their ability to adapt to the rapidly changing technological environment; 2) the database system principle and application course based on task-based learning and team-based learning consisted of the principle, objective, content, instructional strategy, materials, and evaluation; and 3) after implementing through database system principle and application course based on task-based learning and team-based learning, the students' database design ability (knowledge) was higher than the determined criterion of 70% at a significance level of .05 (M = 31.33 out of 40, SD = 3.76, t = 4.825, p = .000) and the students' database design ability (skills) was higher than the determined criterion of 70% at a significance level of .05 (M = 45.12 out of 60, SD = 2.89, t = 5.913, p = .000), 4) the students' satisfaction was statistically higher than the determined criterion of 70% at .05 level of statistical significance.

The innovation from this research includes 1) the course components consist of six aspects, 2) the instructional strategy of task-based learning and team-based learning can enhance database design abilities. The steps of teaching were step 1: team formation, step 2: task preparation, step 3: task execution, step 4: team discussion and reflection, step 5: summary and feedback and step 6: evaluation.

Keywords: Database System Principle and Application Course, Database Design Abilities, Task-Based Learning and Team-Based Learning