



ICCE 2024

The 32nd International Conference
on Computers in Education

MANILA, PHILIPPINES

W01: 4th International Workshop on Embodied Learning: Technology Design, Analytics & Practices

Monday, November 25

09:00–10:30	W01-1
W01-004F	Exploring Cognitive Engagement in AI-Driven Adaptive Psychomotor Sport Training <i>Miguel PORTAZ, Rwitajit MAJUMDAR & Olga C. SANTOS</i>
W01-005F	Exploring Graph Slopes Through a Series of Embodied Learning Experiences <i>Priyadharshni ELANGAIVENDAN, Melwina ALBUQUERQUE, Shizuka DARA & Sanjay CHANDRASEKHARAN</i>
10:50–12:20	W01-2
W01-006F	Unpacking Interaction Markers of Critical Thinking <i>Aditi KOTHIYAL, Rwitajit MAJUMDAR, Shitanshu MISHRA, Jayakrishnan Madathil WARRIEM & Prajakt PANDE</i>
W01-007F	Actions and Interactions at Collaborative Engineering Design Hackathon: Looking Through the Lens of Embodied Cognition <i>Soumya NARAYANAN, Navneet KAUR & Rwitajit MAJUMDAR</i>
W01-008F	Designing an AI-Enhanced Timeline for Monitoring Multimodal Interactions in Embodied Learning Environments <i>Joyce FONTELES, Namrata SRIVASTAVA, Eduardo DAVALOS, Ashwin T S & Gautam BISWAS</i>



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W02: The 13th International Workshop on ICT Trends in Emerging Economies (WICTTEE 2024)

Tuesday, November 26

09:00–10:30	W02-1
W02-003F	Exploring Learning Analytics: A Case Study of Tertiary Educators' Utilization and Integration of AnimoSpace LMS in the Online Learning Environment <i>Rozanne Tuesday G. FLORES & Ethel C. ONG</i>
W02-007F	An Implementation of Augmented Reality in Guided Inquiry-Based Learning for Enhancing Primary Students' Mental Models in Science <i>Sasivimol PREMTHAISONG, Pawat CHAIPIDECH, Phattaraporn PONDEE & Niwat SRISAWASDI</i>
W02-001S	Design and Assessment of a Mobile Cloud Learning Platform for the Classroom: Examining the Efficiency of Blended Learning in Post-COVID Science Education <i>Joselito Christian Paulus VILLANUEVA, John Lorence VILLAMIN & Joshua TUMOLVA</i>
10:50–12:20	W02-2
W02-014F	Exploring Skills Enhancement in Student Teacher Through Implementation of Design Thinking in Unplugged Game Creation <i>Tian Wong LING, Mas Nida Md. KHAMBARI, Mohd Mokhtar MUHAMAD, Sharifah Intan Sharina Syed-ABDULLAH & Saiful Hasley RAMLI</i>
W02-017F	Factors Influencing ChatGPT Use Behaviour Among Trainee Teachers <i>Sarala VALAIDUM & Jazihan MAHAT</i>
W02-009S	Design and Implementation of an Educational Escape Rooms Class <i>Jesus Alvaro C. PATO, Gerick Jeremiah Niño N. GO, Paolo Santino P. CAOILE, Gio Gabriel C. REYES, Joaquin Enrique B. SINJIAN, Jerold Luther P. AQUINO & Maria Mercedes T. RODRIGO</i>
13:20–14:50	W02-3
W02-002S	A Preliminary Investigation of the Definition and Components of Computational Thinking in the Malaysian Education Landscape: From Educational Technology Experts' Perspective <i>Ahmad Sarji Abdul HAMED, Su Luan WONG, Mohd Zariat Abdul RANI, Mas Nida Md KHAMBARI, Nur Aira Abd RAHIM, Fariza KHALID & Priscilla MOSES</i>
W02-006S	PERS: A Personalized Recommender System for Student-Generated Questions in Programming Courses <i>Pham-Duc THO</i>
W02-010S	A User Acceptance Testing Tool for Mobile Game-Based Learning Application <i>Christian Jade D. GUILLEN & Saturnina F. NISPEROS</i>
W02-016S	Sociotechnical Challenges of Older Educators in Delivering Medical Education Online <i>Ryan EBARDO, John Byron TUAZON & Miriam Louella FERMIN</i>



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W02: The 13th International Workshop on ICT Trends in Emerging Economies (WICTTEE 2024)

Tuesday, November 26

15:10–16:10	W02-4
W02-013S	Minecraft as a Tool for Digital Game-Based Learning: Enhancing Conceptual Understanding and Attitudes in Mathematics Learning <i>Sakda CHALEEPLIAM, Sasivimol PREMTHAISONG & Pawat CHAIPIDECH</i>
W02-008S	Cognicraft: Smart Exam Question Generation with AI and Bloom's Taxonomy <i>Christian SAGADRACA, Zainal SANTOS, Danilo SIMON Jr., Marianne Jessica TOLENTINO & Reymar VENTURA</i>
W02-004S	Development and Evaluation of a Hybrid Mobile-Learning App Using Design Science Research (DSR) Framework <i>John Lorence VILLAMIN, Joselito Christian Paulus VILLANUEVA & Joshua TUMOLVA</i>



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W03: Analysis and Design of Problems/Questions in the Digital Environment: The 17th Workshop on Technology Enhanced Learning by Posing/Solving Problems/Questions

Monday, November 25

09:00–10:30	W03-1
W03-002	Difficulty–Controllable Reading Comprehension Question Generation Considering the Difficulty of Reading Passages <i>Yuto TOMIKAWA & Masaki UTO</i>
W03-005	Learning Effectiveness and Reflections on AI Literacy in Junior High School Students with Game–Based Learning and Problem–Based Learning <i>Shih-Hua HUANG & Ting-Chia HSU</i>
W03-009	Does Experience of Feedback Generation Promote Student Novel Problem Posing? An Empirical Study in a Database Course <i>Kazuaki KOJIMA</i>
10:50–12:20	W03-2
W03-004	Difficulty–Controllable Reading Comprehension Question Generation Considering the Difficulty of Reading Passages <i>Yuto TOMIKAWA & Masaki UTO</i>
W03-006	Iterative Problem Solving in the Integration of Design Thinking and Game–Based Learning into Enhancing Computational Thinking and AI Literacy <i>Tai-Ping HSU & Ting-Chia HSU</i>
W03-007	Design and Development of a Stepwise Learning Environment for Problem Posing of Arithmetic Word Problem <i>Yusuke HAYASHI, Nagito YAMAMOTO, Susumu SHIMAKAWA & Tsukasa HIRASHIMA</i>



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W04: The 8th Computer-Supported Personalized and Collaborative Learning

Tuesday, November 26

09:00–10:30	W04-1
W04-003F	Investigating the Impact of Cooperative Group Learning on Blended Teaching and Learning Outcomes: A Case Study of Sixth-Grade Students in an Elementary School <i>De Jun MO & Joni Tzuchen TANG</i>
W04-008F	Investigating Students' Online Learning Perception Through the Lens of Constructivism <i>May Marie P. TALANDRON-FELIPE, Kent Levi A. BONIFACIO & Gladys S. AYUNAR</i>
W04-001S	Integrating Virtual Environment in Teaching Courses <i>Chiu-Jung CHEN & Pei-Lin LIU</i>
10:50–12:20	W04-2
W04-007F	Investigating the Role of AI Book Talk Companion in Enhancing Student Performance: A Pilot Study on Self-Efficacy <i>Yi-Cheng TSAI, Hsiao-Tung YANG, Chang-Yen LIAO, Yen-Cheng YEH & Tak-Wai CHAN</i>
W04-013F	Investigation of Skills Training System Using TF-IDF for the Plasterer's Skeletal Data <i>Ryota TANAKA, Naka GOTODA, Lee SAERON, Ryo KANDA, Ayaka HUNABIKI, Hirotake KANISAWA, Kanae KANDA, Yuka TAKAI & Toshihiro HAYASHI</i>
W04-002S	The Trends in Computer-Supported Virtual Reality Collaborative Learning <i>Ching-Yi CHANG & Cheng-Huan CHEN</i>
13:20–14:50	W04-3
W04-012F	Addressing Public Speaking Anxiety with an AI Speech Coach <i>Frederick Voltair GARCIA Jr., Nicanor Froilan PASCUAL, Miguel Elijah SYBINGCO & Ethel ONG</i>
W04-005S	Exploring the Impact of Integrating Auto-Photography and Imagery Strategies into Computer-Supported Collaborative Learning: A Case Study in a General Education Course on Climate Change <i>Wen-Lung HUANG & Chia-Jung CHANG</i>
W04-010S	Developing an LLM-Empowered Agent to Enhance Student Collaborative Learning Through Group Discussion <i>Sixu AN, Yicong LI, Yu YANG, Yunsi MA, Gary CHENG & Guandong XU</i>
15:10–17:00	W04-4
W04-006S	Exploring the Effect of Collaborative Programming Learning Environment on Student's Computer Programming Competencies and Cognitive Learning <i>Chia-Jung CHANG & Wen-Lung HUANG</i>
W04-009S	Investigating the Impact of Kahoot! On EFL Grammar Learning <i>Jonathan Y. CHIN & Ben CHANG</i>
W04-011S	Designing an LLM-Based Dialogue Tutoring System for Novice Programming <i>Julieto PEREZ & Ethel ONG</i>



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W06: GenAI in Education – From Hallucinations to Reality: Integrating Learning Analytics and Generative AI for Enhancing Personalized Learning Experiences

Tuesday, November 26

09:00–10:30	W06-1
W06-001F	Analyzing Teacher–Student Dialogues in Online One-on-One Primary Mathematics Tutoring: A Lag Sequential Analysis of Group Differences <i>Gary CHENG, Bo JIANG, Daner SUN, Ming GAO & Zhixuan SONG</i>
W06-004F	Supporting Teacher–Student Book Talk and Book Wish Lists with AI-Driven Technology <i>Chih-En KUO, Hong-Min TU, Chang-Yen LIAO & Tak-Wai CHAN</i>
W06-005F	AVERY: A GenAI-Based Approach to Enhancing Learner Engagement in English Writing <i>Ka-Lai WONG, Patrick OCHEJA, Brendan FLANAGAN & Hiroaki OGATA</i>
10:50–12:20	W06-2
	Panel Discussion
13:20–14:50	W06-3
W06-007F	How AI Supports Returning Adult Learners in a Developing Economy: Enhancing Academic Writing Through Self-Determination Theory <i>Mary Rose MARTINEZ & Ryan EBARDO</i>
W06-009F	Developing a Multimodal Learning Analytics Approach to Examine Students' Cognitive Presence and Metacognition in a Metaverse Environment <i>Yanjie SONG, Lei TAO, Hao DENG & Jiachen FU</i>
W06-010F	Integrating ChatGPT into Flipped Learning: Enhancing Students' Creative Writing Skills and Perception <i>Worapong KHUIBUT, Sasivimol PREMTHAISONG & Pawat CHAIPIDECH</i>
15:10–17:00	W06-4
W06-011F	Competency-Based Assessment in the Era of Generative Artificial Intelligence: Perspectives of Selected STEM Educators <i>Friday Joseph AGBO, Heather Kitada SMALLEY & Kathryn NYMAN</i>
W06-006S	A Case Study for Educators with ChatGPT and Plato's Allegory of the Cave <i>Anna Y.Q. HUANG, Jain-Wei TZENG, Chi-Sheng HUANG, Zhi-Qi LIU, Bryan Carl TANUJAYA, Owen H.Q. LU</i>
W06-008S	Supporting Students' Post-Exam Reflection Needs in College Automation Engineering Course Using LLM <i>Edward ANOLIEFO, Patrick OCHEJA, Regina OCHONU, Brendan FLANAGAN & Hiroaki OGATA</i>



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W07: The 7th Workshop on Predicting Performance Based on the Analysis of Reading and Learning Behavior

Tuesday, November 26

09:00–10:30	W07-1
W07-001F	Exploring Cross-Disciplinary Education: Enhancing Science Learning with Digital Picture Books <i>Yan-Yu JAU & Joni Tzuchen TANG</i>
W07-002F	Methods of Balancing Model Explainability and Performance in Identifying At-Risk Students <i>Tiffany T.Y. HSU, Brendan FLANAGAN & Owen H.T. LU</i>
10:50–12:20	W07-2
W07-003F	Effects of the Self-Regulated Learning and Motivation on Learning Achievements of the Programming Courses <i>Mu-Sheng CHEN & Ting-Chia HSU</i>
W07-004F	GazeViz: A Web-Based Approach for Visualizing Learner Gaze Patterns in Online Educational Environment <i>Eduardo DAVALOS, Namrata SRIVASTAVA, Yike ZHANG, Amanda GOODWIN & Gautam BISWAS</i>



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W08: The 12th Workshop on Technology-Enhanced STEM Education (TeSTEM Workshop)

Monday, November 25

09:00–10:30	W08-1
W08-001F	Novice Programmers' Saccadic Patterns in Error Message Comprehension and Syntax Error Identification <i>Caren PACOL, Maria Mercedes RODRIGO & Christine Lourrine TABLATIN</i>
W08-004F	Challenges and Opportunities for Designing and Implementing Ubiquitous Game-Based Learning to Cultivate Digital Citizenship in Thailand <i>Patcharin PANJABUREE, Gwo-Jen HWANG, Niwat SRISAWASDI, Ungsinun INTARAKAMHANG & Sasipim POOMPIMOL</i>
W08-005S	Reducing Undergraduate Students' Information Technologies (ITs) Anxiety Through Implementation of Blended Learning: A Case Study in the Basic Natural Science Course <i>Anggiyani Ratnaningtyas Eka NUGRAHENI, Anggraeni Dian PERMATASARI & Antuni WIYARSI</i>
10:50–12:20	W08-2
W08-002F	Predicting Emotional Impact on Peer Review, Peer Assessment, and Self Assessments Using Deep Learning and NLP in STEM Education <i>Pascal Muam MAH</i>
W08-008F	Leveraging Generative AI for Automatic Scoring in Chemistry Education: A Web Based Approach to Assessing Conceptual Understanding of Colligative Properties <i>Sri YAMTINAH, Dimas Gilang RAMADHANI, Antuni WIYARSI, Hayuni Retno WIDARTI & Ari Syahidul SHIDIQ</i>
W08-010S	Fostering TPACK Self Efficacy Among Pre-Service Chemistry Teachers: A Case Study from Indonesia <i>Anggiyani Ratnaningtyas Eka NUGRAHENI & Niwat SRISAWASDI</i>



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W08: The 12th Workshop on Technology-Enhanced STEM Education (TeSTEM Workshop)

Monday, November 25

13:20–14:50	W08-3
W08-003F	Math Learning Application on Mobile Devices Following the STEAM Educational Model <i>Nguyen-Manh THANG & Pham-Duc THO</i>
W08-011F	Does Interactive Augmented Reality Enhance Primary Students' Geometric Understanding and Visual-Spatial Skills in Mathematics Learning? <i>Atcharaporn ASSAWAPHUM, Sasivimol PREMTHAISONG & Pawat CHAIPIDECH</i>
W08-007S	Promoting Quantitative Analysis in School Chemistry with Technology-Supported Hands-On Laboratory Learning: A Case of Arduino-Based Portable Spectrophotometer <i>Ari Syahidul SHIDIQ, Fa'ari SALSABIILA, Sri YAMTINAH, Sri MULYANI, Murni RAMLI, Hayuni Retno WIDARTI & Nahadi</i>
15:10–17:00	W08-4
W08-009F	The Urgency of Small-Scale Laboratory Learning Media with Ethno-Electrochemical Contexts Based on Content Creators <i>Hayuni R. WIDARTI, Sumari, Munzil, Nahadi, Ari S. SHIDIQ, Berliyana I. PANULATSIH, Ghaitza Z. S. P. PUTRI, Nafisah KHAIRUNNISA & Deni A. ROKHIM</i>
W08-012F	Exploring the Effect of Marker-Based AR Gamification on Primary Students' Science Concepts and Motivation <i>Pawat CHAIPIDECH, Sasivimol PREMTHAISONG, Phattaraporn PONDEE & Niwat SRISAWASDI</i>
W08-006S	Exploring the Impact of Digital Divide on the Academic Performance of STEM Students in Hybrid Modality <i>May Marie P. TALANDRON-FELIPE & Jundy V. INTAO</i>



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W09: The 4th Workshop on Innovative Technologies for Enhancing Interactions and Learning Motivation

Monday, November 25

09:00–10:30	W09-1
W09-001S	AR²: Augmented Reality for Enhanced Reading Comprehension <i>Allan Jay ESTEBAN</i>
W09-002S	Developing the Interactive Game-Based Picture Book "Food Ninja" to Enhance Creativity in Elementary School Students <i>Wen Chun LAN, De Jun MO & Joni Tzuchen TANG</i>
W09-003F	An Estimation of Student Well-Being Using Experience Sampling <i>Arthur W. NEBRAO, Jr. & Maria Mercedes T. RODRIGO</i>
W09-004S	Exploring the Use of Short Video Social Media for Learning ESL in Indonesia <i>Riska SAPUTRA, Tsaqufal JALILIY & Intan SETIANI</i>
W09-005S	Narrative Introduction Text Generation Support System According to Reader Preferences <i>Ryusei SHIMONAKA, Kota KUNORI & Tomoko KOJIRI</i>
W09-007S	Galvanic Skin Responses and Flow: Insights from Multimodal Learning Analytics in Personal Learning Environment <i>Yu-Lin HO, Yuan-Hsuan LEE & Jiun-Yu WU</i>
10:50–12:20	W09-2
W09-006F	Transforming Student Feedback into Institutional Action Plans: A Data-Driven Approach <i>Arlene Mae CELESTIAL VALDERAMA</i>
W09-008F	BioMol DigiGames: An App for the Mastery of Biomolecules <i>Joshua TUMOLVA, Armando Victor GUIDOTE, John Lorence VILLAMIN & Joselito Christian Paulus VILLANUEVA</i>
W09-009S	The Era of Learning Programming Through Program: Challenges and Potential of ChatGPT in Revolutionizing High School Programming Education <i>Tzu-Chi YANG</i>
W09-010S	Code Visualization System for Writing Better Code Through Trial and Error in Programming Learning: Classroom Implementation and Practice <i>Shintaro MAEDA, Kento KOIKE & Takahito TOMOTO</i>
W09-011S	Optimization of Non-Verbal Information for English Conversation Agents Using Interactive Evolutionary Computation <i>Yuma SHIMOSAKA, Emmanuel AYEDOUN & Masataka TOKUMARU</i>



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W09: The 4th Workshop on Innovative Technologies for Enhancing Interactions and Learning Motivation

Monday, November 25

13:20–17:00	W09-3
W09-012S	Exploring the Benefits of Strategic Hesitations in Language Learning Robots <i>Ryusei AZUMA, Emmanuel AYEDOUN & Masataka TOKUMARU</i>
W09-013S	Zooming In on Educator Well-Being: Exploring Behavior Attributes, Zoom Fatigue, and Burnout Dynamics <i>Kevynn DELGADO, Mary Rose MARTINEZ, Christine Jamela VALSADO & Ryan EBARDO</i>
W09-014S	The Effect of Collaborative Anchoring on the Development of Digital Curation Skills Among Nursing College Students <i>Chun-Hao CHANG</i>
W09-015F	Enhancing Health Education and Learning Motivation in Primary Students Through Augmented Reality and Game-Based Learning: A Case Study <i>Nattapat BUNYUEN, Sasivimol PREMTHAISONG & Pawat CHAIPIDECH</i>
W09-016S	Improving Engagement in Museums Through Virtual Reality Educational Escape Rooms (VREER): A Framework and Usability Study <i>Eric Cesar E. VIDAL Jr., Nicko R. CALUYA, Joan Dominique L. LEE, Kenneth King L. KO, Jed Laszlo O. JOCSON & Gerick Jeremiah Niño N. GO</i>
W09-017S	Explore the Effect of Metacognitive Awareness on University Students' Learning Outcomes in the Metaverse: Evidence from Eye-Tracking Data <i>Tinghui WU, Yanjie SONG & Xuesong ZHAI</i>



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Doctoral Student Consortium (DSC)

Tuesday, November 26

09:00–10:30	DSC-1
244	Real-Time Adaptive Learning Environments Using Gaze and Emotion Recognition Engagement and Learning Outcomes <i>AboulHassane CISSE</i>
254	Developing a Multimodal Learning Analytics Approach for Collaborative Learning and Metacognitive Strategies in Virtual Learning Environments for Primary Science Education <i>Lei TAO & Yanjie SONG</i>
223	Competition and Collaboration: A Multi-Modal Analysis of Cognitive Load and Behavior Patterns in Game-Based Learning <i>Lishan ZHENG & Wenli CHEN</i>
10:50–12:20	DSC-2
253	A Proposal for a Quantitative Evaluation Model for Error Image Generation in L2 Vocabulary Learning <i>Kazuki SUGITA, Wen GU, Koichi OTA, Prarinya SIRITANAWAN & Shinobu HASEGAWA</i>
212	Development and Validation of a Problem-Solving Instrument (Multiple-Choice Questions) for Computational Thinking Among Trainee Teachers in the Klang Valley, Malaysia <i>Ahmad Sarji Abdul HAMED, Su Luan WONG & Mohd Zariat Abdul RANI</i>
217	OKLM: Open Knowledge and Learner Model Using Educational Big Data <i>Kensuke TAKII, Changhao LIANG & Hiroaki OGATA</i>
13:20–14:50	DSC-3
248	Exploring the Young Learners' Interactions with AI-Generated Multimodal Feedback in Collaborative Writing <i>Xinyu GUO</i>
241	The Bane of AI in Teaching: Innovation Resistance in Higher Education Instructional Design & Delivery <i>Estefanie BERTUMEN & Ethel ONG</i>
	Discussion



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Student Wing (SW)

Tuesday, November 26

14:30–16:30	Student Wing Workshop Chair: <i>Prof. Yanjie SONG</i> , The Education University of Hong Kong Introduction Topic: Get Your Research Published: Essential Tools and Strategies <i>Yin YANG</i> , The Education University of Hong Kong Q&A Session Topic: Unlock Your Early Career Success: Tips and Opportunities for Securing Grants <i>Shurui BAI</i> , The Education University of Hong Kong Q&A Session Interactive Session Closing
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Early Career Workshop (ECW)

Monday, November 25

09:00–10:30	ECW-1
ECW01	Can Use of Technologies help Reduce Biases in Academic Recruitment? <i>Kashmira DAVE</i>
ECW02	Leveraging AI-Powered Virtual Meeting Summaries: Towards an Evidence-Based Classroom Observation Assessment <i>Arlene Mae CELESTIAL VALDERAMA</i>
<u>Advisors</u> Tzu-Chi YANG, Assistant Professor, National Yang Ming Chiao Tung University Cheng-Huan CHEN, Associate Professor, National Tsing Hua University Shao-Chen CHANG, Assistant Professor, Yuan Ze University	