2016 International Conference on Educational Innovation Through Technology (EITT 2016)

Tainan, Taiwan
22-24 September 2016
Table of Contents

Message from the Conference Chairs ..............................................................................................................................................x
Committees ..................................................................................................................................................................................xi
External Reviewers ........................................................................................................................................................................xiv

Session I: Interactive Learning Environment

Learning Behavior Analytics and Learning Effect Evaluation for Learners Based on MOOCs ..................................................................................................................................................................................1
  Xiaojing Hu, Shixi Liu, Zhihong Xu, and Gang Xiao

Design and Development of Adaptive Minority Ethnic Culture MOOCs Platform .................................................................6
  Li Yanhong, Zhao Bo, and Zhou Juxiang

Comments on the Development of MOOCs and the Design of Core Supporting Policy in China .........................................................10
  Qinhua Zheng, Xuan Zhang, and Li Chen

Emotion and Associated Topic Detection for Course Comments in a MOOC Platform .........................................................................................................................15
  Zhi Liu, Wenjing Zhang, Jianwen Sun, Hercy N.H. Cheng, Xian Peng, and Sanya Liu

The Design and Implementation of Task-Based Learning Activities in 3D Virtual Environment .........................................................20
  Jianlei Peng, Ruobin Liu, and Geping Liu

Session II: Mobile and Ubiquitous Learning

App-Based Long-Term Care E-Learning Platform .........................................................................................................................26
  Anthony Y.H. Liao and Shun-Pin Huang

Facilitating High Level Cognitive Processes with a Mobile Authentic Support .............................................................................32
  Shadiev Rustam, Wu-Yuin Hwang, Yueh-Min Huang, and Narzikul Shadiev
Design of Multi-terminal Mobile Learning Platform .................................................................37
  Yushuang Dong, Yingqun Liu, Xibin Han, and Juan Yang

A Peer Assessment-Based Mobile Learning Approach of Science Course: A Case Study ........................................................................................................................................42
  Bai Qingyu, Zhang Yi, Chen Beilei, Fan Fulan, Zhou Pinghong, and Lin Li

An Annotation Tool to Support Procedural Knowledge Learning ..............................................48
  Wu-Yuin Hwang, Chin-Yu Wang, Su-Ching Pan, and Jian-Jie Dong

Session III: Joyful Learning and Society

The Research on Learning Satisfaction Factors in 3D Virtual Learning Environment ........................................................................................................................................53
  Honglei Huang and Geping Liu

Applying the Flipped Classroom with Game-Based Learning in Elementary School Students' English Learning ........................................................................................................................................59
  Shu-Yuan Tao, Yun-Hsuan Huang, and Mei-Jia Tsai

Impact of Applying WebGL Technology to Develop a Web Digital Game-Based Learning System for Computer Programming Course in Flipped Classroom ........................................................................................................64
  Wen-Chun Hsu and Hao-Chiang Koong Lin

Effect of an Equivalent Fractions Digital Game on the Learning Outcome, Motivation, and Flow Types among Elementary School Students ........................................................................................................................................70
  Chih-Hsiao Tsai and Jung-Chuan Yen

Understanding the Educational Values of Video Games from the Perspective of Situated Learning Theory and Game Theory ........................................................................................................................................76
  Lu Zhang and Junjie Shang

Session IV: Computer Supported Collaborative Learning

An Online Peer Assessment-Based Programming Approach to Improving Students' Programming Knowledge and Skills ........................................................................................................................................81
  Gwo-Jen Hwang, Zi-Yun Liang, and Hsiu-Ying Wang

Construction of Reusable Integrable Multi-layer and Multi-granularity Educational Resource Library ........................................................................................................................................86
  Zhenhua Li, Zhaoli Zhang, Tingting Liu, Jiangbo Shu, and Taihe Cao

A Computer-Assisted Learning System in the Teaching of Infrared Spectroscopy Course ........................................................................................................................................91
  Zhaoli Zhang, Taihe Cao, Hai Liu, Jiangbo Shu, and Zhenhua Li

Design and Implementation of Software Case Library Supporting Software Capability Training ........................................................................................................................................96
  C.Y. Yu, J. Ma, Q. Ren, and Y.Y. Zhao
Theoretical Model and Effects Analysis of Collective Synergistic Learning .................................................. 102
   Yu Liu, Ling Chen, and Maodi Hu

Early-Stage Engagement: Applying Big Data Analytics on Collaborative Learning Environment for Measuring Learners’ Engagement Rate .......................................................... 106
   Owen H.T. Lu, Anna Y.Q. Huang, Jeff C.H. Huang, Chester S.J. Huang, and Stephen J.H. Yang

Session V: Flipped Classrooms

Exploring Elementary Learning Paradigm Supported by Cyber Learning Space in Central China .......................................................... 111
   Peng Zhou, Jin Zhang, Yonghui Wang, and Jian Xu

Effects of the Flipped Classroom Model on Student Performance for Vocational College Students .......................................................... 117
   Yuh-Tyng Chen and Lin-Fan Chen

Student Engagement: One of the Necessary Conditions for Online Learning .......................................................... 122
   Min Hu, Hao Li, Wenping Deng, and Hua Guan

The Influence of Assessment-Based Learning on Students’ Knowledge Building in the Smart Classroom .......................................................... 127
   Pinghong Zhou, Qingyu Bai, Yi Zhang, and Fulan Fan

Using the Mixed Mode of Flipped Classroom and Problem-Based Learning to Promote College Students’ Learning: An Experimental Study .......................................................... 133
   Xiaoying Feng, Pengyu Chen, Yue Liu, and Qiong Song

Session VI: Technology in Education and Performance

Life-Cycle Efficacy for Educational Technology: Best-Practices for Leading Schools .......................................................... 139
   Jason MacLeod and Harrison Hao Yang

Brush It Up: On-Line Resources for Fostering Independent Learning .......................................................... 143
   Susana A. Eisenchlas and Andrea C. Schalley

Exploring the Impact of Attitude and Perceived Behavioral Control on Elementary School Teachers’ Use Intention of In-Service E-Teacher Development .......................................................... 149
   Hsiu-Ju Chen

Exploring the Relationship between Teachers’ ICT Competency and Usage of ICT in Elementary and Secondary Teaching Practice .......................................................... 153
   Fulan Fan, Yi Zhang, Beilei Chen, Qingyu Bai, Pinghong Zhou, and Li Lin

Comprehensive Evaluation Based on VEDI Index Measure of Vocational Education Informatization Level .......................................................... 159
   Lili Li and Chun Lu
Analysis of Social Network and Knowledge Construction Levels in Online Discussion
Chengling Zhao, Yunzhen Liang, Xiaoyuan Zhao, and Qingtang Liu

Session VII: Technology Enhanced Language Learning
An Investigation of Chinese Postgraduate Students' Experiences on a Data-Visualized English Writing Feedback Platform
Kun Dai
Development and Evaluation of Novel eBook Interface for Scaffolding Thinking Context in the Teaching of Writing
Gwo-Dong Chen, Chin-Yeh Wang, and Chih-Kai Chang
An Empirical Study of Elementary School Chinese Writing Teaching Used Automatic Evaluation Software of Chinese Characters (I): A Case Study of Primary School Grade Three Students in Nanjing City
Nannan Gao and Hongbin Qiu
An Empirical Study of Elementary School Chinese Writing Teaching Used Automatic Evaluation Software of Chinese Characters (II): A Case Study of Primary School Grade Three Students in Nanjing City
Jianqing Zong and Hongbin Qiu
An Online Collaborative Creative Writing Project
Zongping Xiang

Session VIII: Digital Technology, Innovation, and Education
Survey of Satisfaction of Small Private Online Course (SPOC): A Case of Chuzhou University Students, China
Guo Shouchao, Yu Chunyan, and Zhao Shenhui
Curriculum Development for Practical Training: A Design-Based Research of Network Detection Combat
Fugang He, Li Chen, and Qinhua Zheng
A Study of the Affective Tutoring System for Music Appreciation Curriculum at the Junior High School Level
Ma Yu-Chun and Lin Hao-Chiang Koong
Character-Level Convolutional Networks for Arithmetic Operator Character Recognition
Zhijie Liang, Qing Li, and Shengbin Liao
The Application of Information Processing Technology in Serving Chinese News Teachers
Shuqin Zhu, Dongdong Guo, and Jihua Song
A Web-Based Annotation System to Conducting Learning Activities for Mammography .................................................................218
  Jian-Yang Shih, Iwen Huang, and Si-Wa Chan

Session IX: Science of Learning

Students' Perspective of University in the Information Age: A Case Study from Central China Normal University ..................................................................................................................222
  Meiqian Wang, Jason MacLeod, Xiaohuan Sun, and Harrison Hao Yang

A Model Based on the Factor Analysis for Assessing the ICT Development in Basic Education and Regional Comparison ..................................................................................................................227
  Xinyan Zhang, Chun Lu, and Di Wu

Personality and Vocational Interests: What We Have Learned about Students in Educational Technology Major ..................................................................................................................232
  Sha Zhu, Harrison Hao Yang, and Jin Cai

An Educational Platform for Promoting Awareness of Lake Environmental Protection with Live Monitoring Technology ..................................................................................................................238
  Weihu Wang, Yangshen Liu, Yahui Guo, and Pengpeng Jian

Extraction of Implicit Quantity Relations for Arithmetic Word Problems in Chinese ..................................................................................242
  Xinguo Yu, Pengpeng Jian, Mingshu Wang, and Shuang Wu

Exploring the Effect of Behavioral Engagement on Learning Achievement in Online Learning Environment: Learning Analytics of Non-degree Online Learning Data ..................................................................................246
  Shuang Li, Chen Yu, Jingjing Hu, and Yao Zhong

Author Index ..................................................................................................251