1st ICFULL

香港教育大學
The Education University of Hong Kong

APSCE Conferences

國立中央大學
National Central University

PROCEEDINGS

The 1st APSCE International Conference on Future Language Learning (ICFULL)

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Welcome Messages

Welcome Message from Conference General Chair

President
Asia-Pacific Society for Computers in Education (APSCE)

Prof Weiqin CHEN
Oslo Metropolitan University, Norway

On behalf of the Asia-Pacific Society for Computers in Education (APSCE), I am honoured and delighted to welcome you to the first APSCE International Conference on Future Language Learning (ICFULL) 2022.

APSCE was established in 2004 and has grown bigger and stronger thanks to the efforts of all members of the society. Since its establishment, APSCE has been undergoing continuous development to lead and reflect new directions in the Asia-Pacific region and the international community. The APSCE International Conference initiative under which ICFULL is established, is one of the most recent initiatives to ensure sustainable development of APSCE.

The rapid-changing society and digital technology not only brings opportunities to language learning, but also poses challenges to research, theories, and practices. APSCE ICFULL is a timely conference which brings together scholars, practitioners, and researchers to share and exchange ideas and explore possibilities for advancing future language learning. I strongly believe that APSCE ICFULL will become the leading and most influential conference on language learning in Asian-Pacific region and beyond.

The success of a conference depends on many people and requires orchestrated efforts. I would like to thank all of you who have been working tirelessly in planning and organizing the conference. I would also like to express my appreciation to paper authors and registered participants for their exciting academic contributions to the intellectual exchange in this conference. My heartfelt gratitude also goes to the program committee for their thorough reviews and constructive feedback.

I hope you will have a fruitful and enjoyable conference!

APSCE President

Prof Weiqn CHEN
Oslo Metropolitan University, Norway

Welcome Message from the Honorary Chair

Head and Professor
Department of Mathematics and Information Technology
the Education University of Hong Kong

Prof Philip Leung Ho YU
The Education University of Hong Kong, Hong Kong SAR

Dear APSCE President, colleagues and students,

Good morning! As the conference Honorary Chair and the head of the Department of Mathematics and Information Technology at the Education University of Hong Kong, it is my great pleasure to welcome you to the 1st APSCE International Conference on Future Language Learning (ICFULL).

First of all, I would like to take this opportunity to acknowledge the full support from the Asia-Pacific Society for Computers in Education (APSCE) in making this conference possible. Also, I would like to express my sincere gratitude to all scholars, staff and student helpers who made great contributions to this conference.

We all know that technology-enhanced language learning (TELL) has been an important research topic and area for a few decades. In the digital age, emerging technologies such as artificial intelligence (AI), natural language processing (NLP), chatbots, cloud computing and coding education have been increasingly adopted in language education. These are some examples of breakthroughs that have changed the language learning landscape and reshaped its future. That is why we are here, to gather academics and researchers together, to explore the possibilities of the future of language learning in the fast-changing world.

Our department also attaches much importance to the research on technology-enhanced language learning (TELL). We have a TELL research group, focusing on incorporating advanced technology into language learning. We also facilitate research collaborations across different disciplines to apply AI and other emerging technologies to language education. We hope to explore more collaborative opportunities both locally and internationally to advance language learning theories and practices.

Finally, given the continual impact of the COVID-19, this conference is held online via zoom and in the "Gather Town". I wish all of you a memorable and exciting experience in 1st APSCE ICFULL 2022. Enjoy! Thank you very much!

Prof Philip Leung Ho YU

Head and Professor
Department of Mathematics and Information Technology
The Education University of Hong Kong, Hong Kong SAR

Welcome Message from Programme Chair

Associate Professor
Department of Mathematics and Information Technology
the Education University of Hong Kong

Dr Yanjie SONG
The Education University of Hong Kong, Hong Kong SAR

Welcome to the 1st APSCE International Conference on Future Language Learning (ICFULL) 2022! Language learning mediated by technology is evolving rapidly over the past three decades with the fast development of technologies. The rapid development of advanced technologies has sped up the transformation of language education. In addition, the sudden transition from face-to-face to online education due to the COVID-19 pandemic has resulted in radical changes of the learning culture. What is the future of language learning in the changing landscape of technology-enhanced language learning? This is a big concern for researchers and practitioners.

In line with "The Asia-Pacific Society of Computers in Education" (APSCE)'s initiative to lead and respond to the fast-changing world, the first conference with the theme of "International Conference on Future Language Learning (ICFULL)" was initiated in order to embrace and envision future language learning to be better prepared for grasping the opportunities and facing the challenges posed by the fast development of emerging technologies, making breakthroughs and benefiting younger and future generations; to promote international community network building in the area of future language learning; and to increase the synergy and inspire more creative ideas among scholars from different disciplines who are keen on language pedagogical practices supported by technologies, and scholars who are dedicated to developing and implementing digital technologies to enhance language learning and teaching.

The 1st APSCE ICFULL features two keynote speeches, 39 oral presentations, one forum with three invited speakers online via zoom, and six poster presentations in the metaverse "Gather Town". Forty-five extended abstracts were accepted out of 63 submissions involving 119 authors from 10 countries or regions: Hong Kong, Japan, China, Taiwan, Vietnam, India, Singapore, Kazakhstan, Macau and Saudi Arabia. Each accepted abstract has gone through two to three blinded reviews by the programme committee (PC) members. We appreciate the full support and contribution from presenters, PC members, student helpers, conference organisers and chairs to make this conference possible!

Wish all of you an enjoyable experience at the conference!

Dr Yanjie SONG

Associate Professor
Department of Mathematics and Information Technology
The Education University of Hong Kong, Hong Kong SAR

Introduction

Theme: Future Language Learning

Education is being revolutionized in the digital age. Language learning has no exception. The rapid development of artificial intelligence has sped up the transformation of language pedagogical practices. Further, language learning has been shifted from face-to-face to online due to the COVID-19 pandemic, which has given rise to radical changes of the learning culture. What is the future of language learning in the fast-changing, post-pandemic world leveraged by emerging technologies poses expectations, interest and concerns from many scholars in the field of technology-enhanced language learning. Against this background, "Asia Pacific Society of Computers in Education" (APSCE) initiated its first conference with the theme of "International Conference of Future Language Learning (ICFULL)".

The conference aims to involve scholars, practitioners and researchers to share and exchange their research findings in exploring the potential that cutting-edge technologies can provide for language pedagogical practices in terms of AI-supported language learning, personalised / adaptive learning, digital game-based learning, technology-supported self-directed learning, learning analytics in language learning, assessment with emerging technologies, etc.; looking into emerging language learning theories, pedagogies, research methods and professional development models; and addressing ethical issues caused by new technologies in language education in an attempt to shed light on future language learning.

Organised by: Asia-Pacific Society for Computers in Education (APSCE)

The *Asia-Pacific Society for Computers in Education (APSCE)* was formed on 1 January 2004. It is an independent academic society whose broad objective is to promote the conduct and communication of scientific research related to all aspects of the use of computers in education, especially within the Asia-Pacific. For more details about APSCE, please visit the website: https://new.apsce.net/

The specific objectives of APSCE are:

- To promote the conduct and dissemination of research employing the use of computing technologies in education within the Asia-Pacific region and internationally.
- To encourage and support the academic activities of researchers in member countries and to nurture a vibrant research community of younger as well as more experienced researchers.
- To enhance international awareness of research conducted by researchers in member countries.
- To obtain greater representation of active researchers from the Asia-Pacific region in committees of related leading academic and professional organizations and the editorial boards of reputable journals.
- To organize and hold the International Conference on Computers in Education (ICCE) conference series in member countries.
- To engage in other appropriate academic and professional activities including but not limited to the setting up of Special Interest Groups (SIGs) and the publication of a Society newsletter and a Society journal.

(Retrieved from the APSCE website: https://new.apsce.net/)

Hosted by: The Education University of Hong Kong

香港教育大學
The Education University of Hong Kong

The Education University of Hong Kong (EdUHK) is a publicly funded tertiary institution dedicated to the advancement of learning and teaching, through a diverse offering of academic and research programmes on teacher education and complementary social sciences and humanities disciplines. We nurture educators and social leaders who are intellectually active, socially caring, and globally aware, to become agents of change in the communities that they serve. We place great emphasis on research capability — our research will contribute to the advancement of knowledge, scholarship, and innovation, with sustainable impact on social progress and human betterment. EdUHK aims to be a leading university in the Asia Pacific region and beyond, with a focus on educational research, development, and innovation.

Department of Mathematics and Information Technology

Department of Mathematics and Information Technology (MIT) of the EdUHK obtains the vision to nurture quality educators, learning professionals and education researchers with the professional excellence to ride on the challenges of the dynamic educational landscape of the 21st century.

CENTRE FOR LEARNING TEACHING AND TECHNOLOGY 教學科技中心

The Centre for Learning, Teaching and Technology (LTTC) is an academic and professional supporting unit at the EdUHK. It aims to enhance student learning outcomes by applying digital technology to support the development of learning and teaching, and the improvement and innovation of assessment at the University.

(Retrieved from the official website of EdUHK: https://www.eduhk.hk)

Co-hosted by: National Central University

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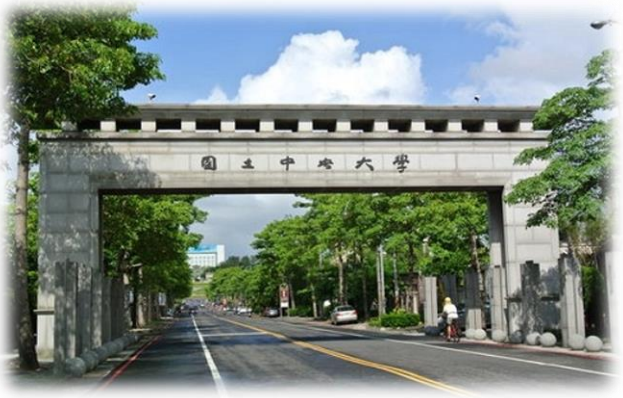
National Central University



National Central University (NCU) is a university with long-standing traditions in Taiwan. Founded in Nanjing in 1915, NCU was the leading academic center in the Southeast China; the phrase “North the Peking University; South the Central University” at that time revealed the significance of NCU. NCU was later re-established in Taiwan in 1962 and started the development on the basis of Geophysics. After our endeavor over 50 years, NCU has expanded its school size and had great achievements both in academic and research development. NCU is now one of the leading universities in Taiwan.

NCU is a campus of tranquillity with numerous pine trees scattering over the place. On the wave of global green economy, NCU builds an environment-friendly green campus based on our solid foundations of sustainable development. Meanwhile, the first Kunqu Museum in Taiwan will be open to the public in 2017. The museum symbolizes the abundant resources in humanities and also builds a bridge between the humanities and sciences for the faculty and students.

“Sincerity in knowledge; simplicity in life” is the motto of NCU, and it is the spirit that we expect all our students to keep in mind for a lifetime. In addition to achieving outstanding performances in their professions, students should be able to think reflexively, fit into the society maturely and considerately, and keep the down-to-earth attitude of NCU. We aim to lead our faculty and students to create a learning environment with both strong humanistic concerns and academic research on this beautiful and culturally-rich campus, to provide students with global vision and diverse learning experiences, and to become one of the world’s top universities with unique characteristics.

(Retrieved from the official website of NCU: https://www.ncu.edu.tw)

Organisation

Organiser

The Asia-Pacific Society for Computers in Education (APSCE)

Co-Host of the conference

National Central University, Taiwan

Hosts of the conference

The Education University of Hong Kong, Hong Kong
Department of Mathematics and Information Technology
Centre for Learning, Teaching and Technology

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Oslo Metropolitan University, Norway; President of APSCE

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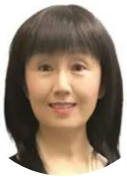

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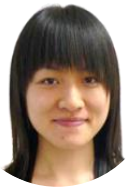

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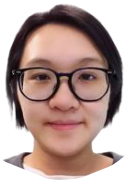

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This conference couldn't have been as successful without your involvement. Thank you so much for being volunteers!


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Jiaping TU


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Overview of Conference Programme

Format

Online via Zoom: https://eduhk.zoom.us/j/95924480216 (Meeting ID: 959 2448 0216) with the same link for all three days.

Paper presentation time

12-minute oral presentation + 3-minute Q&A for each paper presentation (15 minutes in total for each paper presentation)

Poster presentation time

2-minute oral presentation in the metaverse "Gather Town" for each poster presentation (Link: https://app.gather.town/invite?token=9yW8aQqmJIqLmD4sCecB2z5u6sueSQ1Z), which is open to all participants from 9:00 to 10:30 am on 3 July only.

(All times are displayed in GMT +8)

<table>
<tr><th>1 July 2022 (Friday)</th><th>2 July 2022 (Saturday)</th><th>3 July 2022 (Sunday)</th></tr>
<tr><td>9:30 - 10:00
Opening ceremony</td><td rowspan="2">9:30 - 11:00
Paper Presentations
Theme:
AI/AR/Gamification</td><td>9:30 - 10:30
Poster session in the metaverse "Gather Town"</td></tr>
<tr><td>10:00 - 11:00
Keynote Speech</td><td rowspan="2">10:30 - 12:00
Forum on "Language Assessment with Artificial Intelligence"</td></tr>
<tr><td>11:00 - 11:10
Break</td><td>11:00 - 11:10
Break</td></tr>
<tr><td>11:10 - 12:25
Paper Presentations
Theme: Vocabulary & Grammar</td><td>11:10 - 12:25
Paper Presentations
Theme: Unique topics</td><td>12:00 - 12:10
Break</td></tr>
<tr><td>12:25 - 13:30
Lunch</td><td>12:25 - 13:30
Lunch</td><td>12:10 - 12:30
Closing ceremony</td></tr>
<tr><td rowspan="2">13:30 - 15:15
Paper Presentations
Theme: Writing</td><td>13:30 - 14:30
Paper Presentations
Theme: Speaking</td><td rowspan="5"></td></tr>
<tr><td rowspan="2">14:30 - 15:30
Keynote Speech</td></tr>
<tr><td>15:15 - 15:30
Break</td></tr>
<tr><td rowspan="3">15:30 - 17:00
Paper Presentations
Theme: Reading & Engagement</td><td>15:30 - 15:40
Break</td></tr>
<tr><td>15:40 - 17:10
Paper Presentations
Theme: Language Assessment</td></tr>
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</table>

Conference Programme

Day 1: 1 July 2022 (Friday)	
09:20 - 09:30	Check-in to Zoom meeting (https://eduhk.zoom.us/j/95924480216)
09:30 - 10:00	Opening ceremony
10:00 - 11:00 Keynote Speech	**Technology Enhanced Seamless Language Learning Environment** *Dr. Noriko Uosaki, Osaka University, Japan* *Moderator: Prof. Wen-Chi Vivian Wu, Asia University, Taiwan*
11:00 - 11:10	Break
11:10 - 12:25 Paper Presentations	Theme: Vocabulary & Grammar **Session 1 Chair: Dr. Di Zou** The Education University of Hong Kong, Hong Kong #07: EFL Students' Use of Online Corpus Consultation to Overcome Vocabulary Errors in Academic Writing *Raniya Alsehibany* #22: Clustering Primary Students' Self-regulated Vocabulary Learning Behaviours on A Mobile App Embedded with a Self-regulation Scheme *Yin Yang and Yanjie Song* #25: Implementation of a Japanese Learning System Equipped with a Grammar Search Function Allowing Misspelling *Miguel Antonio Villalobos Zúñiga and Hidenobu Kunichika* #36: Technology-supported Mathematics Language Learning *Jialin Yang and Ke Wang* #54: Leverage Technology to Support Self-direction Strategies for High School Students in Weekly English Vocabulary and Grammar Learning *Yuanyuan Yang, Huiyong Li, Rwitajit Majumdar and Hiroaki Ogata*
12:25 - 13:30	Lunch
13:30 - 15:15 Paper Presentations	Theme: Writing **Session 2 Chair: Dr. Yun Wen** Nanyang Technological University, Singapore #15: Improve Writing Motivation through Curiosity in Writing *Jia Ling Hong, Chang-Yen Liao, Ciao-Min Syu and Tak-Wai Chan* #18: A Case Study: Online Collaborative Learning with Cross-cultural Communication Applied in Academic Writing Class *Ru-Shan Chen and Tosh Yamamoto*
	#26: Automated Tracking of Student Engagement with Teacher Feedback in EFL Writing for Predicting Their Performance *Gary Cheng* #27: Guiding and Peer Supporting Pupils' Expository Writing *Shao Ju Liao, Cheng, Hercy N. H, Chang-Yen Liao and Tak-Wai Chan*

	#29: Enhancing Student Writing Motivation and Performance through Collaborative Story-composition Supported by a Wiki-platform *Chunlin Lei and Yuan Cheng* #49: nEWAT: Combining Human and Automatic Assessment of Writing in a Rule-based System *Yunier P. Sarduy, Yanqi Luo and Ishank Saxena* #50: Detecting Writing Difficulties among Students in Special Needs Class Using BookRoll's Pen Stroke Data *Yuko Toyokawa, Rwitajit Majumdar and Hiroaki Ogata*
15:15 - 15:30	Break
15:30 - 17:00 Paper Presentations	Theme: Reading & Engagement **Session 3 Chair: Dr. Gary Cheng** The Education University of Hong Kong, Hong Kong #14: Helping Students Step out of Their Reading Comfort Zone *Ciao-Min Syu, Chang-Yen Liao, Jia Ling Hong and Tak-Wai Chan* #46: GOAL System to Support In-class Reading Activity: A Study of Advanced and Standard EFL Learners *Rwitajit Majumdar, Huiyong Li, Yuanyuan Yang, Brendan Flanagan and Hiroaki Ogata* #47: Active Reading Dashboard to Enhance English Language Learning *Yuko Toyokawa, Rwitajit Majumdar and Hiroaki Ogata* #05: Online Learning Engagement and Emotion Regulation in a Smart Tutoring System during the Pandemic: An Island Ridge Curve (IRC) Perspective *Yuyang Cai* #24: Time Management Skills of Performing a Micro-learning for Non-assigned Intrinsic Goals: A Preliminary Study of Japanese EFL Learners *Yuichi Ono, Jynya Yamaguchi, Nobuhisa Yamamoto and Atsushi Hagiwara* #55: Perception-behavior Differences in Self-directed Language Learning among Junior High School EFL Learners *Huiyong Li, Rwitajit Majumdar, Yuanyuan Yang and Hiroaki Ogata*

Day 2: 2 July 2022 (Saturday)	
09:20 - 09:30	Check-in to Zoom meeting (https://eduhk.zoom.us/j/95924480216)
09:30 - 11:00 Paper Presentations	Theme: AR/VR/Gamification **Session 4 Chair: Prof. Yuichi Ono** University of Tsukuba, Japan #08: Game-based Virtual Reality for Language Culture Learning: An example of the Forbidden City *Junjie Gavin Wu and Danyang Zhang*

	#17: Using Educational Board Games to Foster Students' Writing Skills based on Interest-driven Creator Theory *Zhi-Hong Chen* #19: Development of E2V (Easy English Vocabulary) System Using Gamification and Self-reflection Mechanisms *Nanda Aprila Sinta and Jie Chi Yang* #34: The Role Learning Analytics in Game-based Teaching. A Case of Elementary Chinese Language Classroom *Sin Yee Lau and Yun Wen* #41: Examining EFL Learners' Vocabulary Learning Engagement and Outcomes Mediated by an Augmented Reality App in Mainland China *Jianfeng Zhou and Yanjie Song* #53: Improving EFL Young Learners' Vocabulary Acquisition and Attitude towards Technology in a Rural Area through Augmented Reality Game-based Language Learning *Venny Gunawan and Wen-Chi Vivian Wu*
11:00 - 11:10	Break
11:10 - 12:25 Paper Presentations	Theme: Unique topics **Session 5 Chair: Prof. Rustam Shadiev** Nanjing Normal University, China #06: Design and Construction of Chinese Learning System based on Chatbot *Jingxue Zhang* #40: A self-regulated and Personalised Vocabulary Learning Approach for University Students in a Mobile Assisted Language Learning (MALL) Context *Qing Ma* #39: The Perceptions of Learners and Instructors on Implementing Problem-based Learning Online: A Case of a Cambodian Public Higher Education Institution *Sotharoth Chey* #45: iScholar: An Assisted System for Scientific Writing *Lam Pham Xuan, Thom Bui Thi, Nhung Nguyen Thi, Trang Vu Thi Huyen, Quang Vu Minh and Chau Nong Ngoc* #48: Exploring Chinese as a Second Language Learners' Conceptions and Engagement in Online Learning Environment *Dongxin Duan and Lanfang Sun*
12:25 - 13:30	Lunch
13:30 - 14:30 Paper Presentations	Theme: Speaking **Session 6 Chair: Dr. Junjie Gavin Wu** Shenzhen Technology University, China #09: The Application of Multimodal Learning Analytics in Assessing Public Speaking Competence: A Systematic Review

	Chunping Zheng, Huayang Zhang and Xu Chen #16: Computer-assisted Dynamic Assessment for L2 Speaking Teaching and Diagnosis *Simin Zeng and Liqing He* #32: Digital Storytelling to Enhance Cultural Diversity in Developing Academic Public Speaking Skills: Data Practices in Multilingual Classroom *Rustam Shadiev and Roza Zhussupova* #56: Pebasco: An Asynchronous Learning Analytics App for Communicative Language Teaching Built Using No-code Technology *Tom Gorham, Rwitajit Majumdar and Hiroaki Ogata*
14:30 - 15:30 Keynote Speech	**The Future of CALL Research** *Prof. Jozef Colpaert, the University of Antwerp, Belgium* *Chair: Dr. Qing Ma, The Education University of Hong Kong*
15:30 - 15:40	Break
15:40 - 17:10 Paper Presentations	Theme: AI / Language Assessment **Session 7 Chair: Prof. Chunping Zheng** Beijing University of Posts and Telecommunications, China #11: Integrating Personal Audio Classifier of Artificial Intelligence in the EFL Reading Task *Ching Chang and Ting-Chia Hsu* #42: AI-driven Automated Language Assessment of Picture Writing Tasks *Ruibin Zhao, Yipeng Zhuang, Di Zou, Qin Xie and Philip Leung Ho Yu* #51: Facilitating Self-directed Language Learning during the Pandemic through Digital Multimodal Composing: A Tale of Two Hong Kong Primary English Teachers *Lianjiang Jiang* #64: Enhancing Self-feedback and Feedback Orientation to Uptake Feedback by Using IEA and SEA in English Teaching and Learning in Shadow Education *Lijie Qin, Lan Yang and Fengzhan Gao* #63: Can TEA Time Provide a Joyful and Productive Assessment Period for Chinese Students to Learn English as a Foreign Language? *Lan Yang, Juan Gao, Fengzhan Gao and Kuen Fung Sin* #61: An Exploratory Intervention Study on the Effect of Team-based E-assessment (TEA) on Facilitating Formative Assessment in Chinese Language Studies in Higher Education *Lan Yang, Yuan Liang, Cher Ping Lim, Yiqi Wu, Ruoxiao Yang and Fengzhan Gao*

Day 3: 3 July 2022 (Sunday)	
9:20 - 10:30	**Help Center** for joining the Poster Session via zoom: https://eduhk.zoom.us/j/95924480216
9:30 - 10:30 Poster presentation *(Please close Zoom before entering "Gather Town". Otherwise, there will be conflicts between them).*	Poster session in the metaverse "Gather Town" (Link for participation) https://app.gather.town/invite?token=9yW8aQqmJIqLmD4sCecB2z5u6sueSQ1Z **Session Chair: Prof. Ting-Chia Hsu** National Taiwan Normal University, Taiwan **Important information:** • 25 June: All posters (in JPG/PNG/PDF format) are required to be submitted to icfull@eduhk.hk • 28 June from 14:00-18:00: The "Gather Town" will be open to presenters only for testing. • 3 July: All poster authors need to prepare a 2-minute presentation in the "Gather Town". o 9:30 -10:00 – Participants can hang out in the "Gather Town" and visit different poster presentation rooms. o 10:00 - 10:15 - Poster presentation will be conducted: The session chair will visit different virtual rooms in the following sequence. The poster presenter can start his/her presentation when the session Chair visits his/her room. o 10:15 - 10:30 - Participants can continue hanging out in the "Gather Town", and prepare to attend the "**Forum**" via zoom (https://eduhk.zoom.us/j/95924480216) **Posters:** #03: Multi-layered E-feedback Anxiety: An Action Research among Chinese Learners Using Peer Feedback in an Academic Writing Course *Yanchao Yang and Sijia Xue* #23: How Podcasts Encourage Self-directed Learning in English? The Perspective of Interest Driven Creator Theory *Min-Ching Chen, Yu-Hsin Chen and Tak-Wai Chan* #38: Identification of Sentence Types Through NLP Constituency Parsing *Yanqi Luo, Yunier Perez Sarduy and Umang Shah* #57: Facilitating English as a Foreign Language Writing Autonomy through Digital Multimodal Composing *Lanxuan Xie* #59: Effectiveness of Digital Multimodal Composing on Chinese EFL Learners' Collaborative Learning and Academic Writing: A Quasi-experimental Study *Xiaochen Yu* #60: Understanding Teachers' Multimodal TPACK for Self-directed Learning of L1 Chinese Writing through Reviewing the Resource Library of EduVenture-VR *Michael Yi-Chao Jiang, Morris Siu-Yung Jong and Ching-Sing Chai*

10:30 - 12:00 Forum	Forum: Language Assessment with Artificial Intelligence ***Moderator: Dr. Yanjie Song*** *The Education University of Hong Kong, Hong Kong* *Topic 1*: Assessment of Public Speaking Competence with Artificial Intelligence *Prof. Chunping Zheng, Beijing University of Posts and Telecommunications, China* *Topic 2*: AI-empowered Automatic Feedback and Differentiated Language Learning *Dr. Yun Wen, Nanyang Technological University, Singapore* *Topic 3*: The Neurophysiological Framework of Validity in Language Assessment: Evidence from Eye-tracking, Neuroimaging, and GSR *Dr. Vahid Aryadoust, Nanyang Technological University, Singapore*
12:00 - 12:10	Break
12:10 - 12:30	Closing ceremony

PS: Five best paper presentations and one best poster presentation will be selected.

Keynotes

Keynote 1: Technology Enhanced Seamless Language Learning Environment

Dr. Noriko UOSAKI
Osaka University, Japan

Professional Biography:

Dr. Noriko Uosaki is an associated professor at the Center for International Education and Exchange, Osaka University, Japan, and was a visiting lecturer at University of Illinois at Urbana-Champaign, USA. Her research interests include MALL (Mobile Assisted Language Learning), Seamless Learning, CALL (Computer Assisted Language Learning), Computer Supported Ubiquitous and Mobile Learning, CSCL (Computer Supported Collaborative Learning), and TESL (Teaching English as a Second Language). She has published about 75 peer-reviewed papers. She is a member of JSET, IEEE, and APSCE.

Abstract:

The breakthrough of IT technology over the decades has accelerated the evolutionary change in teaching/learning methodologies. Among them, it is noteworthy that the proliferation of smartphones has brought about a new learning environment called seamless learning. Various learning systems with cutting edge technologies such as learning analytics, virtual reality and augmented reality have been developed to implement this new learning environment. Seamless learning has been drawn researchers' attention mainly because it is expected to contribute to bridging in-class learning with out-of-class learning. Another reason is that it could be the key to solve the lack of in-class learning time. This derives from that fact that in-class learning time is overwhelmingly insufficient especially in the field of second language learning. This talk undertakes a review of past literature, provides a clear understanding of seamless learning, and explores 'best fit' between organization needs and system functionalities in the context of seamless language learning environment.

Keynote 2: The Future of CALL Research

Prof. Jozef COLPAERT
The University of Antwerp, Belgium

Professional Biography:

Professor Jozef Colpaert teaches Computer Assisted Language Learning, Instructional Design and Educational Technology at the Faculty of Social Sciences and the Antwerp School of Education of the University of Antwerp, Belgium. His research focuses on affordances, multimodal design of learning environments, motivational task design, transdisciplinarity, and natural language decoding. He is editor-in-chief of Computer Assisted Language Learning (Taylor and Francis) and has been organizing the International CALL Research Conferences (www.call2022.org) for the past 20 years.

Abstract:

After 40 years in the field, Jozef Colpaert will try to formulate his vision for the future of CALL Research, as a linguist, language teacher, designer, researcher, journal editor and conference organizer. Starting points for his keynote are frequently asked questions such as: Has the term CALL become obsolete? Is there a dedicated research method for language learning? How to cope with the multidisciplinarity problem in CALL? His first point will be that CALL should be seen as a transdisciplinary activity. Transdisciplinarity is defined as the "ontological specification of knowledge constructs on a higher, boundary-transcending, level of abstraction". CALL is not a subdiscipline among so many others, but an overarching discipline where new concepts and methods are built to bring related disciplines together. One of the biggest challenges in this regard is pervasive yet persuasive terminology. Jozef Colpaert will show how and why terms such as flipped classrooms, blended learning, digital skills, virtual exchanges and artificial intelligence are poorly defined and put language teachers under pressure. A second challenge in CALL research lies at the level of research methods: engineering and design are still not recognized as fully-fledged research methods. The role of scholarly journals is to encourage dedicated research methods such as design, promote accurate and substantiated terminology, intensify international exchanges and support authors in publishing the article they deserve. Jozef Colpaert will conclude by stating that we may have to look for a better acronym for CALL, but that the future of CALL research looks promising.

Forum: Language Assessment with Artificial Intelligence

Forum Topic 1: Assessment of Public Speaking Competence with Artificial Intelligence

Prof. Chunping ZHENG
Beijing University of Posts and Telecommunications, China

Professional Biography:

Chunping ZHENG currently serves as the Professor at Beijing University of Posts and Telecommunications, China. She is Associate Dean of the Department of Foreign Languages at School of Humanities and Director of Center for Research on Technology-Enhanced Language Learning. She is the awardee of "National Ten Thousand Talent Plan", the "Outstanding University Teacher in Beijing Municipal" and "the Beijing Higher Education Young Elite Teacher Project". She is now the PI （principal investigator） of both National Science and National Social Science Foundation in China. She has published one monograph, three textbooks and over 70 journal articles and served as the guest editor for Educational Technology & Society.

Research interests:

Her major research interests are intelligent CALL, CALL pedagogies and learner characteristics, and cross-cultural communication.

Abstract:

Automatic evaluation of learners' English public speaking competence in real-classroom teaching on a large scale is a challenging issue for both frontline teachers, educational researchers, and technological experts. During the public speaking, multiple modalities of information, such as acoustic, visual, and textual data, are generated, which make the multimodal evaluation rather complicated. This research reports our pilot study on the design and development of a multimodal evaluation system for the automatic assessment of learners' English public speaking competence. By integrating the automatic speech recognition (ASR), machine learning, and automatic writing evaluation (AWE), the system works effectively for automatically assessing the learners' competence in English speaking and writing, as well as their speaking anxiety during their speech delivery.

The major innovation of this system lies in its effectiveness for assessing learners' public speaking anxiety during the speech and providing immediate feedback on improving learners' language competence and confidence in delivery. The automatic evaluation of learners' public speaking anxiety was realized upon a model called Linguistic-Acoustic Decoupling (LAD) to explicitly extract the non-verbal clues from different modalities of deliveries and to use the clues for more precise prediction of learners' speaking anxiety (Song, Wu, Zheng, & Zhang, under review). The future research will focus on the construction of a larger-scale and classroom-based multimodal dataset for the purpose of more precise detection of learners' public speaking anxiety. We are also making the system publicly available and designing related intervention studies to further validate and improve the effectiveness of the system.

Forum Topic 2: AI-empowered automatic feedback and differentiated language learning

Dr. Yun WEN
Nanyang Technological University, Singapore

Professional biography:

Dr Wen Yun is an Assistant Professor in the Learning Sciences and Assessment Academic Group. Prior to this, she worked as a Lecturer in the Singapore Centre for Chinese Language (SCCL), providing in-service training for school teachers (August 2015-June 2018). She obtained her PhD from the National Institute of Education, Singapore, and completed her Postdoc at the Computer-Human Interaction in Learning and Instruction (CHILI) Lab in EPFL, Switzerland.

Research interests:

Her research interests include Computer-supported Collaborative Learning, Computer-assisted Language Learning, Learning Design, and Learning Analytics. She works on investigating how people learn through interaction and conversations in multimodal environments, and how to use technology (e.g., representational tools, augmented reality, etc.) to spark and support collaborative learning. Her main research work is grounded in the disciplines of language learning, particularly second language learning.

Abstract:
Automatic feedback and recommendation are typical applications of AI-embedded learning systems that provide just-in-time assessment to shape learning (Chattaraman et al., 2019; Fu, Gu, & Yang, 2020). A thriving development direction of digital language learning has been to integrate mobile-based language learning and AI techniques, such as automatic speech recognition, image recognition, and natural language processing (Li & Lan, 2021). Nevertheless, few studies focus on investigating the affordances of AI-embedded mobile learning systems in enhancing formal language learning for young learners. This talk sets out to discuss how AI techniques can be used to promote active learning for young second language learners through automatic feedback and differentiated language learning. A self-designed AI-empowered seamless Chinese vocabulary learning system for Singapore lower-primary school students will be presented. Its design principles, some challenges and potential contributions will be shared in the talk as well.

References:

Chattaraman, V., Kwon, W. S., Gilbert, J. E., & Ross, K. (2019). Should AI-Based, conversational digital assistants employ social-or task-oriented interaction style? A task-competency and reciprocity perspective for older adults. Computers in Human Behavior, 90, 315–330.

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Forum Topic 3: The Neurophysiological Framework of Validity in Language Assessment: Evidence from Eye-tracking, Neuroimaging, and GSR

Dr. Vahid ARYADOUST
Nanyang Technological University, Singapore

Professional biography:

Vahid has published his research in Computer Assisted Language Learning, Language Testing, System, Current Psychology, Language Assessment Quarterly, Assessing Writing, Educational Assessment, Educational Psychology, etc. He has also (co)authored a number of book chapters and books that are published by Routledge, Cambridge University Press, Springer, Cambridge Scholar Publishing, Wiley Blackwell, etc. Vahid has also led a number of assessment research projects supported by educational fund-providers in Singapore, USA, UK, and Canada. He is a member of the Advisory Board of multiple international journals and has been awarded the Intercontinental Academia Fellowship (2018–2019).

Research interests:

His main research interest is language assessment with specific focus on the application of quantitative methods and machine learning, functional near-infrared spectroscopy (fNIRS), and eye-tracking. He is also interested in conducting meta-analysis and systematic reviews of the extant literature as well as Scientometrics.

Abstract:
Second language listening assessments are designed by using scripted texts and devising test items of various formats such as multiple-choice questions and fill-in-the-blanks. The listening 'ability' of test-takers is subsequently estimated with reference to their performance on the test items (correct and incorrect answers). This presents two well-known problems: (i) the inauthenticity of the listening texts and test items, and (ii) ignoring the response processes of test-takers and their relationship with listening processes in target language use domains. In this talk, I present the neurophysiological framework of validity which is intended to address the aforementioned limitations of theory and practice in language assessment. I review several studies wherein we applied eye-tracking, neuroimaging, and galvanic skin response (GSR) to investigate the underlying neurocognitive mechanisms of listeners under different assessment conditions. The studies show that while there is a significant difference in neurocognitive processes of listeners under different test methods conditions, test scores are mostly not able to show any differences in listening performance under these conditions. This suggests that over-reliance on test scores as representations of listening or attempts to reverse-engineer response processes through using quantitative methods (e.g., IRT etc.) would provide us with a simplistic understanding of the listening construct. It is proposed that a new approach to listening (and language) assessment, which draws upon the neurophysiology of individuals, would provide a more trustworthy gauge for listening and language in general. The implications of this proposal for validity, fairness, and future developments in language assessment are discussed.

The Best Paper Presentation Awards

(Listed in the presentation sequence)

Clustering Primary Students' Self-regulated Vocabulary Learning Behaviours on A Mobile App Embedded with a Self-regulation Scheme
Yin YANG and Yanjie SONG

A Case Study: Online Collaborative Learning with Cross-cultural Communication Applied in Academic Writing Class
Ru-Shan CHEN, Tosh YAMAMOTO

Automated Tracking of Student Engagement with Teacher Feedback in EFL Writing for Predicting Their Performance
Gary CHENG

Development of E2V (Easy English Vocabulary) System Using Gamification and Self-reflection Mechanisms
Nanda Aprila Sinta and Jie Chi Yang

Improving EFL Young Learners' Vocabulary Acquisition and Attitude towards Technology in a Rural Area through Augmented Reality Game-based Language Learning
Venny GUNAWAN, Wen-Chi Vivian WU

Exploring Chinese as a Second Language Learners' Conceptions and Engagement in Online Learning Environment
Dongxin DUAN, Lanfang SUN

AI-driven Automated Language Assessment of Picture Writing Tasks
Ruibin ZHAO, Yipeng ZHUANG, Di ZOU, Qin XIE, Philip Leung Ho YU

The Best Poster Presentation Award

Facilitating English as a Foreign Language Writing Autonomy through Digital Multimodal Composing
Lanxuan XIE

Paper Presentations

EFL Students' Use of Online Corpus Consultation to Overcome Vocabulary Errors in Academic Writing

Raniya Abdullah Alsehibany*
Riyadh Female College of Applied Technology
* raniya.writing@gmail.com

Writing is an essential skill, and it is a tool that EFL students need to improve and develop their academic knowledge. And corpus technology has gained increasing attention in the field of language education recently. This study investigates how using direct corpus consultation can help EFL students to overcome vocabulary errors in academic writing. The study has focused on four aspects of vocabulary: collocation, connotation, word form, and spelling. Also, the study aims to explore EFL students' perspectives on using corpus consultation. Finally, the study highlights the difficulties that EFL students face while using direct corpus consultation in writing classes. The corpus used in the study is Contemporary American English (COCA); COCA was chosen for its free availability online and large size. The participants of this study are 32 female Saudi students from level 5, EFL majors at the College of Language and Translation, Imam Mohammad ibn Saud Islamic University (IMSIU) in Riyadh, Saudi Arabia. This study used Mixed- Methods to ensure the credibility of the data and obtain clear descriptions of the topic. The study instruments 1) Pre-post vocabulary tests; 2) Questionnaire; and 3) Semi-structured interviews. Moreover, the students have received intensive training sessions about using direct corpus consultation and have participated in 12 different tasks during the course. The study results show that integrating direct corpus consultation into L2 classes is very useful and effective and will improve students' performance in academic writing and enrich their vocabulary knowledge. First, the vocabulary post-test has shown noticeable improvement in students' overall scores and all four vocabulary aspects (collocation, connotation, word form, and spelling). Second, the questionnaire result indicates a generally positive attitude toward using direct corpus consultation in writing classes. Finally, the semi-structured interview highlighted the main advantages and disadvantages that students face while using direct corpus consultation. According to students' interviews, there was a noticeable improvement in their academic writing at the end of the course. Suggestions and implications for future research are mentioned at the end of the study.

Keywords: EFL students, corpus consultation, vocabulary errors, academic writing, COCA

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Johns, T. (1991). Should you be persuaded: two examples of data-driven learning. *ELR Journal* (New Series), *4*, 1-16.

Reppen, R. (2010). *Using corpora in the language classroom*. Cambridge University Press.

Yoon, H., & Hirvela, A. (2004). ESL student attitudes toward corpus use in L2 writing. *Journal of second language writing*, *13*(4), 257-283.Al-Qahtani, A. A. (2021). The Integration of Corpus-Based Approach with EFL Academic Writing in the Saudi Context. International Journal of English Language and Literature Studies, 10(1), 22-45.

Clustering primary students' self-regulated vocabulary learning behaviours on a mobile app embedded with a self-regulation scheme

Yin Yang[1*], Yanjie Song[2*]
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In the field of language learning, a number of studies adopting various technologies to assist students' self-regulated vocabulary learning (SRVL) have been conducted (e.g., Chen et al., 2019). However, few studies have examined how mobile technologies can be used to support students' holistic SRVL process.

Aligned with the modern SRL research that considers SRL as processes (Li, et al., 2020) more than an "aptitude" (Van Laer & Elen, 2020), several studies have been conducted to explore SRL behaviours. Nevertheless, in most cases, researchers have taken a variable-centred approach, for example, exploring the features of SRL behaviours between learners with high and low self-regulation skills (Li et al., 2020) or high and low academic performance (Yang et al., 2018). However, rare studies have been conducted regarding how specific SRL behaviours are grouped within individual learners using person-centred approach (Li et al., 2020).

This study aimed to cluster primary students' SRVL behaviours on a mobile app embedded with a self-regulation scheme which includes the self-regulatory process of forethought, performance and reflection phases (Zimmerman, 2002). The app allows students to conduct SRVL via creating vocabulary logs by taking pictures, recording and inputting words or sentences, setting goals (e.g., setting the number of words to be learned and time spent on learning), monitoring the learning process (e.g., viewing learning status, and categorising the mastery levels of vocabulary) and reflecting on their learning performance (e.g., completing self-evaluation forms). The guiding research question of this study is: How did primary students use the self-regulation scheme on the mobile app for SRVL?

A case study was conducted. Participants were from one class with 44 Grade 4 students in a Mainland Chinese primary school. The students used the app for SRVL after class for one month. Data collection involved logged SRVL behaviours recorded on the mobile app. Quantitative data analysis was used. The agglomerative hierarchical clustering algorithm was adopted to identify distinct student groups based on their SRVL behaviours. The features of identified groups were explained.

The findings show three distinct SRVL groups: (1) comprehensive adopters (who were active in the whole process of SRVL); (2) moderate adopters (who were moderate in the whole process of SRVL but highly engaged in performance); and (3) passive adopters (who were passively engaged in the SRVL). The study sheds light on unfolding SRVL behaviours leveraged by a mobile app with a self-regulation scheme by tracing students' log data.

Keywords: self-regulated learning, vocabulary learning, clustering, learning behaviours

References

Chen, C.-M., Chen, L.-C., & Yang, S.-M. (2019). An English vocabulary learning app with self-regulated learning mechanism to improve learning performance and motivation. Computer Assisted Language Learning, 32(3), 237–260.

Li, S., Chen, G., Xing, W., Zheng, J., & Xie, C. (2020). Longitudinal clustering of students' self-regulated learning behaviors in engineering design. Computers & Education, 153, 103899.

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Implementation of a Japanese Learning System Equipped with a Grammar Search Function Allowing Misspelling

Miguel Antonio Villalobos Zúñiga[1], Hidenobu Kunichika[2*]
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Some of current systems (Kim, 2017; The Japan Foundation, 2022; Vyšný, 2015) for learning Japanese language are equipped with a retrieval function for example sentences or pages to explain grammars. However, if a user misspells the text, in most of the cases those systems are unable of returning the correct results. The target of this research is to develop a Japanese learning system equipped with a grammar search function allowing misspelling. The search function mitigates the wrong results generated when a user entering a typo or misspell, or a spelling variant on the search tool.

A robust Japanese learning system should provide a detailed explanation of the grammar, explanation of the grammar rule, a considerable number of example sentences, and practice exercises. Many current systems only have one of these features. In addition, it is needed a search function that mitigates common mistakes made by non-native learners. For example, it is common for Spanish speakers to confuse words with long vowels, “s” and “z” sounds, or words with small “tsu”.

Our system has the tools described above to support Japanese language learning. Additionally, the system has a practice section, an explanation of how and when you can use the grammar, and a link to the related grammars. The search function will be able to retrieve the correct results even if the user enters a typo on the terms. Finally, it includes a custom sort function that reorder the results according to the user level.

For the purpose of mitigating the incorrect results on a search caused by typos entered by the user, the system uses a full-text index search and Levenshtein distance, which is used for calculating the proximity of a query containing misspellings to each grammar page. The system accepts not only words but also phrases, clauses and sentences written in Japanese. So, a long text string including some words without spaces will be inputted as a query. In this case, it is difficult to simply use Levenshtein distance. In order to solve the problem, the system perform the following five sub-processes. First, a word segmenting of the text is applied using a morphological analyzer for Japanese text. Next, the system creates an inverted index of words from the example field. Then, querying of the inverted index begins by converting the query into its kana form. The system executes two queries, one for the title field and the other for the examples field. Finally, the filtering using the Levenshtein distance is applied. Optionally, the user can apply the custom order based on the user level.

In this research we have proposed a Japanese learning system equipped with a grammar search function allowing misspellings, specifically it uses kana to facilitate the retrieval of correct results for queries containing misspellings. In future work, we will evaluate the search function to show that even if we perform a search with queries containing misspellings, the system will retrieve the correct results.

Keywords: Japanese learning system, Search function, Allowing misspellings, Variant spelling

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A Self-regulated and Personalised Vocabulary Learning Approach for University Students in a Mobile Assisted Language Learning (MALL) Context

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Vocabulary has become one of the most popular areas for study in mobile-assisted language learning (MALL) (e.g., Chen et al., 2019; Lin & Lin, 2019; Stockwell, 2010). There is little research on how students self-regulate when they are left on their own to explore MALL. Also, many learners do not possess sufficient pedagogical knowledge for effective vocabulary learning. Furthermore, how to help learners learn in a personalised path determined by themselves is rare. The current study addresses these issues by adding vocabulary pedagogy and enhanced personalisation to an existing self-regulation model (Zimmerman, 2011). A self-regulated and personalised (SRP) vocabulary learning approach was developed and its effectiveness measured with personalised vocabulary tests, survey data and examined in interview data. An experimental design was adopted to find out whether the self-directed SRP approach can help students learn L2 vocabulary receptively and productively better than those who adopt their usual learning approach.

A mixed-method design was adopted to investigate how 71 university students learn L2 vocabulary using this SRP approach by comparing with the self-regulation only approach. Data were collected through pre- and post-survey, personalised vocabulary assessment and interview. The results indicate that the SRP group achieved superior productive vocabulary learning, demonstrated a systematic understanding for vocabulary learning, and improved self-regulation in intrinsic motivation and future planning. In addition, the results unveiled six specific roles of personalised learning involving peer sharing regarding self-regulated vocabulary learning, making important contributions regarding how personalisation could lead to learner development of their self-regulated learning in a cyclic phase. Based on the results, a number of implications were provided, including how to conduct self-regulated training in MALL for targeting linguistic skills and the recommendation of involving both individual and group learning tasks in designing MALL implementations involving personalised learning.

Keywords: L2 vocabulary learning, self-regulation, personalisation, MALL

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Leverage Technology to Support Self-direction Strategies for High School Students in Weekly English Vocabulary and Grammar Learning

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In the last few decades, technology-enhanced learning has arisen as a new and significant trend, and there is no exception in language learning. It makes teaching and learning more flexible and brings more opportunities to promote students learning engagement in and outside of the class settings. Self-directed learning (SDL), which can be viewed as a process by which individuals set goals, locate resources, choose the method and evaluate progress through critical reflection (Brookfield, 1995), tends to be associated with academic achievement. However, little is known on technology to support self-direction strategies in the language pedagogical practices in K-12 contexts.

In this research, we propose a self-direction strategies support tool for the purpose of improving access to information for both students and teachers and helping students to improve academic achievement in English learning in K-12 content. We report on the design of such a tool, which provides a self-reflection panel allowing students to reflect and collect their own learning outcomes, and visualized panels to present data to teachers and students.

The proposed tool was adopted in a Japanese public high school to support weekly vocabulary and grammar learning activities in an English course context designed by the English teacher. The original learning design requires students to learn the decided contents on their own out of the class each week and accept a test on the class in the next week. We upgraded the learning design to ask students additionally execute self-direction strategies on the tool after the test, such as collecting learning time and test score, reflecting learning content and test, etc. Specifically, we address the research question: How is students' academic achievement influenced by the self-direction strategies supporting technology?

Through a one-semester experiment, 10482 interactions were generated by 122 students while they are executing self-direction strategies on the tool. We compared the academic achievement of two groups which were divided based on students' number of interactions, one group (N=61) containing those students who generated more interactions and another group (N=61) containing those students who generated less interactions. We found that students with more interactions got better academic achievement than the others. This study contributes to providing empirical evidence on the impact of self-direction strategies supporting technology on English learning.

Moreover, we discuss the opportunities the proposed tool brings for language learning, such as identifying student profiles, assisting teachers to assess the quality of teaching based on students' manual tracking.

Keywords: self-direction, self-directed learning, technology-enhanced learning, English learning, learning analytics

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Improve Writing Motivation through Curiosity in Writing

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Research has pointed out that writing motivation is an essential factor affecting students' writing performance, and the reasons that influence the motivation of writing include interest (Troia, Shankland, & Wolbers, 2012); however, without sufficient curiosity to guide them, they lack interest in writing topics and self-regulated behavior. In addition, teachers pay too much attention to students' writing ability, which leads students to mistakenly think that the purpose of writing is to hand in assignments or exams, and they may increasingly reject writing.

Curiosity and Interest are both seen as motivations for active learning (Peterson & Hidi, 2019). Therefore, this study develops the "curious writing" model based on the Interest-Driven Creator theory (Chan et al., 2015). That use curiosity to motivate students to write, enable students to actively self-regulated learning, build sufficient background knowledge, generate interest in the writing process, and continue writing. In the past, individuals did write independently, the mode is carried out in groups, which can promote students' active learning behavior, and improve students' writing motivation and participation rate.

The model includes three stages: Engage, Explore and Create. The first is in "Engage" before the topic writing; teachers provide relevant information for students to read and guide students to devote themselves to the topic. The second is "Explore", using students' curiosity to cause students to be curious about the subject content and ask questions. However, they will actively explore knowledge to bridge their cognitive gaps and solve problems. The last stage is that before writing to the classroom, the process absorbs much knowledge and has the subject knowledge background through group members discussing and sharing, unifying the written questions, and finally completing the writing topic. Besides the researchers responsible for providing theories in this study, teachers will also be invited to discuss student's learning status and plan courses.

Succeeding activity will develop AI learning system to assist writing, which using technology to guide students' writing process and maintains students' interest in writing during the exploration process. On the other hand, by recording the students' writing status or exploration status, teachers can see the students' curiosity about the topic from the system and adjust the selection of topics or materials accordingly.

Keywords: Curiosity, interest in writing, self-regulated, writing motivation, curious writing

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A Case Study: Global Online Collaborative Learning Enhanced with Cross-cultural Communication Applied to Local Academic Writing Classes

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This study aims to elaborate on how students develop cross-cultural awareness and interact with people of different cultures through an online writing class. The paper first discusses a prototype project-based online learning involving students from Taiwan and Japan synchronously as well as asynchronously due to the differences in curriculum, school calendar, and time zone. To nurture students' global communication skills with cross-cultural awareness, asynchronous interactive and collaborative ICT tools such as Padlet®, Flipgird®, and Google Drive® are employed throughout the entire learning journey in a virtual learning space. For example, Padlet® provides students with opportunities to share, compare, and discuss their writing artifacts. Flipgrid® offers learning opportunities to develop presentation skills with rich media to share and promote their accomplishments. Google Drive® offers the collaborative learning experiences to work together online in a global team. Furthermore, in order to motivate students' creativity and originality in writing, such critical thinking tools as PMI analysis tool, mind mapping, and color-coding technique are introduced in various learning activities. In the end, to assure the authenticity of the assessment, formative and summative assessments are implemented with the perspectives of rubric assessment, peer-reviewing, self-reflective-reviewing, and meta-cognitive reviewing activities during and after the learning processes. The students were also involved in their assessment of learning. At the end of the course, during the last reflective session, students wrote their reflections while reflecting back on their learning in the course. In order to visualize the learning motivation during the course, the students drew their learning motivation curves in the course and analyzed their own motivation changes. The results of this study show that most students felt highly motivated when working in a global team and felt that collaborative learning experiences played a critical role in working with global team members.
Keywords: online collaborative learning, cross-cultural communication, writing

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Automated Tracking of Student Engagement with Teacher Feedback in EFL Writing for Predicting Their Performance

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In the context of English as Foreign Language (EFL) writing, teacher feedback could be helpful in supporting students to understand and reduce the discrepancies between what they are expected to do and what they actually perform (Hyland, 2019). To encourage student revision, teacher feedback could take different modes (e.g. praise, criticism, advice, question) and focus on different writing aspects (e.g. content, language, organization). It could also be made with different degrees of explicitness (e.g. direct correction, indirect suggestion) and be given at different stages of the writing process (e.g. planning, drafting, revising) (Cheng, 2022). But perhaps more importantly, it is necessary to monitor student uptake of the feedback and explore whether a high uptake rate could really lead to a better performance.

To this end, this study sought to explore the use of machine learning to perform automated tracking of student engagement with teacher feedback in an EFL writing course offered by a Hong Kong university. It also sought to evaluate the relationship between the degree of engagement with feedback and the improvement in the assessment of writing. A dataset collected from 53 first year undergraduate students enrolled on the EFL writing course between 2016 and 2017 was used for analysis. The data of each student contains a draft essay with in-text teacher comments and assessment result, as well as a final essay with assessment result. The teacher feedback focuses on four aspects of academic writing including content, language, organization and referencing, while the assessment results are letter grades (from Grade A to Grade F) given on each of the four writing aspects.

An automated tracking tool was developed to extract revisions from draft to final text, classify different types of feedback and revision, as well as measure the proximity in location and meaning between feedback and revision (Cheng, 2022; Cheng, Chwo, & Ng, 2021). In this study, the tool was applied to each draft essay with feedback and its final version to identify the association between teacher feedback and student revision, yielding the uptake rate of feedback for each student. Correlation analysis was then performed to explore the relationship between the uptake rate of feedback and the improvement in assessment from a draft to a final piece of writing. The findings of this study show a promising result that automated tracking can be adopted to monitor student engagement with feedback and predict their performance in the final essay, suggesting the potential of using automated tracking to benefit both teachers and students.

Keywords: automated tracking, second language writing, teacher feedback, student revision

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Guiding and Peer Supporting Pupils' Expository Writing

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For elementary school students, the lack of strategic guidance in expository writing may result in ill-structured writing quality. Good expository essays require the descriptions and arguments about a topic with details and evidences. However, when writing expository essays, they often struggle with sufficient ideas in the early stage of writing as well as the organization of their ideas. In a previous study, our research group designed a writing process, in which the fourth graders participated in the stages of guided reading, drafting, peer response and revising. The results suggested that the students lacked appropriate expository writing styles. Therefore, in this study, the researchers redesign the instruments in the stages of guided reading and peer response. Furthermore, the new version of guided questions requires students to pay attention to the writing style in the reading materials, and the new response form also focuses on expository writing styles. This study aims to examine whether the new writing process with guided questions and peer review may help elementary students improve the quality of their expository writing in terms of topic, organization, development, language and expression. With this aim, a quasi-experiment was conducted in an elementary school. The subjects were 35 fourth graders (16 boys and 19 girls) from two classes. The first class received the original writing process and the second received the new version. In this study, MANCOVAs were carried out with the average writing quality in the first stage as covariates. Preliminary results showed that the new instruments of guided questions may significantly improve the quality of drafts, especially in terms of topics, development and languages. Besides, both instruments may further significantly improved the quality of the first revision in terms of topic, organization, and development, as well as the second revision in terms of organization and languages.

The results of the study showed that although the quality of writing in both classes increased gradually at each step, the second class improved more. Additionally, the second was better at giving ideas to others in peer feedback than the former class, and had more diverse ideas in subsequent rewrites.

Keywords: guided reading, peer response, expository writing

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Enhancing Student Writing Motivation and Performance through Collaborative Story-composition Supported by a Wiki-platform

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The background of this study is that EFL students usually find English writing the most difficult skill and there is a calling for strategies to improve students' writing motivation. Drawing insights from social-constructivism (Sprod, 1998), this study designed a collaborative story-composition task for the students to enhance their writing motivation and performance. Two cohorts of Year-2 English majors (N=48) participated in the study in a Chinese mainland university. In a course entitled "*English Grammar and Writing*", they were divided into 12 small groups and each group was required to compose *an end of a story* collectively. A wiki-based online platform is provided so that group members can put their work online, share ideas, discuss and revise their work before final submission.

Two research questions are addressed (1) Can the collaborative story-composition help to enhance students' motivation? (2) How do the student groups make use of the wiki-platform, and whether different uses of the platform affect their writing performance? The data includes (1) students' written compositions (2) their activities in use of the platform, (3) their classroom presentations of the work, and (4) interviews with selected students focusing on their writing experiences.

Analysis of the data revealed that (1) Vast majority of the students have improved their motivation in English writing, reflected by their engagement in the writing task (2) student groups have demonstrated three patterns in using the wiki-platform: a piece-together type with division of labor shown explicitly; a limited collaboration type with a few questions and answers exchanged; and a much collaboration type with members of the group brainstorming the outline and writing feedback for each individual's part, and (3) student groups has little difference on plots, imagination and development of the story; however, when linguistic forms are examined, the more collaborative groups commit fewer errors and show improved coherence.

This study discusses the nature of the writing task in facilitating students' motivation (Rahimi & Zhang, 2019), and it argues for a tactful design and use of technology in support of student writing (Heinonen et al., 2020). Writing tasks shall involve social factors in pedagogy and technology shall facilitate the collective process. The implications lie in that it provides some empirical evidence for writing class design with technology to enhance students' motivation and performance.

Keywords: collaborative writing, story-composition, motivation, wiki-platform

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nEWAT: Combining Human and Automatic Assessment of Writing in a Rule-based System

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nEWAT is a web-based platform that performs automatic assessment on students' writings in English. The application is a rule-based system that uses NLP techniques and knowledge bases extracted from human experts to evaluate, score and give feedback on 15 aspects of academic writing.

The system has been undergoing usability tests since September 2021. To this date, around 1800 essays written by students from different majors have been assessed by nEWAT, with good results.

Among the features that have shown important levels of accuracy, the T_model was designed to identify, assess, score and give feedback on the thesis statement. This model analyzes the thesis' syntactic correction, completion, position, succinctness and writer's stance and sentiment. To evaluate its performance, we have followed the Cranfield Paradigm, with the metrics of accuracy (0.9412), precision (0.9303), recall (0.9397), specificity (0.9441) and F1_score (0.9349).

The O_model assesses the topic sentences that the writer uses as the main idea in each body paragraph of the written composition. It analyzes the topic sentences' relatedness to the thesis statement by means a semantic sentence similarity comparison between the topic sentence and its relevant counterpart in the thesis.

The S_model classifies each sentence according to its syntactic structure and length, and gives the writer feedback on sentence variety. The model also detects and scores nine different sentence structure errors. A system performance evaluation conducted on the S_model resulted F1_score=0.9558.

The I_model model assesses the topical relevance of the students' writing. Its performance was evaluated by means of a correlational study, which resulted in a correlation of +0.42 when compared to four human assessors on a sample of 120 essays.

The F_model assesses the cohesion of the text. It identifies the transitions phrases used by the writer and computes a score based on their type, balance, quantity and position.

Keywords: automated writing assessment, writing in English as a Foreign Language, automatic writing scoring.

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Detecting Writing Difficulties among Students in Special Needs Class Using BookRoll's Pen Stroke Data

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Various modes of delivering support remains in the context of special education such as developing a dashboard specialized in special support (Mejia et al., 2012) and implementing e-learning tools such as e-books (Shamir, Korat, & Fellah, 2012) notwithstanding acceleration of Information Communication Technologies (ICT) integration in special needs classroom. In Japan, like in many other countries, students with milder disabilities or difficulties study with other students in regular classes while receiving special educational support at a resource room where we call Special Needs Class (SNC). Many of those students have common learning difficulties related to reading and writing including handwriting problems. Handwriting difficulties includes inappropriate speed, illegibility, and poor quality of writing composition which are not only related to their motor abilities (Barnett & Prunty, 2021). Detecting handwriting difficulties have been studied repeatedly; however, most of the previous research deployed observations of writing tasks or developmental diagnostic tests. For the current study, a technology-enhanced e-book system called BookRoll was deployed as a part of learning support in a SNC at an elementary school. BookRoll is part of the Learning Evidence Analysis Framework (LEAF) (Ogata et al., 2018) where learning logs accumulated during the activities with BookRoll are visualized in an analysis tool to monitor and analyze students' learning performance. In the pilot study 10 students in SNC worked on learning activities with their iPad using a touch-pen to write and draw directly on the BookRoll interface. Given a writing task, pen-stroke analysis in our context implies detecting students' writing behavioral patterns and handwriting difficulties in terms of their speed and patterns of writing, spelling and stroke accuracy, and illegibility. We observed students' handwriting behavior included more erasing actions. Further pen-stroke analysis of speed of writing, and the replaying animation in the dashboard of the process of creating the artifacts helped to understand the attempts even when the output was quite often illegible. This pilot study provides some initial suggestions about utilizing hand written memo features and potentials of pen stroke analytics for supporting special educational context in the future.

Keywords: e-book technology, special needs education, resource rooms, pen-stroke analysis, BookRoll

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Helping Students Step out of Their Reading Comfort Zone

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Interest affects students' learning a lot, enhance we proposed an activity called Modeled Sustained Silent Reading (MSSR). MSSR is a reading method that aims to help children build up their reading interests. A 10-year study on MSSR proved that it could help students' interest in reading. Although the study is beneficial for students' reading interests, it also needs to help them build an appropriate book list. This study proposed a "reading personal coach", which supported teachers to become students' reading coaches. Through guided instruction, the teacher will gradually move children into more challenging books and support them in building their own reading goals. To make the teacher a personal reading coach, we will make a system for teachers and students.

This study help teacher becomes personal reading coach. A teacher can use the system to make a personal reading plan for each student. "Breath-depth bookshelf" provides students' reading performance profiles, which can help teachers to see and check the student's reading situation. If students need help, their teacher can support them immediately. "Benchmark books" helps students learn by making their own reading goals. In the beginning, students need the teacher's help to step out of their reading comfort zone; after, with the system and teacher's help, they can make it by their own.

This study is at an initial stage, so we need more data from the trials to know reading personal coach can help students choosing an appropriate book by themselves. It needs questionnaire to compare students' reading types by using the system before and after. Also, it needs some feedback from teachers, which will help us to know whether the system is helpful or not and what suggestions will make it better.

Keywords: MSSR, reading interest, personal coach, goal setting

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GOAL System to Support In-class Reading Activity: A Study of Advanced and Standard EFL Learners

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Bridging formal and in-formal English as Foreign Language (EFL) learning, and provides the opportunity to prepare students to become active EFL learners (Wang et al., 2020). Extensive reading (ER) programs are one of such activities that offer four elements: a large number of reading materials to choose from, easy and different levels of materials encourage faster reading rate, and reading pleasure (Yamashita, 2015). A potential influence on ER motivation and engagement is the ability of self-directed reading and goal-setting (Li et al., 2021). Readers with specific, challenging, and attainable goals tend to exert greater effort and persist than those with vague or easy goals.

This study focuses on a Japanese public high school English course context related to in-class reading comprehension activities designed by the English teacher. Two groups of students (n=54), in advanced (n=29) and standard class (n=25), were given access to more than 500 picture e-books through BookRoll (Ogata et al., 2015), an e-book reading tool. Along with it a self-directed learning support application, GOAL (Majumdar et al., 2018), was introduced to plan and monitor their reading activities. Further, the English teacher orchestrated an in-class activity where the students participated in a 15 minutes reading comprehension activity. They could choose any books from the available materials and continue reading them in class. After 15 mins they were asked to write a summary in the discussion forum in Moodle. This activity was repeated on 2 consecutive days for both the advanced and the standard classes. On the third day, they were asked to make a reading plan in the GOAL system and proceed. Analyzing their planning and reading logs, we found while both classes showed similar trends of plan setting behaviors, the standard class had more reading engagement. Thus, in-class plan setting for self-directed reading activities within GOAL platform related to higher engagement of the standard class students.

Keywords: learning analytics, self-directed learning, extensive reading, Japanese high school, BookRoll

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Active Reading Dashboard to Enhance English Language Learning

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In the technology era, technology enhanced learning enables to motivate students to learn, improve learning performance and skills and moreover visualize the learning process to some degree which was not possible with traditional paper-based learning. English reading classes also benefit from such technology and can be taught more actively. In recent years, teachers make lesson plans by considering how actively and effectively students can improve their reading comprehension by integrating existing reading methods and technology (Toyokawa et al, 2021). SQ4R (Survey, Question, Read, Record, Recite and Review) is one such active reading strategy that has been applied into reading classes by many teachers (Khusniyah, & Lustyantie, 2017). Following SQ4R steps, learners grasp the content by skimming, ask questions related to the content by themselves, leave annotations while reading, and write summaries. The effectiveness of SQ4R has been studied and indicated in many previous studies, however, there has not been much study done investigating the relationship between active reading strategies and learning outcomes by using learning logs accumulated by using an e-book platform. Therefore, in this study, we proposed Data-Driven Active Reading by using a technology-enhanced e-book browsing system called BookRoll (Ogata et al., 2015) to investigate how BookRoll and learning logs support reading and improve students' vocabulary and reading comprehension. 280 students from high school reading classes read a story from a textbook in BookRoll by following SQ4R strategy. Active Reading Dashboard was designed and developed to have students reflect on their own and other classmates' reading performance and progress through learning with BookRoll. It provides feedback to students by visualizing analysis results of each step of active reading. Two classes as experimental groups used the dashboard in class, while two other classes as control groups followed the same reading procedures without using the dashboard. From the log data and survey results, it was observed that 1) there was a difference in the attitude of students toward reading between using and not using the Active Reading Dashboard, and 2) there was a relationship between the use of markers and the answer rate of the post vocabulary quiz. Limitations and future implications for Data-Driven Active Reading are discussed.

Keywords: active reading, e-books, learning logs, active reading dashboard

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Online Learning Engagement and Emotion Regulation in a Smart Tutoring System during the Pandemic: An Island Ridge Curve (IRC) Perspective

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The COVID-19 pandemic has brought unprecedented challenges to students' life and learning. During the pandemic, conventional face-to-face classes are now infeasible and have been shifted to online teaching and learning system. While existing studies have shown that students' learning engagement is critical to their online learning, less research has considered how students' engagement is related to their emotion regulation (Gross & John, 2003) and how these effects vary across students of different proficiency levels.

The aim of this study was to examine whether students' emotion regulation and online learning engagement are related to students' English language learning on a smart tutoring system and whether these associations were moderated by students' English language proficiency. To this end, we framed our study under the theory of the Island Ridge Curve (IRC) (Cai, 2020; Cai & Kunnan, 2019; 2020; Wang et al., 2021), an emerging promising theory for language learning, which hypotheses that the effect of cognition-related factors to language performance fluctuates in the shape of the letter 'S'.

A total of 427 students from a university in China participated in the study by completing two questionnaires: a questionnaire measuring two dimensions of emotion regulation strategies (suppression and reappraisal) and a questionnaire measuring three dimensions of online learning engagement (cognitive, behavioural and emotional engagement). Besides, a terminal score for each student generated by a smart-tutoring system was used to represent students' online learning outcome. Data analyses involved two steps: 1) conducting confirmatory analysis with each questionnaire to ensure their measurement validity; 2) putting students into low-, medium- and high-proficiency groups using two cut-off points recommended in the IRC study (-.71 and 1.29 standard units) and conducting multigroup path analysis to explore the association among emotion regulation, learning engagement and English learning outcome across different proficiency levels.

The results showed that 1) emotion regulation (in particular, reappraisal) was indirectly associated with English learning outcome by way of learning engagement, and 2) the association fluctuated in the pattern of the IRC due to the oscillating relation between the mediator engagement and learning outcome. The results once again corroborated the positive effect of reappraisal and learning engagement on learning outcome. More importantly, our results once again accumulated evidence to the promising power of the IRC for interpreting learning related to cognition-relevant factors.

Keywords: emotion regulation, Island Ridge Curve, learning engagement

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Time Management Skills of Performing a Microlearning for Non-Assigned Intrinsic Future Goals: A Preliminary Study of Japanese EFL Learners

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The concept of time management skills has been extensively discussed in the framework of self-regulated learning (SRL). Time management is considered a process for successful learning in SRL research (Zimmerman, 2002). Since students are frequently overburdened with curricular work daily, it is difficult for them to devote their time to non-assigned intrinsic future goals. This situation motivates students to study "short" content as in "microlearning" to achieve their goals. However, there is little research focusing on the potential of microlearning on the app based on students' intrinsic motivation, which originates from future careers, hobbies, and other purposes. This study investigates the relationship between time management skills and microlearning behavior.

Due to the coronavirus disease 2019 (Covid-19), students have had little chance to meet face-to-face on campus; thus, most of their courses are conducted online. This unusual situation has emotionally and cognitively affected students' learning attitudes, e.g., Ono (2021) for the relationship with student fatigue. This situation is considered unusual and new findings from this research are expected to have a significant impact on the post-Covid-19 pedagogical paradigm.

The participants in this study were 52 first-year students from the Japanese national university. The application used is Polyglots, which provides several microlearning contents, such as vocabulary learning, reading/listening materials, and other news topics recommended for individual learners (https://www.polyglots.net/). The participants are requested to study whatever they like during their spare time once they set a future goal in English learning. The application records as learning data the learning time, the number of words read/listened to, and the number of words or phrases. After the learning process, the participants were requested to answer a questionnaire regarding how they managed their spare time and their total impression of the application. By conducting a cluster analysis, the participants were divided into two clusters based on the learning time and three clusters based on what and how they studied. It was observed that their learning time decreased as their assignments given via normal classes became heavier and more stressful. The participants who discontinued microlearning preferred vocabulary learning and were unable to find a topic for reading/listening study. However, those who had long study time developed effective time management skills and their microlearning awareness became a habit. The qualitative data show that the successful participants have a strong awareness of their future goals despite the difficult situation caused by Covid-19.

Keywords: time management skills, intrinsic motivation, micro-learning, Polyglots

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Perception-Behavior Differences in Self-Directed Language Learning among Junior High School EFL Learners

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Self-directed learning (SDL) has been identified as an increasingly important skill in language learning for the twenty-first century learners. SDL requires learners to be active and purposefully harness several skills to maximize their learning, such as planning skills. Given the complex interplay between perceptions and behaviors and the dynamic process of language learning, it is essential to understand how young learners develop their SDL skills on the learning process (Navarro & Thornton, 2011). The evidence of technology support for the development of SDL skills and its effects on EFL learners' perceptions and behaviors are also limited, and this calls for further investigation (Rashid & Asghar, 2016).

This study aims to examine the relationship between planning skills in perception and behavior in the year-long self-directed extensive reading among junior high school students. We adopted a self-directed extensive reading support system, including an e-book reader tool named BookRoll and an SDL support system named GOAL. Students engaged in extensive reading inside and outside of the school using BookRoll e-book reader. They can select and read e-books by themselves from more than 500 graded readers in BookRoll. They can also set personal plans for the extensive reading activity, monitor their reading progress, and reflect their learning strategies in GOAL. For example, students can create a daily plan for time spent in extensive reading for one week. The reading activities in BookRoll and SDL behaviors in GOAL were automatically tracked. The perceived planning skills were measured before and after the experiment by a six-item questionnaire. The behavioral planning skills were measured based on the process and quality of the planning behaviors in the GOAL system.

Students were divided into four groups based on their frequency of planning behavior during two school and vacation days (N=109): Monthly planner, School-vacation start planner, School start planner, and Dropout planner. The Monthly planner created the reading plans every month (n=26). The School-vacation start planner created the reading plans in the beginning month of school and vacation days (n=37). The School start planner made the reading plans only in the beginning month of school days (n=37). The Dropout planner means they only made the reading plans in the beginning month of the experiment (n=9). The differences in reading outcomes, perceived planning skills, and behavioral planning skills in four groups were examined. The results showed that the Monthly planner group read more e-books and achieved higher behavioral planning skill levels than the other three groups significantly. However, the perceived planning skills in four groups kept the same level during the experiment. This study provides clear evidence of the large differences between perception and behavior in self-directed language learning. The implications for K-12 language learning and instructions will be discussed based on our findings.

Keywords: Self-directed learning, learning behavior, learning perception, extensive reading, learning analytics

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Learning Language and Culture via Non-immersive VR Games: A Case of *The Forbidden City*

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Language and culture are inseparable. Teaching language and culture in foreign language education should be bidirectional, which not only refers to the cultivation of understanding, comparing, evaluating, and applying L2 cultural knowledge but also relates to that of a speaker's native culture. However, language and culture learning has to some extent been a tedious and arduous task for EFL learners due to various factors such as the lack of learning motivations, the insufficient attention to task authenticity, and the inadequate chances for learners to engage in interactive activities. New technologies such as virtual reality (VR) have revolutionized our accustomed ways of learning as the learning opportunities have been extended beyond the limited classroom time. Yet, the integration of VR in language and culture learning has not been widely seen in exam-oriented societies such as China.

This novel study reports on an exploratory attempt to improve EFL learners' L2 linguistic and L1 native culture learning with the assistance of VR games. Specifically, we aim to explore the use of a self-developed VR system in supporting learners in improving their English language knowledge and Chinese culture knowledge via a simulated world of The Forbidden City.

The study involved 83 first-year Business English major students in Shenzhen and they were instructed to use The Forbidden City in their free time. Data were collected from two major sources, namely a questionnaire survey and participant reflective journals. The present talk will report some exploratory findings on the students' attitudes and perceptions regarding the use of VR in language and culture learning. Results showed that learners, in general, appreciated the interactive VR world through which they were afforded opportunities of integrating English listening and speaking and Chinese cultural knowledge when participating in VR games. In addition to the affordances of the VR system, the talk will also touch on some challenges students encountered and follow-up suggestions will be discussed at the end of the talk. We expect that this study could contribute to the understanding, evaluating, and applying VR games in language and culture education, offering insights into the technology-enhanced language learning field.

Keywords: L2 language learning, L1 culture learning, VR

Using Educational Board Games to Foster Students' Writing Skills Based on Interest-Driven Creator Theory

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Writing is a critical literacy that students should learn to express their thought and feelings. In the past, a number of different strategies and technologies are used to leverage the development of students' writing skills. In this paper, we propose an educational board game (EBG) approach based on the theory of interest-driven creator (IDC), where students' interest, creation, and habit are highlighted and cultivated (Chan et al., 2018). This paper describes how educational board games are designed to foster students' learning in terms of three dimensions: interest, creation, and habit

To attract students' interest, students were demonstrated how to compose an article through organizing board game cards in the "scaffolding" stage. Each game card with different colors is regarded as a paragraph, and several game cards could be further organized as an article reasonably and elegantly. In other words, the students use these cards as building blocks to compose articles in the game-playing process, and thus the structure of an article could be recognized, analyzed and enhanced.

To facilitate students' creation, the board game cards are gradually replaced by blank ones in the "fading" stage, where students are encouraged to fill in their experience and wordings. What the students need to do is to fill in one blank card according to the context in the beginning. Next, they were gradually challenged by more and more blank cards. By doing so, the students are guided to creation (i.e., writing) according to the article structures formed from the previous stage.

To develop students' habit, the students were encouraged to create (i.e., write their articles) frequently and regularly in the classroom, where students are interested in developing and improving their writing skills through the "scaffolding" and "fading" stages. While such a routine is performed repeatedly, the students might accumulate their successful experiences, which, in turn, improve their writing skills and gradually develop a learning habit. In addition to the design rationales, such concept of EBGs for writing are applied to the writing programs in elementary school classrooms. The students' learning outcomes and feedback are discussed in this paper.
Keywords: writing, educational board game, interest-driven creator, scaffolding

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Development of E2V (Easy English Vocabulary) System Using Gamification and Self-reflection Mechanisms

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Currently, vocabulary learning in conventional instruction focuses on remembering the word and its meaning. Consequently, students might disengage, lack of motivation and enthusiasm, as well as had difficulties to recalling prior vocabulary to be implemented in a sentence. The gamification mechanism could therefore be a potential strategy to support vocabulary learning in cognitive and affective aspects (Yang et al., 2020). Such mechanism provides potential features, such as scoring, levelling, badging, and leaderboard that can be designed based on students' needs in learning (Chen et al., 2020). Besides, self-reflection enables students to perceive their learning status regularly through reflection and instant feedback, leading students to inquire and obtain solutions to the problems encountered. However, less attention has been paid to research that integrated gamification and self-reflection into vocabulary learning, and this study aimed to fill this gap.

Easy English Vocabulary (E2V) system is developed in this study to examine students' learning effectiveness in terms of learning performance, motivation, engagement, and learning behavior. The E2V system enables students to learn through playing a game, and at the same time, it also provides gamification mechanism (i.e., points, badges, and leaderboard) to engage learning, besides they could reflect their own performances during the learning activity (Liu et al., 2021). The Bloom's taxonomy was adopted in this study to support English vocabulary learning in three different levels. Learning materials, such as hobbies, food and beverage, and daily activity for third grade elementary school students were employed in the learning activity. The E2V system consists of different levels of learning activity: (1) remembering word and matching it with picture; (2) understanding the missing word and applying it on short conversation; and (3) higher order thinking, which analyzing presented learning tasks. In this study, a quasi-experiment will be conducted to evaluate students' learning effectiveness. It is expected that the proposed learning approach can significantly promote learning outcomes, engagement, motivation, and have a significant positive effect on students' learning behavior.

Keywords: gamification, self-reflection, vocabulary learning

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The Role Learning Analytics in Game-Based Teaching. A Case of Elementary Chinese Language Classroom

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Many studies have shown that Game-based Teaching can promote conceptual understanding and collaborative learning, and facilitate positive learning motivations and attitudes (e.g., Hanghøj, 2013; Yang & Lu, 2021). The role of the learning analytics dashboard in promoting positive learning outcomes for diverse learners also has been widely acknowledged (e.g., Verbert, Ochoa, De Croon, Dourado, & De Laet, 2020) and its applications in the classroom attract increasing attention (Wen & Song, 2021). However, there is a lack of studies on learning analytics in classroom-based gamified learning and its role in game-based teaching. In addition, studies on game-based teaching tend to focus on teachers' gaming beliefs or experiences, while teachers' decisions to the uptake of lesson plans were influenced by their knowledge, goals, and beliefs (KGB) holistically. Therefore, this case study seeks to examine how a Chinese language teacher from a Singapore primary school transited from traditional monitoring methods to utilising learning analytics to gamify her classroom with her KGB and the role of learning analytics in supporting her game-based teaching experiences.

This study is part of an ongoing pedagogical innovation research project (ARCH) on the implementation of seamless Chinese character and vocabulary learning in lower primary schools. Cheryl (pseudonym), a teacher of the project, used the ARCH system with learning analytics functions developed by the research team in her primary 2 class (students aged 8). This study focused on five classroom sessions where Cheryl employed game-based teaching by using ARCH. Based on the videos of classroom observation, content analysis and narrative analysis approaches were adopted to analyse how learning analytics embedded in the system was used to enact game-based teaching by the teachers. Furthermore, teachers' interview data was also used to explain how the teacher's KGB influenced her employment of game-based teaching and learning analytics. The findings suggest that teachers should have an intrinsic understanding of the purpose of the learning game that aligns with their beliefs and goals, to provide meaningful learning experiences. The features of learning analytics could be introduced after teachers have been getting familiar with the design learning activities. Teachers' understanding of non-digital game-based teaching can be transferred to digital game-based teaching with learning analytics. The present study seeks to contribute to the implementation of learning analytics and teachers' professional development in game-based teaching.

Keywords: professional development, learning analytics, game-based teaching, elementary classrooms

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Examining EFL Learners' Vocabulary Learning Engagement and Outcomes Mediated by an Augmented Reality App in Mainland China

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In mainland China, English vocabulary learning is a very important part of English curriculum. To master a language, practising and using are essential (Eang & Na-Songkhla, 2020). In recent years, augmented reality (AR) has been increasingly applied to English vocabulary learning, and many studies have shown that it is very useful for improving learners' learning motivation and outcomes (Tsai, 2020). But relevant research has been generally carried out in the classroom or laboratory, and limited research has focused on support learners' learning outside the classroom (Huang et al., 2021). At the same time, the research on AR-supported vocabulary learning has been generally conducted in a short period of time with a small number of participants. In addition, only a few studies have focused on learning engagement (Huang et al., 2021).

In view of these issues, this project aims to investigate the effectiveness of an AR application called VocabGo for English as a foreign language (EFL) students' vocabulary learning engagement and outcomes in and out of the classroom in Mainland China. The proposed pedagogical framework integrates VocabGo Find Mode into a four-stage second language vocabulary acquisition process (Ma, 2014) to improve learners' participation and outcomes in vocabulary learning both in the classroom and in real life.

The study will last for one year and adopts a quasi-experimental research method. There are 72 participants and they are randomly divided into 3 groups. They are Grade 4 students with ages from 9 to 10. Group 1 will use VocabGo both in class and outside class; Group 2 will use VocabGo only in class; and Group 3 will not use VocabGo. According to Ma's(2014) vocabulary learning framework，all groups will adopt the same teaching methods with the four-stage second language vocabulary acquisition process supported by mobile devices, namely,(1) discovering the new word, (2) obtaining the word meaning(3)mapping the word meaning with form (4) consolidating the word.Group1&2 use virtual Go mode in VocabGo in Stage 3 and Group3 use camera to take pictures to match the new words.

Mixed methods are adopted to examine learners' vocabulary learning engagement and outcomes. Data collection includes pre - and post-engagement questionnaires, pre-, post 1 - and post 2-vocabulary tests, student focus group interviews, and student-created artifacts logged on the VocabGo app. Both qualitative and quantitative data analysis methods will be used.

The significance of this research are twofold. First of all, during the COVID-19 pandemic, it is timely to use the instructional design framework to build a bridge of in-class and after-class learning with the augmented reality app - VocabGo as an intermediary across different spaces, so as to improve young learners' engagement in vocabulary learning and learning outcomes. Secondly, the results will shed light on the instructional design mediated by AR apps to engage young learners to learn English vocabulary, which in turn will help scale up the innovative practices nationwide.

Keywords: English vocabulary learning, augmented reality, VocabGo, engagement

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Improving EFL Young Learners' Vocabulary Acquisition and Attitude towards Technology in a Rural Area through Augmented Reality Game-Based Language Learning

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The process of learning English as a second language requires extensive vocabulary knowledge. However, teaching and learning a language can be difficult, especially in a rural area. Schools in a rural area, particularly in Taiwan, are well-equipped to assist students with language acquisition. However, the facilities are not effectively utilized to improve learners' language proficiency due to a lack of qualified teachers, instructional materials, and technological understanding. Therefore, to address these challenges, EFL instructors and researchers must design a conducive learning environment and provide guidance on how technology might be used to assist in the learning process. The integration of augmented reality (AR) and game-based learning is one of the most recent developments in educational technology (GBL) that has brought numerous advantages for language learning. Hence, the purpose of this study was to examine how a recently developed ARGBL application, "StemUp", which was designed to aid in the teaching of vocabulary and the improvement of listening and speaking abilities, facilitated EFL learners' vocabulary acquisition and their attitude toward learning using the app.

The participants of this study were seventeenth sixth-graders from a rural elementary school in central Taiwan. Pre-post-tests were used to assess students' shapes-related vocabulary acquisition. The combination of the Computer Attitude Questionnaire, which has three constructs (instrumentality, anxiety, and comfort) with additional digital literacy construct developed by Webb & Doman (2019), was also administered before and after the experiment to gather data on students' perceptions about the learning instruction. The data collected were analyzed using SPSS – Paied Sample *T-Test*.

During the experiment, the participants were instructed to use the "StemUp" application installed on the school's provided iPad to learn while having fun during the "Shapes Hunt" session. Each student must locate ten cards hidden throughout the classroom and scan them. When the card is scanned, an object appears along with questions and answers (feature one)—each student is required to pronounce the answer while recording their responses in the application. The app will determine whether they have correctly pronounced the word or not. The same activity was done on the second meeting; however, the second feature is used in this session: multiple-choice questions. In addition, Students can also listen to how each word is pronounced with the listening mode. Each question on the app has three chances to be answered; each correct answer will receive one point and feedbacks.

The results of the findings were (1) "StemUp" significantly improved students' vocabulary acquisitions, (2) by incorporating ARGBL instruction into rural education, students could experience an authentic and immersive language learning environment, and (3) overall, participants had a positive attitude toward using "StemUp" for learning. Therefore, the research findings may inspire researchers and EFL instructors to actively incorporate ARGBL into the language classroom to improve students' performance, especially in rural areas.

Keywords: augmented reality game-based language learning, rural areas, vocabulary acquisition, attitude toward technology

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Design and Construction of Chinese Learning System Based on Chatbot

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In recent years, with the continuous enhancement of China's comprehensive national strength, more and more people learn Chinese as a second language, and the wave of "Chinese fever" has been set off all over the world. Although there are many kinds of Chinese learning software, most of them are not aimed at non-native Chinese learners.

Based on this research background, in order to design a Chinese learning system suitable for overseas students and Chinese learners, this paper applies the currently widely used "artificial intelligence + education" concept into the design process. As a remote assistant communication tool, chatbot can help learners learn in "play" and provide them with a relaxed and interesting language learning environment.

Personalized learning theory emphasizes that the learning process should be student-centered and individualized according to the existing knowledge level and interests of different students. Therefore, before formally entering the learning process, the "level test" module that communicates with the chatbot accurately locates learners' current Chinese learning level (Lv1, Lv2, Lv3...). To set learning goals and obtain exclusive learning plans. In the module of "Learning world", there are multiple levels of learning content, including basic knowledge layer (initials, vowels, tones, pinyin, etc.), comprehensive application layer (Chinese characters, vocabulary, sentences, etc.), dialogue development layer (situational dialogue, grammar correction, dubbing, etc.). Situational learning theory emphasizes that thinking and learning only make sense in specific situations. Therefore, the "Learning world" module of this study sets up many life topics for all learners to choose from, such as health, work, emotion and entertainment, so as to realize the immersive human-computer interaction learning mode. In order to grasp the learning effect in time, the Chinese learning system sets up the "evaluation feedback" module, in which the chatbot questions and communicates with learners, the TF-IDF technology is used to calculate the sentence similarity, and the CRF is used to monitor Chinese grammar errors so as to feedback the learning results.

The researchers involved in this design include postgraduate students majoring in educational technology, postgraduate students majoring in Chinese as a foreign language, and developers of artificial intelligence companies. After many studies, a consensus has been reached on the research method and framework.

Keywords: chatbot, Chinese learning system, design and construction, natural language processing technology

Technology-supported Mathematics Language Learning

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Combined with natural language, vocabulary and symbolism, mathematics is made meaningful through the use of language for the students' communication adequately (Capps, 1993). Besides, the mathematics language in the digital feedback are personalized and immediate. Recently, the integration of technology and mathematics language learning has become prevailing.

Several studies have identified the positive influence of technologies exert on mathematics education, such as better connection among semiotic language systems. However, there are insufficient systematic reviews focusing on studies investigating the technology pedagogy for mathematics language learning. Therefore, this study provides a systematic review, aiming to discover the research gap and enlightenment from technology-supported in mathematics language learning.

The technology-enhanced language learning (TELL) emerged around the early 1990s (Bush M, 1997). Technology-supported related research in mathematics language learning began in 2010 and has continued to rise. Ivica Boticki (2013) provided support for the argument that technology platforms supported content-independent collaborative mathematics language learning in a primary school. Besides, Linda Medina Herrera (2019) depicted that digital 3D tools help the students to acquire and develop spatial language skills and can be used as engaging resources. The contribution of Chen Xie (2020) also presented supporting evidence that Computer-assisted Instruction (CAI) exerts beneficial effect on mathematics education in mainland China. Moreover, Omar S.López (2010) focused on the interactive whiteboard technology via the measure of a quasi-experimental design, and indicated that IWBs could reduce student achievement gap in 3rd and 5th grade mathematics reading.

However, these results were based upon data years ago and there existed limitations on technology utilization in language learning. Richard Clark further proposed that students' language learning is influenced by the pedagogy utilizing technology rather than technology itself.

What role does technology-supported pedagogy play in research on mathematics language learning?

The objectives of this study are to examine the effects of technology-supported pedagogy in learning mathematics language, and also identify research gap and provides future directions for the subject. The systematic literature review approach (Petticrew & Roberts, 2006) is a set of literature review methods that explicitly limits systematic evaluation error and aims to identify, evaluate and synthesize all relevant studies to answer a specific question. This paper searches the public database for all literature related to "technology-supported learning in mathematics" over the last 20 years. The following five steps will be followed in reviewing queries for this paper: Formulation of research questions; Literature collection; Descriptive analysis - assessing and analyzing material; Categorizing collected material; Interpreting results and defining relevant questions.

This study presents a systematic review of applying the technology-assisted tools in mathematics language learning within the span of 20 years. Based on the analysis, the numbers of research in this field have increased from 2010. From the review, the gaps in technology-supported mathematics language learning could be obviously identified. These results deserve further explorations. In future studies, it would be helpful to study in detail how technologies can support informal mathematics language learning and educators' pedagogy effectively.

Keywords: technology-supported, mathematics language, feedback, pedagogy

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The Perceptions of Learners and Instructors on Implementing Problem-based Learning Online: A Case of a Cambodian Public Higher Education Institution

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Education in the 21st century calls for inclusiveness, sustainability, and innovation. One of the approaches supporting this vision is problem-based learning (PBL). Having its root in medical science, PBL has been adopted and adapted in many disciplines through face-to-face, hybrid, and online modes to promote knowledge retention, self-directed learning and 21st-century skills (Kandi & Basireddy, 2018).

This presentation will offer insight into the perspectives of teaching staff and learners on the implementation PBLonline for the first time among junior year students pursuing the Bachelor of Arts in English at a public university in Phnom Penh, Cambodia. The outstanding context of the "Introduction to Social Issues" Subject (ISI), which went through a curriculum reform to adopt a face-to-face PBL was disrupted by COVID-19 and had to be immediately transformed into PBLonline, offered a unique case study to investigate the curriculum change in unprecedented time and its impacts on teaching and learning.

All teaching staff in the subject ISI were invited for an in-depth online semi-interview. They were encouraged to reflect and share their experience of the first semester of implementing PBLonline. The voices of learners were accumulated via the online questionnaire to obtain the descriptive quantitative data on the effectiveness of the PBL implementation, the assessment tasks, the instructor's facilitation roles, and the perceived skills obtained.

The study results revealed that the staff members and learners had limited prior experience in the online instructions and PBL, let alone PBLonline. Learners tended to rate their accumulated knowledge, self-directed learning, and critical thinking skills high. However, some of them felt confused with the learning and assessment tasks adopting PBL. The accumulation of techniques, roles, and philosophies in PBLonline varied among the teaching staff. The combination of some instruction elements is proven to be a potential model for an online PBL framework for Cambodian Higher Education. Nevertheless, the instructors shared a common perspective on the challenges of implementing PBL online, citing the difficulties with the assessments and perceived skills transferred to students. Unanimously, they also expressed their requests for training (Yadav et al., 2018) and endorsement in PBL, along with a strong commitment to more effective PBL instructions in the new academic year.

Keywords: problem-based learning and teaching, hybrid PBL, content subject, online learning and teaching, English as a Foreign Language (EFL)

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iScholar: An Assisted System for Academic Writing

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Writing is considered one of the most challenging skills in the process of learning a new language (Bolsunovskaya L.M., 2020). Academic writing is always challenging for those entering the world of research for the first time. To publish research work in high-quality international journals requires researchers to have a certain level of English. Several studies have documented that even researchers from English-speaking countries such as the UK, Australia, New Zealand, etc. Also struggled with this (the University of Western Canada, n.d.).

Several attempts have been made to propose efficient methods to support academic writing (Strobl, et al., 2019). In a review of these tools, Carola Strobl and his colleagues revealed several gaps of academic writing support tools. There is a lack of tools to support collaboration. Up to now, far too little attention has been paid to the interaction between learners. Moreover, while automated support for revision on the micro-level (e.g., grammar, spelling, word frequencies) targeting factual knowledge is well represented, tools that support the development of writing strategies and encourage self-monitoring to improve macro-level text (e.g., argumentative structure, rhetorical moves) quality are rare (Strobl, et al., 2019).

Recognizing the above problem, we have proposed an iScholar system intending to assist researchers in writing scientific reports in English. The approach focuses on macro-level aspects such as developing a writing strategy, encouraging self-monitoring, increasing human-to-human interaction, and increasing the user's adaptability to the system through an appropriate interface. Additionally, the system provides suggested sample sentences and uses the Mindmap method to build a general framework for academic articles incorporating the scaffolding technique of psychologist Vygotsky. With Mindmap, one can find almost an infinite number of ideas and at the same time rearrange ideas alongside linked ideas. This method variable of this method becomes a powerful tool for editing articles and narratives when necessary comments need to be written down quickly. Then the optional keywords (gist), sentences, or paragraphs will be expanded in breadth. In addition, the system gives users a direct interaction experience with each other in real-time. The proposed system was used experimentally for students at the National Economics University and Hanoi University of Science and Technology in Vietnam. The survey data analyzed and assessed the usability of iScholar that can help students in Vietnam enhance their English writing skills.

Keywords: scientific writing, academic writing, mind mapping, scaffolding, collaboration

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Exploring Chinese as a Second Language Learners' Conceptions and Engagement in Online Learning Environment

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The COVID-19 has brought opportunities for online Chinese as a second language (CSL) learners, challenges such as improving online learning effects, triggering students' motivation emerged during the online learning process, and scant attention has been drawn on investigating CSL learners' learning conception and engagement. This study conducted a mixed method research to explore CSL learners' conception and engagement within the context of online Chinese reading course in a university in Beijing, China. First, learners' learning perception questionnaire was adapted from Zheng *et al.* (2017)'s questionnaire measuring English students' learning conception (27 items, $\alpha = .83$), and learners' learning engagement questionnaire was adapted from Fredricks *et al.* (2004) and Phip & Dunchesne (2016)'s questionnaire measuring students' engagement (15 items, $\alpha = .87$). Questionnaires were distributed to 243 students who enrolled in the online Chinese reading course, their learning conceptions, learning engagement, and the correlations between them were explored. Second, qualitative data were collected through semi-structured interview, to explore the strengths and challenges of online Chinese learning. Results indicated that learners' learning conceptions included seven factors (i.e., memorizing, testing, drill and practice, gaining vocabularies, grammar and pronunciation, increasing one's knowledge, application and communication, and understanding in a new way), and their learning engagement included four factors (i.e., cognitive engagement, behavioral engagement, emotional engagement and social engagement). Regression analysis showed that Understanding in a New Way is the most significant factor which can positively predict learners' cognitive, behavioral, emotional and social engagement. Furthermore, learning tasks which are highly related to Chinese culture, modern life and content which are conversational and with extensive applicability can effectively improve learners' motivation and conceptions of understanding in a new way. However, the main challenges of online Chinese learning are conducting interactive instructional design, developing effective online Chinese learning platform, and improving learners' adaptability in online learning. This study aims to explore CSL learners' online learning psychology and behaviors, and implications of these findings for better online CSL instructional design and improving Chinese teaching quality are discussed.

Keywords: online learning, learning conception, learning engagement, Chinese as a Second Language

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Activities Influencing Preservice English Teachers' TPACK in the Flipped-Blended Instructional Mode Based on Moso Teach

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The digital era advocates for the integration of technology into English education, which requires English teachers to have sufficient Technological Pedagogical Content Knowledge (TPACK). Many teacher education institutes have designed blended flipped classrooms to construct preservice English teachers' TPACK. Previous research finds that this mode as a whole contributes to improving academic performances of learners, yet there is little study investigating different contributions of the diverse activities to TPACK, particularly in the field of English teacher education.

To guide course development and thus enhance the quality of preservice English teachers, this research intends to rank 4 main learning activities of their significance for the level of preservice English teachers' TPACK in the flipped-blended instructional mode.

The authors applied Mosoteach Online Learning Platform to the "English Pedagogy" course during the 2021 fall semester, and each lesson involved 3 basic stages—online preview before class, offline interaction in class, and online consolidation after class. The participants were juniors majoring in English language education from a Chinese university, whose TPACK was assessed by self-report questionnaires, coursework (including instructional design and microteaching video), teacher's classroom observations, and interviews with their peers at the beginning and end of the course to reveal the changes. The quantitative data were analyzed by frequency, percentage, mean, standard deviation, Pearson Product Moment Correlation Coefficient, and Multiple Regression Analysis while the qualitative data were analyzed through Content Analysis. The evidence mentioned above was collected from different sources and examined independently but compared to each other, which form a good triangulation to enhance validity and create a more in-depth picture of the research problem. Students' tracking data (files viewed, engagement in discussion, quiz scores, and assignment performance) from the 4 main learning activities (file viewing, group discussion, in-class quiz and after-class assignments) were also analyzed to identify the proportion of TPACK variance explained by each variable.

The results showed that assignment was the most dominant activity that facilitated TPACK construction, successively followed by quiz, discussion, and file viewing. Further interviews with students suggested some benefits and drawbacks of these activities, which are useful for future course modification.

Keywords: activity, preservice English teacher, TPACK, flipped-blended instructional mode

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The Application of Multimodal Learning Analytics in Assessing Public Speaking Competence: A Systematic Review

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Public speaking is an indispensable and complicated communication skill at school or in the workplace. The multimodal evaluation of public speaking competence relies on the collection and further fusion of multiple types of data, including textual, audio, and visual clues. Therefore, it has become a challenging issue for Multimodal Learning Analytics (MMLA). MMLA captures, integrates, and analyzes learning traces from different sources and through different modalities, thus providing insights for the holistic understanding of a learning process (Worsley, 2018). With the advancement of MMLA, its integration to public speaking competence assessment has become possible. However, one critical challenge is how to assess public speaking performance automatically on a large scale.

There are many review studies on the application of MMLA in educational settings. However, a systematic review focusing on public speaking assessment via MMLA is not available. To fill the gap, we employed the preferred reporting items for systematic reviews and meta-analyses (PRISMA) protocol (Liberati et al., 2009), and systematically reviewed 48 empirical research from 2011 to 2021. We synthesized the forms of multimodal data, feature extraction and data fusion methods commonly used in multimodal learning analysis, and the available multimodal evaluation systems. Finally, we summarized the advantages and challenges for applying MMLA to public speaking assessment.

In the reviewed studies, only five research explicitly developed their own database of public speaking for MMLA, which calls for the construction of large-scale and classroom-based multimodal database for further empirical research. Six MMLA assessment platforms were identified as pilot automatic public speaking training or evaluation systems. Finally, since MMLA fused the features of multi-source data, it has the potential to provide real-time and intelligent feedback, increasing the objectivity and efficiency of assessment. However, there is still a lack of comprehensive and matured model of multimodal assessment or data fusion, posing challenges for ensuring the accuracy and effectiveness of MMLA-based public speaking assessment.

This study aims to review the research status of MMLA in public speaking competence assessment. It provides implications for the development of a large-scale public speaking database and improving the multimodal evaluation of public speaking competence.

Keywords: multimodal learning analytics, public speaking competence, assessment model

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Computer-assisted Dynamic Assessment for L2 Speaking Teaching and Diagnosis

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In contrast to traditional static assessment that only measures test-takers' current capabilities as evidenced by independent performance, dynamic assessment (DA) helps teachers gain a full picture of students' actual and emerging abilities, provides learners with instructional assistance to help them move forward in their zone of proximal development. In language education, how DA can support students' listening, reading and writing development has been discussed. Its application in naturalistic classroom context is under-researched and it remains to be determined whether DA promotes language learners' speaking development. This study draws on Vygotskian sociocultural theory and investigates the effectiveness of computer-assisted DA in marrying computerized testing and classroom language teaching. To be more specific, the design of this study followed the sandwich approach of dynamic assessment in three steps. First, computerized testing was given to a total of 114 students from four intact college English speaking classes as homework. Diagnostic results of their performance in a summarizing task as part of the computerized testing were made available to the instructor. The second step involved the treatment session, in which instructional mediation was provided. This included some cohesive devices to help students develop and connect ideas. These mediation measures were planned according to the computerized testing results, which pointed to the students' biggest weakness in coherence of their response, compared to informativeness and fluency. Following the treatment was the third step, where students were tested with the same summarizing task again. In data analysis, all the students' recorded post-mediation test performance was listened to and their use of cohesive devices was searched for. The results reveal that the vast majority of students could incorporate one or more cohesive devices in use after receiving mediation, which signified immediate improvement as a result of mediation. Moreover, we found the group of students who were unable to borrow recommended words and phrases in use corresponded with those who received lowest overall grades in pre-mediation computerized testing, while average and high achievers in pre-mediation computerized testing incorporated nearly same number of cohesive devices, which spoke of their learning potential that was not restricted by proficiency levels. Overall, our results showed that computer assisted testing could inform the focus of instruction by diagnosing students and pinpointing their weakest area most prone to modification. Also, our results from the three-step DA demonstrated that the combination of pre-class computerized testing and in-class treatment could be an efficient measure to provide insights into students' actual abilities and learning potential. To conclude, the computer assisted dynamic assessment examined in this study promises as an effective means for diagnosing students' weakness and paving the way for teachers to devise appropriate instructional mediation.
Keywords: dynamic assessment, computerized testing, mediation, classroom teaching

Digital Storytelling to Enhance Cultural Diversity in Developing Academic Public Speaking Skills: Data Practices in Multilingual Classroom

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The article reports on a study that examined the impact of enhancing cultural diversity in teaching academic public speaking skills due implementing Digital Storytelling (DS) in multilingual classrooms for second year pre-service students over seven weeks.

DS represents a powerful way of making/telling short stories using animation, website, audio-video, and graphics. We explored DS in the English Language Classroom for TEFL Pre-Service students for developing public speaking skills because DS improves vocabulary enrichment and oral skills. Teachers also access students' English language fluency, coherence, and cohesion to find out areas where they need to work with their students.

DS is a relatively new term that describes the new everyday practices of people who use digital tools to tell their stories. DS is often presented in compelling and emotionally engaging formats and interactive. The term DS covers a range of digital narratives (web-based stories, interactive stories, hypertexts, and narrative computer games). In our study, it was referred to as educational short film-making on cultural issues.

The experimental teaching had several stages lasting seven weeks, namely the introductory phase when students were supposed to decide on the topic of their stories and make initial drafts. The second phase was dedicated to the verification of the final draft by a tutor. During the last phase of the project, students performed their own DS with public presentations.

During experimental teaching, we were aimed at improving cultural awareness, interpersonal skills, and tolerant behavior as cultural diversity parameters and aspiring academic public speaking, namely such criteria as language fluency, coherence, and cohesion for TEFL Pre-Service students. Students explored several useful ways to create a storyboard, choose images for DS, including taking their own photos from real life with a digital camera, using software applications to create charts/graphs, and finding/downloading images from the web based on size, quality, type and usage rights.

The study used mixed research methods (i.e. qualitative - focus group and quantitative – questionnaires and rubrics). Students recorded audio narration using digital devices so students' voices could be added to DS. By the end, students created their own story script with visually interesting issues from the target/local culture focusing on academic speech style and vocabulary.

In the classroom, students presented public oral performances representing their personal DS. Besides the effect of video/audio context on the speaking comprehension ability of students was determined with the questionnaires. Finally, we conducted pre/post tests and compared outcomes to check the effectiveness of experimental teaching.

Our results demonstrated that DS provided an opportunity to make students' speech more coherent and cohesive because points of descriptors such as fluency, coherence, and cohesion of academic public speaking performances significantly improved by 15%. Moreover, this technique depicted a positive outcome because of its constant reiteration of academic vocabulary and grammar in multilingual groups, and cultural diversity in different nations. As a result, students created their own DS with images, voices, and scripts focusing on cultural differences/similarities in multilingual communication.

Keywords: foreign language learning and teaching, digital storytelling, linguistic and cultural diversity, academic public speaking skills

Pebasco: An Asynchronous Learning Analytics App for Communicative Language Teaching Built Using No-Code Technology

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Giving and receiving peer feedback can positively impact student learning, even in online learning environments (Hattie & Clarke, 2019; Kerr, 2020). Furthermore, there has been a call for research on training students' peer feedback skills (Kasch et al., 2021). Pebasco was first developed as a prototype learning analytics system to improve students' peer feedback skills in synchronous online communicative language teaching (CLT) classes held during emergency remote teaching during the 2020 school year at a Japanese university (Gorham & Ogata, 2020). Then, based on the research findings from using the prototype version of Pebasco, the second version of the system was built as a standalone asynchronous app and used by students during the 2021 spring term (n=115). The second version was created using the no-code development platform called Bubble (2022). No-code tools empower people without a strong background in computer programming to develop websites and interactive apps. A literature search reveals a lack of research on the use of no-code technology to develop educational apps, learning analytics apps, or apps for computer-assisted language learning (CALL).

Data collected from Pebasco was analyzed using a no-code visual interactive data analytics platform called Einblick (2022) to identify student usage patterns. We found that students who successfully engaged with the app's activities performed statistically significantly better than students who did not, based on an external CRT speaking assessment. Furthermore, on average, students' performance on peer feedback activities within the app improved over the course of using it (i.e., the rate of student attempts that matched the success criteria doubled from the first unit to the fourth and last unit). Finally, a questionnaire-based follow-up survey highlights that a majority of respondents (75%) self-reported that their peer-feedback skills improved because of their app use.

This research is important because many language teachers come from an educational background where they were not trained how to do computer coding. This research demonstrates that non-technical language teachers can build educational apps, collect learning analytics data, and gain insight from complex data sets. Future research will investigate the impact of improvements made to the Pebasco system based on the findings in this study.

Keywords: communicative language teaching, learning analytics, peer feedback, no-code, computer-assisted language learning

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Integrating Personal Audio Classifier of Artificial Intelligence in the EFL Reading Task

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The demand for interdisciplinary tasks intended to integrate computational thinking (CT) into English language learning has been raised (e.g., Hsu & Liang, 2021). This study attempted to apply the personal audio classifier (PAC) which is the application of artificial intelligence (AI) and machine learning to English as a Foreign Language (EFL) learning class. PAC is a platform used to train an audio model, allowing users to have short 1-2 second recordings, and to build an app to distinguish between voices. The current study integrated PAC APP-QR-code creation into a short English reading text in a PAC-integrated EFL reading task to help students' motivation and CT learning. The students were required to apply the selected vocabulary and correctly pronounce in target language, and learnt the conditional structural logic via block-based programming to interact with the target language. The two phases of the learning task were designed. The first phase guided EFL students to conduct a potential of artificial intelligence PAC training and created a voice model APP (generated as QR-code) in the block-based programming. In the second phase, students evaluated the result of their voice training into the short reading text. Concisely, the PAC-integrated reading task was designed to be implemented in a total of 33 university first-year EFL students. The two different teaching approaches were examined — the teacher-demonstrated APP-QR-code creation task with 16 assigned to an experimental group, and the student-center APP-QR-code creation task with 17 in a control group — with a visual programming interface for PAC applications using the MIT App Inventor. The result demonstrated that the PAC-integrated EFL reading task in both approaches has promoted significantly in terms of CT learning, providing a reference and teaching practices for EFL teachers, although students' motivation in both groups maintained similar.

Keywords: computational thinking, motivation, personal audio classifier, EFL, reading task

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AI-Driven Automated Language Assessment of Picture Writing Tasks

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In assessing students' language learning progress, it will be most helpful if a tool can automatically score students' writing tasks. It can help reduce teachers' workload and shorten the time to provide feedback to students. For these reasons, researchers have been paying an effort in studying automatic writing assessment, and various automated scoring tools have been developed over the years. However, as far as we know, most of the previous studies evaluated writing quality by extracting some language-related features based on natural language processing (NLP), and the developed scoring tools can only be used for text-based writing tasks such as composition and story writing.

Picture writing is commonly used as a language assessment task, particularly for K-12 students. A typical picture writing task asks students to write a sentence to describe a given picture. In assessing such a writing task, two different information modalities, that is, picture and its textual description, are involved, and the above-mentioned text-based scoring tools are not applicable. To address this need, we proposed an efficient AI-driven automated scoring tool. Given a visual picture and a textual answer, the method estimated the similarities between them by employing cross-modal matching AI models, and the similarities were considered as indices to evaluate how well the picture is described by the answer. Meanwhile, some NLP algorithms were employed to extract some indices for the answer to measure its grammar, spelling, fluency, and sentence structure. Based on the estimation of these two types of indices, we developed an automated scoring model for picture writing tasks.

In this study, we designed a picture writing test consisting of 15 tasks, each of which requires students to write a sentence to describe a picture and conducted the writing test in K-12 schools in Mainland China. Overall, nearly 4,000 sentences were written by Grade 7-8 students, and each valid sentence was graded by language experts based on a set of six grading rubrics such as comprehensiveness, vividness, grammar, and spelling, resulting in a total score ranging from 0 to 10. The sentences and their scores were used to develop an AI-driven automated scoring model. Various algorithms have been considered for model building, including support vector machine, regression, neural network, decision tree, ensemble methods, etc.

We used several popular measures to evaluate the scoring model, including mean absolute error, exact and adjacent agreement rates. Applying our developed AI scoring model to a hold-out testing set, we obtain a small mean absolute error of 0.506 and a high adjacent-agreement rate of 90.8%, demonstrating that our proposed AI model can achieve an accurate scoring performance. Grading language assignments is inherently subjective and could be time-consuming; therefore, it is believed that our AI model could reduce the subjective elements and save teachers' time so that teachers can objectively identify the strengths and weaknesses of students to improve the students' performance in language learning.

Keywords: automated scoring, picture writing, image-text matching, natural language processing

Facilitating Self-directed Language Learning during the Pandemic through Digital Multimodal Composing: A Tale of Two Hong Kong Primary English Teachers

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The importance of self-directed language learning is well documented, particularly at a time of social distancing and school closure during the pandemic. For K-12 English learners in Hong Kong whose schooling is often disrupted by the pandemic, the facilitation of their self-directed learning of English as a second/foreign language (ESL/EFL) becomes an urgent but daunting task. While there is no lack of studies on how self-directed language learning can be promoted through the use of various digital technologies, the research attention has been paid predominantly to higher education contexts, with K-12 students and teachers underexplored. One reason may be related to the popular deficit discourse that often positions K-12 students as lacking necessary self-regulation skills for self-directed learning. Another possible reason lies in the entrenched ideology that often polices K-12 students' engagement with digital technologies with fears over media addiction or indulgence. In Confucius contexts such as Hong Kong, K-12 students' self-directed learning is also constrained by the high-stakes exam-oriented culture. In reality, K-12 students' access to self-directed language learning is often limited by normative discourses and the use of digital technologies is often reduced to enriching linguistic inputs rather than to cultivate innovative language and literacy pedagogic approaches. Such limitation and reductionistic orientation highlight an important need to refute the traditional technocentric mindset and encourage innovations in K-12 language and literacy pedagogies for the promotion of self-directed language learning among K-12 learners.

Setting against the backdrop and situated in an era of mixing online and offline teaching in Hong Kong, this study reports on two primary English language teachers' engagement with the use of digital multimodal composing as an innovative pedagogic strategy for the promotion of self-directed language learning among their K-12 students. Digital multimodal composing refers to a new literacy practice that involves the use of digital tools to produce multimodal texts by interweaving words with other semiotic modes such as images, video clips and soundtrack. Exemplars of digital multimodal composing include video podcasting or documentaries. Previous research has yielded evidences on the pedagogic roles of digital multimodal composing in relation to students' motivation and identity development. Scanty attention has been paid to whether and how primary English language learners may develop their self-directed learning through digital multimodal composing. This study, following a case study design, aims to address the research gap from the perspective of two Hong Kong Primary English teachers. Multiple sources of data have been collected, including in-depth semi-structured interviews with the two teachers, classroom observations, and student-generated multimodal videos. Data analysis includes a qualitative and interpretive paradigm, supplemented by multimodal video transcription and analysis. The findings revealed two patterns (i.e., artifactual and participatory) in the children's construction of self-directed language learning in informal learning contexts. The pedagogic challenges experienced by the teachers and the pertinent coping strategies were also reported. The study argues that digital multimodal composing renders a new avenue for K-12 students' self-directed language learning. Implications on how self-directed language learning can be promoted through digital multimodal composing practices are also discussed.

Keywords: self-directed language learning, digital multimodal composing, primary English teachers

Enhancing Self-feedback and Feedback Orientation to Uptake Feedback by using IEA and SEA in English Teaching and Learning in Shadow Education

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Feedback orientation (FO) pertaining to one's perceptions of external feedback matters to performance improvement (London & Smither, 2002). Yang et al. (2014) extended FO research in organizational psychology to education to explore the power of external feedback in enhancing learning through the perspective of students' feedback perceptions (see also Yang, 2021). For enhancing learning, Yan (2018) also argued the importance of self-assessment behaviors and Nicol (2021) re-conceptualized a series of self-assessment behaviors via the lens of self-feedback (SF).

This study adopted an experimental design to explore how well students' FO and self- SF can be changed with two innovative assessment tools developed by the corresponding author and the third author. A mixed-methods design method was adopted to examine the effects of Individual-based Electronic Assessment (IEA) and Self-reinforcement E-Assessment (SEA) on students' feedback orientation and self-feedback. Two experimental (n=17) and two control small classes (n=18) in a private tutoring center were invited to join this study. Five sessions of English teaching were designed in this experimental study.

The quantitative results showed the IEA group of students' feedback orientation was significantly enhanced. In contrast, the SEA group students' self-feedback in terms of self-reflection and self-feedback monitoring was desirably enhanced. Consistently, the qualitative results also lent support to the two exciting findings. Both IEA and SEA also promoted students' motivation and achievement emotions in learning English as a foreign language in shadow education. Qualitative class observations also supported students' improved English achievement with the assistance of IEA and SEA. However, given the small sample size of this study, the results need further verifications with more rigorous research designs. Implications of this experimental study to explore the effects of technology-enhanced assessment on changing students' feedback orientation, self-feedback, and motivation to EFL will be discussed. Limitations and several alternative designs to further deepen the positive effects of these assessment tools on English learning in small classes will also be elaborated.

Keywords: Individual-based Electronic Assessment (IEA), Self-reinforcement E-Assessment (SEA), Shadow Education, Junior secondary Chinese students, EFL

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Can TEA Time Provide a Joyful and Productive Assessment Period for Chinese Students to Learn English as a Foreign Language?

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Formative assessment has been advocated and examined as an interactive assessment to trace students' learning progress and provide progressive support to cater to students learning needs (Black & Wiliam, 1998). This study extended an online formative assessment tool called the Team-based E-Assessment (TEA) with immediate feedback technique from higher education (developed by the first and the third authors) to secondary education. In the first pilot study, an experimental class with over thirty secondary students was involved. In the three sessions of implementations of TEA as a formative assessment tool, we aimed to enhance students' peer interactions and peer feedback. At the end of each session, students were invited to assess their team-based work by using Self- and Peer-Assessments (SPA) as an evaluation tool through another online assessment platform designed by the team. At the end of the three sessions of TEA time, students were invited to do reflections based on these consecutive and visualized assessment results provided by TEA and SPA.

The results showed secondary students' English learning outcomes were improved through multiple formative assessment practices (e.g., immediate feedback, visualized learning analytic results) based on the two online formative assessment tools. Students' positive emotions (enjoyment and hope) were also improved based on assessment results and their own qualitative reflections. Students' team-based learning involvement in English lessons and their self-report achievement were also improved in three sessions' implementations of TEA and SPA to promote formative assessment practices in English lessons of senior secondary education.

We also extended our implementation of TEA and SPA to mainland vocational education to examine to if vocational students would benefit similarly from learning English by using TEA. Classroom observations were adopted to compare English classes with versus without using TEA. Consistently, SPA was used as an evaluation tool of the effect of TEA. The results are similar with those found in secondary school students. Vocational students appear more capable in providing written peer feedback to suggest further improvements of team-based work in EFL. Detailed findings will be discussed in the presentation.

For practical implications, we would suggest training workshops to English teachers to enable their use of the two online assessment tools to effectively provide team-based and/or personalized feedback to support students' English language learning. We will discuss the limitations of the two pilot studies and future directions of using online formative assessment tools to support productive learning in light of advances in technology-enhanced assessment in language education (Kingston & Nash, 2011).

Keywords: English as a foreign language (EFL), Team-based E-assessment, self- and peer-assessments, Chinese students.

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An Exploratory Intervention Study on the Effect of Team-based E-Assessment (TEA) on Facilitating Formative Assessment in Chinese Language Studies in Higher Education

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In the era of rapid and wide implications of artificial intelligence to multiple disciplines (see Chen et al., 2022; Hwang et al., 2020; Ouyang & Jiao, 2021; Tang et al., 2021 for big data analyses) including language teaching and learning (Chen et al., 2020; Song et al., 2020), it might not be something new about the topic of technology-enhanced teaching and assessment. Comparatively, it would be much more meaningful to explore those types of technology-enhanced assessment tools that may cater to formative assessment needs in language education settings (e.g., EFL/ESL, CSL), particularly through high quality team-based work and peer feedback (e.g., Liu & Carless, 2006; Morris et al., 2021). Recently, the importance of peer assessment including peer feedback in promoting student learning and non-cognitive outcomes have been proved by a series of meta-analytic studies (e.g., Li et al., 2021; Li et al., 2020; Li et al.,2016).

In the present study, an innovative online assessment tool called Team-based E-Assessment and Immediate Feedback Technique (TEA-IFT) will be introduced. This tool has been designed and developed by integrating formative assessment and advantages of technology (e.g., immediate features and learning analytics) by a research team (Yang & Gao, 2019-2023). Moving forward, we will introduce its implementation and effects in teaching Chinese as a second language (CSL) in a group of around forty masters students in a university of Hong Kong. A mixed-methods design was used. Feedback orientation was assessed by the education version of the feedback orientation scale developed by Yang et al. (2014) based on Linderbaum and Levy's (2010) validation study in organizational psychology. The quantitative results showed students' peer feedback orientation in terms of peer feedback usefulness (FBUT) and self-efficacy (FBSE) were enhanced. Students' Time 2 FBUT and FBSE were also significantly correlated with their satisfaction with TEA-IFT. Qualitative results indicate that TEA-IFT desirable promoted peer discussion quality through its encouraging and formative comments that have enhanced the intensity and efficiency of peer discussion. Participants' perceptions of feedback usefulness and responsibility motivated them to provide peer feedback during the discussion. Their feedback self-efficacy and social awareness enhanced their feedback responsibility. We also observed participants' performance goal orientation to achieve a high summative score by mal-adaptively using this formative assessment tool prevented their engagement in in-depth peer discussion. Comparatively, those with mastery goal orientation reflected they are usually willing to share and help other peers to engage in group discussion to understand learning materials and achieve collectively. Implications of this exploratory intervention study to language education and future directions to enhance formative peer feedback will be discussed.

Keywords: Chinese language education, formative assessment, peer feedback, TEA-IFT, higher education

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Poster Presentations

Multi-layered E-feedback Anxiety: An Action Research among Chinese Learners Using Peer Feedback in an Academic Writing Course

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E-feedback is gradually becoming popular in higher education whereas issues concerning leaners' anxiety when using e-feedback remain under researched. Leaners' anxiety would largely impede their initiative in providing constructive opinions and thus e-feedback would become a mere formality (Cunningham, 2019). This study aimed to explore how factors related to technology, individual capacity (social and language), and culture affected online peer feedback among Chinese learners. A qualitative hermeneutic action research approach was adopted in this study, which emphasizes participation by the researcher to try out new strategies and to evaluate the outcomes (Johnson & Christensen, 2017). This action research examined three cycles of e-feedback activities performed by twelve doctoral students in an academic writing course in a university in Macau, China. Specifically, the e-feedback provision involved a comprehensive use of and were delivered through various educational technology tools, including Moodle, WeChat, and Rain Classroom. Data were collected through observation, interviews, and open-ended questionnaires. Qualitative content analysis was performed to analyze the data.

Results revealed that the causes for students' anxiety when using e-feedback were multi-layered, stemming mainly from the use of smartphones as a communication medium for conducting formal learning activities and the lack of interpersonal and English skills for conveying their thoughts when providing e-feedback. The traditional Chinese culture about the importance of "face" and interpersonal harmony also had impact on learners' e-feedback delivery. These findings shed new lights on pedagogical practice in terms of technology-based feedback provision. Teachers should ensure that the learning objectives as well as the evaluation standards of the e-feedback activities are elaborated explicitly to students. The evaluation standards should focus more on encouraging students to actively involve in peer feedback activity rather than merely assess their contents of comments. This would help develop learning strategies for students to conduct e-feedback and reduce their concerns about grades. Moreover, e-feedback provision through mobile technologies is a new learning practice which takes time for students to get used to. Teachers might design some hands-on practice regarding utilizing different mobile learning platforms such as Rain Classroom to motivate students to identify the affordances of these platforms for peer feedback.
Keywords: e-feedback, learning anxiety, educational technology, mobile learning

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How Podcasts Encourage Self-Directed Learning in English? The Perspective of Interest Driven Creator Theory

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Many technology-enhanced learning products developed by industry serve as examination-driven education (Ren, 2015). Students are also deprived of opportunities to develop interest in learning materials and creative thinking ability. Chan et al. (2018) developed Interest Driven Creator (IDC) theory from student reading and writing experiments. An assumption of Interest Driven Creator (IDC) Theory is that learning is a process that is composed of three anchored concepts: interest, creation, and habit. Interest in particular is critical to this process because when students are interested in learning, learning is enjoyable and effective.

The purpose of this study is twofold. First, we investigate the characteristics of a podcast English learning shows as an English assisted learning method to identify the interest factors for individual learners towards podcast English learning. Second, we examine how each of those factors, respectively, influence continuance learning intention through learners' perceptual experience (cognitive absorption, pleasure, and arousal from using podcast English learning). In sum, this study aims to address the following research questions: (1) What interest factor cues effect learner's experience processes in podcast English learning? (2) How do the learners' experience processes affect learner behavior?

In order to solve the aforementioned issues, we employ the stimulus–organism–response (S–O–R) framework (Arora, 1982) and IDC theory perspective in this research model. The S-O-R premise is that stimulating cues, referred to as stimuli, can trigger an individual's emotional and cognitive process (organism), resulting in approaching behaviors (response) (Donovan et al. 1994). It's similar as the component of IDC theory, as Chan et al. (2018) stated that "IDC use three anchor concepts which deal with various domains, such as affective, cognitive, behavioral and social".

The research design uses 416 valid responses from at five university school located in Northern Taiwan, and data analysis was performed using a structural equation model. And the results show that most of the interest influence stimuli (content richness, self-directed learning, and situation efficiency) have significant impacts on the learner experiences (cognitive absorption, pleasure, and arousal), which in turn affect their continuance learning intention. The findings provide useful insights for podcast English shows podcasters and operators, who should invest in establishing learner interest influence and stimulating learner experience to improve learner continuance learning intention.

Keywords: podcast, interest driven creator theory, e-learning, self-directed learning, continuance learning intention

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A Rule-based Approach to the Identification of Sentence Types through NLP Constituency Parsing

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Research found that a written text with more complex sentence structures is generally considered of higher quality by graders, compared to one that consists primarily of simple sentences (Beers & Nagy, 2007). Therefore, syntactic complexity has been a construct of research significance in both first and second language acquisition. One of the methods that are considered valid to measure syntactic complexity is to capture the sentence composition in terms of clauses by the traditional grammar through the calculation of the ratio of each sentence structure type, namely the simple sentence, compound sentence, complex sentence, and compound-complex sentence (Bulté & Housen, 2014). The prerequisite to the calculation of the ratio of the sentence structure types is the accurate classification of the sentence types.

This study proposes a rule-based approach to automize the identification of sentence types through the deployment of the Standford CoreNLP constituency parser. The researchers believe that syntactic constituents - as outputted by an NLP syntactic parser - reveal the logical connections within a sentence; therefore, they could be used to identify the logic forms as a step towards the identification of sentence types. In this work, we follow a common practice that consists in obtaining the logical forms of a sentence by handcrafting the rules to be implemented in the identification of the sentence types.

A corpus of 3074 sentences of naturally occurring writing by Chinese university students of English as a foreign language was used to evaluate accuracy (0.9869), precision (0.9603), recall (0.9514), specificity (0.9931) and F1_score (0.9558) of the rules. Following the Cranfield paradigm, the result shows an accuracy of over 0.97 in all of the rules, a precision of higher than 0.95 in all the rules, and a specificity of over 0.96 in all the rules. The rules are weaker in identifying complex sentences and compound sentences, which show a recall of 0.783 and 0.885 respectively.
Keywords: sentence structure, sentence variety, writing assessment, natural language processing

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Facilitating English as a Foreign Language Writing Autonomy through Digital Multimodal Composing

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Learner autonomy in language learning is widely explored because it is found to be associated with greater perceived meaningfulness, personal relevance, emotional investment, and a greater likelihood of internalization (Lai, 2017). For English as Foreign Language (EFL) learners, writing autonomy is essential for overcoming expressive obstacles, related confusion, anxiety, and self-doubt. Yet, few studies focus on learning autonomy in the specific area of EFL writing. This study tends to explore writing autonomy with two themes: the willingness and capacity to take charge of one's writing process.

The existing literature on digital multimodal composing (DMC) has shown how students' investment in EFL writing changes in video-making tasks (Jiang, 2018). However, influenced by the culturally privileged status of text-based writing, many teachers and students do not consider multimodal tasks as legitimate academic practices (Pirbhai-Illich, Turner, & Austin, 2009). The lack of labor in producing written alphabetic text (Lim & Polio, 2020) and concerns about its negative influences on students' capability for serious academic writing (Casanave, 2017) strengthen "the dichotomy between the textbook/exam and DMC" (Jiang, 2018, p.70). As a result, there is a lack of empirical evidence on how DMC activities influence students' writing autonomy.

To address this research gap, the present study aims to investigate the impact of video-making on students' writing autonomy in an average medical university in southern China. The research questions are: Are there any changes in the level of writing autonomy of a cohort of EFL learners when they participate in a digital multimodal composing program? If yes, how?

The teacher and researcher organized a creative writing workshop for 10 students. In this workshop, students explored what they had learned from the COVID-19 pandemic through intensive reading, drama, painting, creative writing, and video-making. After the workshop, they need to write a 300-word English essay based on the in-class multimodal experience.

Data were collected from students' weekly reflection and the focused group interviews after each session. The data were used to investigate the changes in students' writing autonomy and the perceived practicality of DMC for improving writing autonomy. It is expected that the findings of this exploratory study may contribute to our understanding of how to employ DMC for EFL writing instruction and its influence on students' writing autonomy.

Keywords: writing autonomy, digital multimodal composing, English as a foreign language writing, distant learning

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Effectiveness of Digital Multimodal Composing on Chinese EFL Learners' Collaborative Learning and Academic Writing: A Quasi-experimental Study

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Driven by the widespread of digital media in social interaction and educational settings in the 21st century, integrating digital multimodal composing (DMC) in language education has gained growing attention in recent years. Although there have been a few studies on DMC in second language classes, research on learners' collaborative composing process of multimodal text and the effectiveness of DMC on L2 writing performance is still not fully investigated. To address these issues, the researcher proposes to conduct a quasi-experimental study in a Chinese university for one academic semester (18 weeks) to explore the process of learner collaboration and interaction during DMC practice and to examine the effects of DMC on learners' EFL writing performance.

Centring around three research questions "(1) How do learners collaborate and interact during the process of DMC and what mediating factors may influence their collaboration and interaction during DMC? (2) To what extent does DMC affect learners' EFL academic writing performance? and (3) How do learners perceive the application of DMC in EFL academic writing?", this study will adopt a mixed-methods design led by a quasi-experiment embedding pre- and post- writing tests, online questionnaires, classroom observation, individual and group interviews and students' learning journals. It is hoped that this study will generate new insights into research on DMC in L2 writing instruction and provide pedagogical implications for EFL teachers in China and similar contexts.

Keywords: digital multimodal composing, the Chinese EFL context, higher education, collaborative learning, writing performance

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Understanding Teachers' Multimodal TPACK for Self-directed Learning of L1 Chinese Writing through Reviewing the Resource Library of EduVenture-VR

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Language and literacy education is now embracing a more multimodal approach to literacy in diverse ways. To support students in constructing, representing, articulating and expressing their understanding about the world, it is necessary for teachers to develop their technological, pedagogical, and content knowledge (TPACK). Virtual reality (VR)-based lesson activities are expressions of teachers' multimodal TPACK that may elicit self-directed learning in students. Spherical video-based virtual reality (SVVR), which is a subset of VR, offers teachers an inexpensive, user-friendly and practical way to create new immersive learning experiences for students. In this couple of years, the pedagogical potential of SVVR has attracted the attention of a considerable number of technology-enhanced learning researchers.

Although there has been an increase of empirical research on harnessing SVVR in language education, few studies have been carried out to examine teachers' lesson activities with respect to TPACK for self-directed learning with SVVR. The EduVenture-VR is a cloud-based system that provides teachers with a user-friendly platform to design and compose affordable, interactive SVVR-based learning materials for students. The present study aimed to analyse the resource library of EduVenture-VR to understand teachers' multimodal TPACK for self-directed learning in the context of L1 Chinese writing. Based on the lesson activities shared through EduVenture-VR, this study collected a sum of 19 theme-based SVVR learning materials developed by the course teachers for a Chinese language literacy enhancement program for secondary schools in Hong Kong.

A rubric regarding multimodal TPACK for self-directed learning was adapted from previous research to assess the lesson activities and to understand teachers' co-design for developing L1 Chinese writing literacy. The rubric is composed of eight broad categories of multimodal TPACK literacies, namely (i) pedagogical content knowledge for multimodal literacies, (ii) technological pedagogical knowledge for self-directed learning, (iii) knowledge about digital media tools, (iv) knowledge about content-specific technology, (v) integrative TPACK for self-directed learning, (vi) knowledge about social semiotics, (vii) pedagogical knowledge, and (viii) beliefs about the new culture of learning. Furthermore, each of the eight categories was cross-analysed through three interrelated constructs of self-directed learning, which included self-monitoring (cognition and metacognition), motivation (entering and task motivation) and self-management (task control).

The findings revealed that teachers were able to use SVVR to immerse students in an authentic environment to develop students' self-directed learning ability and comprehension of nuanced socioemotional aspects of L1 Chinese writing. Nonetheless, there existed some limitations in the utilization of SVVR for teaching L1 Chinese writing which might be compensated for by pedagogical design. Moreover, teachers' pedagogical conception revealed their teaching was driven by syllabus requirement and focused on students' completion of writing, which might disregard the process of self-directed learning in pedagogical implementation, and thus the process of collaborative knowledge building might be less developed. This study may contribute to development of SVVR-based multimodal TPACK, which enhances multimodal lesson design for self-directed L1 writing. Further discussions were conducted with respect to the findings in the context of self-directed L1 writing.

Keywords: spherical video-based virtual reality, multimodal TPACK, self-directed learning, L1 Chinese writing, EduVenture-VR®