

2025 International Symposium on Educational Technology (ISET 2025)

**Bangkok, Thailand
22-25 July 2025**



**IEEE Catalog Number: CFP25KAD-POD
ISBN: 979-8-3315-9551-7**

**Copyright © 2025 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP25KAD-POD
ISBN (Print-On-Demand):	979-8-3315-9551-7
ISBN (Online):	979-8-3315-9550-0
ISSN:	2766-2128

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

2025 International Symposium on Educational Technology (ISET) **ISET 2025**

Table of Contents

Preface	xiii
Organizing Committee	xiv
International Programme Committee	xvi
Keynotes	xviii
Acknowledgements	xxv

Artificial Intelligence in Education

Research on the Design of Massive Open Online Courses for Adults under the Concept of Deep Learning—Evidence from Open Education in China	1
<i>Jing-lu Liu (The Open University of China, China)</i>	
AI-Enhanced Paragraph Retrieval in Academic Databases: Empirical Evaluation of Stability, Robustness, and Adaptive Optimization for Smart Learning Environments	6
<i>WeiZhi Yang (Jiaying University, China), Chowwalit Chookhampaeng (Mahasarakham University, Thailand), and Jiraporn Chano (Mahasarakham University, Thailand)</i>	
Exploration of Knowledge Graph Empowering Formative Assessment in Accounting Courses ..	12
<i>Xinchen Jiang (Northwest Normal University, China), Deyi Kong (Guangzhou Institution of Science and Technology, China), and Xiaodong Wei (Northwest Normal University, China)</i>	
Exploring Teaching Reform of Chemical Process Simulation with AI Integration: Optimization Practice Based on Python and Aspen Plus	17
<i>Jin Sun (Guangdong University of Petrochemical Technology, China), Xingye Zeng (Guangdong University of Petrochemical Technology, China), Cunhui Lin (Guangdong University of Petrochemical Technology, China), Li Wang (Guangdong University of Petrochemical Technology, China), Shufeng Shan (Guangdong University of Petrochemical Technology, China), and Zhongfeng Fan (Guangdong University of Petrochemical Technology, China)</i>	
How Artificial Intelligence Empower Language Teaching: A Research Based on the Papers of SSCI and CSSCI Journals	21
<i>Jing Zhang (Northwest Normal University, China), Ruiqi Ma (Northwest Normal University, China), Yongjie Li (Northwest Normal University, China), Shuhua Li (Northwest Normal University, China), Lele Zhang (Northwest Normal University, China), and Xin Zheng (Northwest Normal University, China)</i>	

Exploring the Effect of Academic Motivation on Learning Outcomes: The Mediating Role of GAI Technology Acceptance	27
<i>Qin Yang (Northwest Normal University, China), Guoqing Lu (Northwest Normal University, China), Shen Ba (The Education University of Hong Kong, China), Lixuan Cui (Northwest Normal University, China), and Lu Wang (Northwest Normal University, China)</i>	
The Construction of "AI + SAE" Model of Primary School English Smart Reading Classroom Pointing to Thinking Quality	32
<i>Wei Chen (South China Normal University, China), Ziru Ouyang (The University of New South Wales, Australia), Youru Xie (South China Normal University, China), Bing Wu (South China Normal University, China), and Yi Qiu (South China Normal University, China)</i>	
Individual Student Attention Detection in Face-to-Face Classrooms using Multimodal Facial and Wearable Data	38
<i>Jiaqi Liu (Hong Kong Metropolitan University, China), Kwok Tai Chui (Hong Kong Metropolitan University, China), Lap-Kei Lee (Hong Kong Metropolitan University, China), Kwan Keung Ng (Ming-Ai (London) Institute, United Kingdom), Naraphorn Paoprasert (Kasetsart University, Thailand), and Mingbo Zhao (Donghua University, China)</i>	

Learning Analytics

Integrating Generative Artificial Intelligence in Learning Analytics: Insights and Implications from Recent Studies	44
<i>Billy T. M. Wong (Hong Kong Metropolitan University, China), Kam Cheong Li (Hong Kong Metropolitan University, China), and Charlotte S. Y. Chau (Hong Kong Metropolitan University, China)</i>	
An Interpretable Machine Learning Application for Predicting and Improving University Readiness	49
<i>József Pintér (Budapest University of Technology and Economics, Hungary), Marcell Nagy (Budapest University of Technology and Economics, Hungary), Donát Ákos Köller (Budapest University of Technology and Economics, Hungary), Mihály Szabó (Budapest University of Technology and Economics, Hungary), Kornél Kovács (Educational Development Informatika Zrt., Hungary), Gábor Brunáczy (Educational Development Informatika Zrt., Hungary), Balázs Szabó (Educational Development Informatika Zrt., Hungary), and Roland Molontay (Budapest University of Technology and Economics, Hungary)</i>	
Self-Regulated Learning Path Analysis of Students with Different Grade Point Average in Flipped Classroom: K-Means Clustering and Process Mining	55
<i>Ting Wang (Central China Normal University, China), Taotao Long (Central China Normal University, China), Xiaomeng Zhu (Wuhan University of Technology, China), and Dong Wu (Wuhan University of Technology, China)</i>	
Investigating Real-Life Features Associated with Student Stress	60
<i>Yicong Liang (Hong Kong Metropolitan University, China), Di Zou (The Hong Kong Polytechnic University, China), Haoran Xie (Lingnan University, China), Fu Lee Wang (Hong Kong Metropolitan University, China), and Leung Pun Wong (Tung Wah College, China)</i>	

From Coders to Critics: Empowering Students through Peer Assessment in the Age of AI Copilots	66
<i>Santiago Berrezueta-Guzman (Technical University of Munich, Germany), Stephan Krusche (Technical University of Munich, Germany), and Stefan Wagner (Technical University of Munich, Germany)</i>	

Virtual Reality and Augmented Reality

Effects of Spherical Video-Based Virtual Reality on Foreign Language Enjoyment in Chinese English-as-a-Foreign-Language Speaking Class	72
<i>Ying Ye (Fuzhou University, China), Bin Shen (Fuzhou University, China), Michael Yi-Chao Jiang (Shenzhen Technology University, China), and Morris Siu-Yung Jong (The Chinese University of Hong Kong, China)</i>	
A Framework for Integrating Virtual Reality Modules in Mobile MOOC Platforms: Design, Development, and User Experience	78
<i>Soumya Kanti Datta (Digiotech, Estonia)</i>	
Bringing Microbiology to Life in Museum: using Mobile VR and LLM-Powered Virtual Character for Children's Science Learning	83
<i>Yuanyuan Chen (Northwest Normal University, China), Yan Yan (Northwest Normal University, China), and Guodong Yang (Northwest Normal University, China)</i>	

Blended Learning

Teaching Design and Practice of Project-Based Blended Learning Mode in Concrete Structure Courses Empowered by Artificial Intelligence	88
<i>Huan Jin (Guangdong University of Petrochemical Technology, China), Yongyi He (Guangdong University of Petrochemical Technology, China), and Xiaojie Zhang (Dalian University, China)</i>	
Study on the Relationship between Blended Synchronous Learning' Presence and Learning Engagement	92
<i>Yitong Wei (Jiangnan University, China), Chen Liu (Jiangnan University, China), Jinshuang Li (Jiangnan University, China), Yinghui Shi (Central China Normal University, China), Harrison Hao Yang (State University of New York at Oswego, USA), and Fengfen Gao (Jiangnan University, China)</i>	
Developing Teacher Competencies for Blended Teaching: Organizing Different Strategies for Teacher Professional Development Programs	97
<i>Wanrong Guo (Northwest Normal University, China), Xiaoying Feng (Beijing Normal University, China), and Jiahui Wei (Northwest Normal University, China)</i>	
Exploring the Viability of Blended Learning for EMI Teacher Training in Taiwan: Opportunities and Challenges	102
<i>Shao-Fu Li (Chung Hua University, China), Kwan-Keung Ng (Shenzhen City Polytechnic, China), Lap-Kei Lee (Hong Kong Metropolitan University, China), Simon K.S. Cheung (Hong Kong Metropolitan University, China), and Louise Luk (Hong Kong Metropolitan University, China)</i>	
A Study on Teachers' Emotional Pressures in Online/Blended Project-Based Language Teaching: Four Cases from Southwestern China	109
<i>Yuhan Huang (University of Glasgow, UK), Lu Zhang (Beijing University of Posts and Telecommunications, China), and Meixia Xu (Victoria University, Australia)</i>	

Online Feedback with Emoticons: Can It Enhance Cognitive Engagement and Learning Experience in Asynchronous Online Discussions?	114
<i>Minghe Xia (Central China Normal University, China), Qinna Feng (Central China Normal University, China), Xueping Zhu (Central China Normal University, China), and Wenhao Li (Central China Normal University, China)</i>	
Research on the Current Situation of Blended Teaching in Higher Vocational Colleges in Anhui Province	120
<i>Yang Yang (Anhui Vocational and Technical College, China)</i>	

Generative Artificial Intelligence in Education

Adapting to AI: A Study on Multimedia Art Students' Preparedness for AI-Enhanced Integrated Marketing	124
<i>John Heland Jasper C. Ortega (FEU Institute of Technology, Philippines) and John Angelo M. Repollo (FEU Institute of Technology, Philippines)</i>	
Identifying Secondary School Students' Patterns in Prompting Generative Artificial Intelligence in AI Education	129
<i>Tianle Dong (The Chinese University of Hong Kong, China), King Woon Yau (The Chinese University of Hong Kong, China), Ching Sing Chai (The Chinese University of Hong Kong, China), Thomas K. F. Chiu (The Chinese University of Hong Kong, China), Helen Meng (The Chinese University of Hong Kong, China), Irwin King (The Chinese University of Hong Kong, China), Savio W. H. Wong (The Chinese University of Hong Kong, China), and Yeung Yam (The Chinese University of Hong Kong, China)</i>	
Integrating Generative AI into Teaching and Learning: An AI Assisted Mini-Course that Addresses Student Professional Skill Needs	134
<i>Jan Pané-Farré (Philipps-University Marburg, Germany) and Spencer A Benson (Education Innovations International Consulting, LLC, USA)</i>	
A Literature Review on Generative Artificial Intelligence Applications in Foreign Language Education	139
<i>Zuquan Shao (Shenzhen Technology University, China), Michael Yi-Chao Jiang (Shenzhen Technology University, China), and Morris Siu-Yung Jong (The Chinese University of Hong Kong, China)</i>	
The AI-Artist Collaboration: Impact of Generative AI on Digital Creators and Multimedia Arts Education	144
<i>John Heland Jasper C. Ortega (FEU Institute of Technology, Philippines)</i>	
Collaborative and Cognitive Interaction Pattern between Generative AI and Engineering Students in Scripted Gamification	149
<i>Junzhao Li (Central China Normal University, China), Taotao Long (Central China Normal University, China), Xiaomeng Zhu (Wuhan University of Technology, China), and Dongchen Pan (Central China Normal University, China)</i>	
Capturing Teachers' Collaborative Discourse Patterns in Collective Reflection Based Generative Artificial Intelligence: A Network Signature Approach	154
<i>Ning Wang (Central China Normal University, China), Ya Zhao (Central China Normal University, China), Jimei Li (Central China Normal University, China), Mingwen Tong (Central China Normal University, China), and Taotao Long (Central China Normal University, China)</i>	

Course Design for Fostering Critical Use of ChatGPT in Academic Writing	159
<i>Xiaohong Zhang (Kansai University, Japan)</i>	
Comparing Lightweight GEMMA3 Models for SAT Math Under Resource Constraints	164
<i>Chacharin Lertyosbordin (King Mongkut's University of Technology Thonburi, Thailand), Thakorn Jearaborival (Assumption College, Thailand), Maythus Tangprapa (Bangkok Christian College, Thailand), and Thanakorn Iamruttanawong (Bangkok Christian College, Thailand)</i>	
Evolutionary Landscape of Artificial Intelligence in Education: Review and Prospects	169
<i>Xiuli Jing (Jinan University, China), Zuying Feng (Jinan University, China), Xiaoyi Yang (Jinan University, China), Zhe Wang (Jinan University, China), and Wei Li (Jinan University, China)</i>	
Memory-Aware Privacy Protection for Large Language Models in Education	174
<i>Yihan Liao (City University of Hong Kong, China), Jacky Keung (City University of Hong Kong, China), and Wing-Kwong Chan (City University of Hong Kong, China)</i>	
Identifying the Cause of Performance Issues of Pretrained Language Model for Educational Technology	179
<i>Pak Yuen Patrick Chan (City University of Hong Kong, Hong Kong) and Jacky Keung (City University of Hong Kong, Hong Kong)</i>	
Chatbots in Higher Education: A Bibliometric Analysis Based on VOSviewer	184
<i>Edmond King Sing Fong (Hong Kong Metropolitan University, China), Fred Wang Fat Lee (Hong Kong Metropolitan University, China), Lap-Kei Lee (Hong Kong Metropolitan University, China), Kwok Tai Chui (Hong Kong Metropolitan University, China), and Ramidayu Yousuk (Kasetsart University, Thailand)</i>	
A Pilot Study of Probing before Trusting Large Language Models in Self-Learning	190
<i>Zhengyuan Wei (The Education University of Hong Kong, China), Victor C. S. Lee (The University of Hong Kong, China), and W. K. Chan (City University of Hong Kong, China)</i>	
Integrating a Scaffolding-Based, LLM-Driven Chatbot into Programming Education: A University Case Study	196
<i>Gary Cheng (The Education University of Hong Kong, China), Winnie Wong (The Education University of Hong Kong, China), Lumen Luo (The Education University of Hong Kong, China), and Marvin Yu (The Education University of Hong Kong, China)</i>	

Innovative, Smart, and Collaborative Learning

Improving Learning Efficacy in Basic Programming Practice Based on Three-Stage Thinking ...	201
<i>Xiaojun Cai (Shandong University, China), Jacky Keung (City University of Hong Kong, China), Zhaoyan Shen (Shandong University, China), Mengying Zhao (Shandong University, China), Zhen Yang (Shandong University, China), Zhenge Jia (Shandong University, China), Fangxi Han (Shandong University, China), and Dongxiao Yu (Shandong University, China)</i>	
Motivational Drivers in Science Communication Training Engagement: Insights from Young Thai Scientists using a Self-Determination Theory Approach	206
<i>Pham Truong Giang (Kasetsart University, Thailand), Naraphorn Paoprasert (Kasetsart University, Thailand), and Sasitorn Srisawadi (National Science and Technology Development Agency (NSTDA), Thailand)</i>	

A Qualitative Study on the Design and Practice of On-Demand Classes by University Faculty: Focusing on the Transition Process from Face-to-Face to On-Demand Classes in the Post-COVID Era	212
<i>Chiaki Iwasaki (Kansai University, Japan)</i>	
Hackathons in Practical Education	218
<i>Radmila Velnerová (University of Hradec Králové, Czech Republic) and Petra Poullová (University of Hradec Králové, Czech Republic)</i>	
Is Case-Based Learning the Preferred Online Pedagogy for Teaching Statistical Analysis? Evidence from an Experimental Study	222
<i>Yan Yi (Central China Normal University, China), Bixia Tang (Central China Normal University, China), Wenshuang Hu (Central China Normal University, China), Xue Han (Central China Normal University, China), Shiqing Peng (Central China Normal University, China), and Heng Luo (Central China Normal University, China)</i>	
A Study on the Influence of Peer-to-Peer Assessment-Supported Maker Education on Learners' Higher-Order Thinking	228
<i>Yue Wu (Zhejiang Normal University, China) and Qihui Hu (Zhejiang Normal University, China)</i>	
The Power of Personalized Learning Why One Size Fits All Mindset No Longer Works through Experiences from a Workplace	233
<i>Chulalak Kongphet (Kasetsart University, Thailand) and Kongkiti Phusavat (Kasetsart University, Thailand)</i>	
The Impact of Integrated Learning Apps on Oral Proficiency Development in Chinese EFL Learners	241
<i>Xiaomi Zhang (Guangdong University of Petrochemical Technology, China), Jin Sun (Guangdong University of Petrochemical Technology, China), Rujin Zhou (Guangdong University of Petrochemical Technology, China), and Li Wang (Guangdong University of Petrochemical Technology, China)</i>	
Innovative Learning Frameworks through Educational Video About Queer Filipino Women's Dating App Experiences	245
<i>Jela Mae F. Ventura (FEU Institute of Technology, Philippines), David R. Corpuz (Mapua University, Philippines), and John Heland Jasper C. Ortega (FEU Institute of Technology, Philippines)</i>	
Instructional Strategies in Computer-Supported Collaborative Learning: A Systematic Review and Meta-Analysis	250
<i>Yilong Pu (Central China Normal University, China) and Heng Luo (Central China Normal University, China)</i>	
Research on Learning Intervention Strategies in the Context of Artificial Intelligence: Current Status, Issues and Trends	256
<i>Jingyi Zhang (Northwest Normal University, China), Jiayu Wu (Northwest Normal University, China), and Minsheng Fan (Northwest Normal University, China)</i>	
Comic-Based Personalized Learning using 4D Competencies Framework for 21st Century	261
<i>Chandra Reka Ramachan (Xiamen University Malaysia, Malaysia), Mien May Chong (Asia Pacific University of Technology and Innovation, Malaysia), Preethi Subramanian (Asia Pacific University of Technology and Innovation, Malaysia), Malissa Maria Mahmud (Sunway University, Malaysia), and Boyue Li (Xiamen University Malaysia, Malaysia)</i>	

Assessing Student Engagement in Gamified Computing Education: A Malaysian University Case Study using MDE Framework and GamefulQUEST	267
<i>Mien May Chong (Asia Pacific University of Technology and Innovation, Malaysia), Mary Ting (Asia Pacific University of Technology and Innovation, Malaysia), Preethi Subramanian (Asia Pacific University of Technology and Innovation, Malaysia), Chandra Reka Ramachandiran (Xiamen University Malaysia, Malaysia), Joe Ying Lau (Asia Pacific University of Technology and Innovation, Malaysia), and Jing Yao Yap (Asia Pacific University of Technology and Innovation, Malaysia)</i>	
Community-Oriented Sentence Simplification: Towards Accessible Language Processing	273
<i>Jiaqi Liu (Hong Kong Metropolitan University, China), Lap-Kei Lee (Hong Kong Metropolitan University, China), Kwok Tai Chui (Hong Kong Metropolitan University, China), Xiaodong Wei (Northwest Normal University, China), Ted Y. T. Suen (Hong Kong Metropolitan University, China), Simon K. S. Cheung (Hong Kong Metropolitan University, China), Praewpran Prayadsab (Kasetsart University, Thailand), Nga-In Wu (The Hong Kong Polytechnic University, China), and Yan Keung Hui (Vocational Training Council, China)</i>	

Smart Environments, Technologies, and Platforms

Research on the Intelligent Evaluation of the Diversified Effects of the Teaching Process Based on the Entropy Method	N/A
<i>Zixun Hua (Guangdong University of Education, China), Kaifang Zheng (Guangzhou Panyu District Kindergarden, China), Yuhang He (Zhujiang College of South China Agricultural University, China), Xin Shu (Guangdong University of Education, China), and Xingjiang Li (Guangdong University of Education, China)</i>	
The Technological Pathway of School Climate Driving Teachers' TPACK Development: The Chain Mediating Effects of Information and Communication Technology Skills and Computer Self-Efficacy	286
<i>Lei Gan (Northwest Normal University, China; Tang Shan University, China), Yao-bin Wang (Northwest Normal University, China), Tong-xin Li (Rajamangala University of Technology Krungthep Bangkok, Thailand; Tangshan Labor Technician College, China), Chun Yuan (Tang Shan University, China), and Hao-yang Miao (Northwest Normal University, China)</i>	
Exploring the Key Factors Influencing Digital Literacy Development in Primary School Students: Insights from the UTAUT and SDT	292
<i>Shiqing Peng (Central China Normal University, China) and Ziyang Qiu (South China Normal University, China)</i>	
Profiling AI Literacy and STEAM Competency Among University Students: Insights for Enhancement	298
<i>Gary Cheng (The Education University of Hong Kong, China), Crystal Luo (The Education University of Hong Kong, China), Ken Chan (The Education University of Hong Kong, China), and Stephanie Chan (The Education University of Hong Kong, China)</i>	
Feedback and Learning Environments for Intentional Personalized Learning in Education-Service Startups	303
<i>Panuwat Rodchom (Kasetsart University, Thailand), Kongkiti Phusavat (Kasetsart University, Thailand), and Naraphorn Paoprasert (Kasetsart University, Thailand)</i>	

Research on the Evolutionary Dynamics of Learning Community and its Participants' Interaction Patterns in Online Environments	309
<i>Sha Zhu (Central China Normal University, China), Xiaorui Wang (Central China Normal University, China), Jiayuan Li (Central China Normal University, China), Hao Zeng (Central China Normal University, China), and Shun Xu (Hubei University of Technology, China)</i>	
Collective Reflection of Pre-Service Science Teachers with Video Analysis: A Design-Based Research	314
<i>Jimei Li (Central China Normal University, China) and Taotao Long (Central China Normal University, China)</i>	
The Role of 3D Virtual Humans in Communication and Assisting Students' Learning in Transparent Display Environments: Perspectives of Pre-Service Teachers	319
<i>Peihao Zhao (Northwest Normal University, China) and Xiaodong Wei (Northwest Normal University, China)</i>	
Knowledge Graph Empowers Teaching Reform: The Construction of Generative Classroom Model of the Integration of "Teaching-Learning-Evaluating"	324
<i>Youru Xie (South China Normal University, China), Zhiyang Peng (South China Normal University, China), and Yi Qiu (South China Normal University, China)</i>	
Using Structural Equation Modeling to Analyze Impact Factors on Students and AI Agents Interaction Effectiveness in Elementary English Classes	330
<i>Lu Wang (South China Normal University, China), Youru Xie (South China Normal University, China), and Jiamin Ke (South China Normal University, China)</i>	
A Systematic Review of Frameworks for Evaluating Cognitive-Social-Emotional Skills in Online Knowledge Construction	335
<i>Xieling Chen (Guangzhou University, China), Haoran Xie (Lingnan University, China), Di Zou (The Hong Kong Polytechnic University, China), and Fu Lee Wang (Hong Kong Metropolitan University, China)</i>	
The Construction of "Family-School-Society Linkage" Inquiry Model for Primary School Science Empowered by AI Agent	340
<i>Wan Xia (South China Normal University, China), Youru Xie (South China Normal University, China), Zhidan Ye (Dongshan Peizheng Primary School, China), Yongjian Ou (Dongshan Peizheng Primary School, China), Xiaomei Wang (South China Normal University, China), and Bing Wu (South China Normal University, China)</i>	
An Improvement Cycle Framework of Education Criteria for Performance Excellence (EdPEX) for Thai Higher Education	345
<i>Anan Mungwattana (Kasetsart University, Thailand), Naraphorn Paoprasert (Kasetsart University, Thailand), Praewpran Prayadsab (Kasetsart University, Thailand), and Ramidayu Yousuk (Kasetsart University, Thailand)</i>	
Author Index	351