

IMPACT OF UTILISING A MULTIMEDIA-  
BASED TENSE TOOL ON STUDENTS'  
MOTIVATION, COGNITIVE LOAD AND  
LANGUAGE LEARNING EXPERIENCE

NADIA REFAT

DOCTOR OF PHILOSOPHY

UNIVERSITI MALAYSIA PAHANG



## SUPERVISOR'S DECLARATION

I hereby declare that I have checked this thesis and, in my opinion, this thesis is adequate in terms of scope and quality for the award of the degree of Doctor of Philosophy.

A handwritten signature in black ink, appearing to read 'Hafizoah Kassim', is written over a horizontal line.

(Supervisor's Signature)

Full Name : DR. HAFIZOAH KASSIM

Position : ASSOCIATE PROFESSOR

Date : 24 June 2022



## STUDENT'S DECLARATION

I hereby declare that the work in this thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at Universiti Malaysia Pahang or any other institutions.

*Nadia Refat*

---

(Student's Signature)

Full Name : NADIA REFAT

ID Number : PBS15005

Date : 24 June, 2022

IMPACT OF UTILISING A MULTIMEDIA-BASED TENSE TOOL ON  
STUDENTS' MOTIVATION, COGNITIVE LOAD AND LANGUAGE  
LEARNING EXPERIENCE

NADIA REFAT

Thesis submitted in fulfillment of the requirements  
for the award of the degree of  
Doctor of Philosophy

Centre For Modern Languages  
UNIVERSITI MALAYSIA PAHANG

JUNE 2022

## **ACKNOWLEDGEMENTS**

I would like to express my earnest gratitude to my supervisor Associate Professor Dr. Hafizoah Kassim for the constant support of my PhD study and associated research. She has been so kind and patient throughout my learning period for which I have learnt a lot. Her patience, motivation, and profound knowledge encouraged me to continue even when I was broken during the journey of learning. This is her entire guide that persisted me to write this thesis. She is the best supervisor I have ever found.

I would like to thank my husband who immensely supported me to continue my study. I also would like to thank my parents for their continuous support, and my siblings who have also been cooperative in the journey of my PhD.

## ABSTRAK

Penggunaan teknologi yang berkembang secara meluas menawarkan ruang kemungkinan yang pelbagai dalam memperbaiki proses pembelajaran. Teknologi berasaskan multimedia muncul dari arah aliran ini dan menarik perhatian para penyelidik yang tekun mengembangkan pengajaran untuk bidang pembelajaran yang berbeza. Pembelajaran bahasa adalah salah satu bidang yang paling diminati di mana pelbagai jenis teknologi banyak diguna pakai dalam pengajaran. Lebih khusus lagi, pembelajaran bahasa Inggeris dibuat menggunakan teknologi multimedia. Walaupun banyak kajian telah dilakukan mengenai implikasi terhadap pembelajaran bahasa Inggeris yang berasaskan multimedia dan amalan pendidikan yang memupuk pendekatan pembelajaran, namun kurang perhatian diberikan terhadap reka bentuk pengajaran berasaskan teori. Yang paling utama, untuk memulakan pembelajaran yang bermakna, kurangnya kajian terhadap perancangan arahan yang tepat yang berkaitan dengan peningkatan motivasi dan pengurusan beban kognitif, terutama dalam konteks negara-negara membangun seperti Malaysia. Tambahan pula di Malaysia, tatabahasa bahasa Inggeris adalah salah satu perkara penting yang memerlukan perhatian lebih dari pereka pengajaran untuk mencapai pembelajaran yang paling berkesan. Kajian ini berusaha untuk mengisi jurang yang disebutkan ini dengan membina '*Multimedia-Based Tense Tool (MBTT)*' di mana arahannya difokuskan untuk mengintegrasikan model motivasi dan aspek kognitif untuk meningkatkan motivasi pelajar dan menguruskan beban kognitif. Untuk mencapai objektif kajian, reka bentuk penyelidikan menggunakan kaedah campuran telah diguna pakai dalam kajian ini dan empat instrumen kajian telah digunakan seperti 1) IMMS, 2) NASA-TLX, 3) Skor Modul Penilaian dan 4) Protokol temu ramah. Tinjauan IMMS telah dilakukan untuk mengukur hasil motivasi pelajar. Instrumen NASA-TLX digunakan untuk mengetahui beban kognitif pelajar semasa menggunakan alat tersebut. Protokol temu bual dijalankan untuk meneroka pengalaman belajar pelajar. Dalam proses pengumpulan data untuk kajian ini, peserta dipilih berasaskan rawak mudah dari universiti teknikal – iaitu seramai 128 orang (25 pelajar untuk kumpulan kawalan dan 103 pelajar untuk kumpulan eksperimen). Analisis data kuantitatif dilakukan dengan menggunakan SPSS versi 18.0. Dalam analisis statistik terhadap data kuantitatif, analisis awal, inferensi dan analisis korelasi Pearson telah dilakukan. Analisis bertema terhadap data kualitatif telah dicapai untuk meneroka pengalaman pembelajaran pelajar. Penemuan dari IMMS ( $M = 4.04$ ,  $SD = .13$ ), NASA-TLX ( $M = 35.79$ ,  $SD = 5.23$ ) dan Skor Modul Penilaian MBTT ( $M = 7.83$ ,  $SD = .98$ ) menunjukkan peranan penting reka bentuk instruksional dalam motivasi dan aspek kognitif terhadap peningkatan hasil motivasi pelajar, beban kognitif terurus dan pengalaman pembelajaran positif. Oleh itu, kajian ini menyokong keberkesanan reka bentuk pengajaran berasaskan multimedia sebagai model yang sesuai untuk meningkatkan motivasi dan menguruskan beban kognitif pelajar untuk pembelajaran bahasa. Selanjutnya, kajian semasa merancang MBTT dapat berperanan sebagai panduan berpengaruh untuk penyelidikan masa depan terhadap reka bentuk pengajaran. Reka bentuk pengajaran berasaskan multimedia yang mengekalkan rangka kerja teori terhadap motivasi dan beban kognitif boleh hadir bukan sahaja bersama implikasi pedagogi tetapi juga implikasi reka bentuk pengajaran. Reka bentuk ini dapat menyumbang kepada pereka bentuk pengajaran yang tekun bekerja demi pelajar bahasa. Oleh itu, keperluan merancang bahan pengajaran yang mempertimbangkan teori sangat penting dalam setiap aspek meningkatkan pengetahuan tentang pembelajaran tatabahasa dalam Bahasa Inggeris.

## ABSTRACT

Widespread utilization of evolving technologies offers immense possibilities in enhancing learning. Multimedia-based technology emerges from this trend and draws concern of researchers who are devotedly developing instructions for divergent areas of learning. Language learning is one of the most demanding areas where the practice of different kinds of technologies are adopted. More specifically, English language learning is performed using the multimedia technology. While much research has been done on the implication of multimedia-based English language learning and educational practices fostering learning approaches, relatively little concern has been given on instructional design based on theoretical foundations. Most importantly, to initiate meaningful learning, designing proper instructions relating to motivation enhancement and cognitive load management, there is a lack of studies, particularly in the context of developing countries like Malaysia. Furthermore, in Malaysia, English tenses as one of the vital items of grammar require more attention from the instructional designers in order to achieve the utmost effective learning. This study sought to fill this gap by developing such a Multimedia-Based Tense Tool (MBTT) where the instructions are focused on integrating the motivational model and cognitive aspects to enhance students' motivation and manage cognitive load. To achieve the research objectives, in this study a mixed-method research design has been adopted in this study and four research instruments have been utilized such as 1) IMMS, 2) NASA-TLX, 3) Evaluation Module Score and 4) Interview protocol. In order to measure learners' motivation outcome, IMMS survey was conducted. NASA-TLX instrument is applied to know students cognitive load on using the tool. Interview protocol is conducted in order to explore students learning experience. To collect the data for the present study, participants are chosen as a simple random basis from a technical based university- a total of 128 (25 students for the control group and 103 students for the experimental group). Quantitative data analysis is performed using SPSS 18.0 version. In statistical analysis of quantitative data, preliminary analysis, inferential and Pearson correlational analysis are performed. Thematic analysis of qualitative data is accomplished to explore students learning experience. Findings from the IMMS ( $M = 4.04$ ,  $SD = .13$ ), NASA-TLX ( $M = 35.79$ ,  $SD = 5.23$ ) and MBTT Evaluation Module Score ( $M = 7.83$ ,  $SD = .98$ ) indicated the important role of motivation and cognitive aspects instructional design on students' motivational outcome improvement, managed cognitive load and positive learning experience. Therefore, the present study supports the effectiveness of multimedia-based instructional design as an appropriate model for enhancing motivation and managing the cognitive load of the students for language learning. Furthermore, the present study of designing multimedia-based tense tool can contribute as an influential guide for future research on instructional design. A multimedia-based instructional design maintaining theoretical framework of motivation and cognitive load can come up with not only pedagogical implication but also ID design implications. It can contribute for instructional designers who are devoted to work for the language learners. Therefore, the need of designing a theoretically considered instructional material is crucial in every aspect of improving knowledge of English Tense learning.

## TABLE OF CONTENT

<b>DECLARATION</b>	
<b>TITLE PAGE</b>	
<b>ACKNOWLEDGEMENTS</b>	<b>ii</b>
<b>ABSTRAK</b>	<b>iii</b>
<b>ABSTRACT</b>	<b>iv</b>
<b>TABLE OF CONTENT</b>	<b>v</b>
<b>LIST OF TABLES</b>	<b>x</b>
<b>LIST OF FIGURES</b>	<b>xi</b>
<b>LIST OF ABBREVIATIONS</b>	<b>xii</b>
<b>LIST OF APPENDICES</b>	<b>xiv</b>
<b>CHAPTER 1 INTRODUCTION</b>	<b>1</b>
1.1 Introduction	1
1.2 Background of the Current Study	2
1.2.1 Educational Issues Related to the Present Study	3
1.2.2 Empirical Issues Related to the Present Study	10
1.2.3 Theoretical Issues Related to the Present Study	12
1.3 Problem Statement	14
1.4 Research Objectives	17
1.5 Research Questions	18
1.6 Hypothesis	18
1.7 Scope of the Research	19
1.8 Significance of the Study	19
1.9 Operational Definitions	22
1.10 Summary	24



<b>CHAPTER 2 LITERATURE REVIEW</b>	<b>25</b>
2.1 Introduction	25
2.2 Conceptual Framework of the Study	25
2.3 Grammar Learning	27
2.3.1 Importance of Grammar Learning and English Tenses	28
2.3.2 Implication of Tense Learning in Malaysian Context	29
2.4 Technology and Language Learning	31
2.4.1 Multimedia Learning	37
2.5 Motivation	39
2.5.1 Types of Motivation	39
2.5.2 Motivation and Learning	41
2.6 Cognitive Load	42
2.6.1 Types of Cognitive Load and the Effects on Learning	43
2.6.2 Cognitive Load and Second Language Learning	49
2.7 Language Learning Experience	50
2.7.1 Learner Engagement and Self-efficacy	52
2.8 Discussion on Previous Studies	53
2.8.1 Cognitive Load in Language Learning	53
2.8.2 Motivation and Language Learning	56
2.8.3 Technology-based Language Learning	59
2.9 Theoretical Framework	62
2.9.1 Theoretical Foundation of Cognitive Load and Instructional Design	63
2.9.2 Second Language Acquisition Theories	74
2.9.3 Theoretical Foundation of Motivational Learning	81
2.10 Summary	87

<b>CHAPTER 3 METHODOLOGY</b>	<b>88</b>
3.1 Introduction	88
3.2 Research Design	88
3.3 Research Material	89
3.4 Participants	90
3.5 Research Instruments	92
3.5.1 Instructional Material Motivation Survey (IMMS)	92
3.5.2 Cognitive Load Measurement Scale	93
3.5.3 MBTT Evaluation Module	94
3.5.4 Interview Protocol	95
3.6 Reliability and validity of the instruments	97
3.6.1 IMMS	97
3.6.2 NASA-TLX	99
3.6.3 MBTT Evaluation Module	99
3.6.4 Interview Protocol	100
3.7 Research Procedure	101
3.7.1 General Procedure	101
3.7.2 Experimental Procedure	103
3.8 Pilot Study	105
3.9 Data Processing and Analysis	107
3.9.1 Statistical Analysis Techniques	107
3.9.2 Exploratory Techniques	108
3.10 Summary	109
<b>CHAPTER 4 SYSTEMATIC ARCHITECTURE OF MULTIMEDIA-BASED TENSE TOOL</b>	<b>110</b>

4.1	Introduction	110
4.2	Development of the Multimedia-based Tense Tool	110
4.3	Instructional Design of Multimedia-based Tense Tool	113
4.3.1	Sequencing of Content from Simple to Complex	114
4.3.2	Design Principles of the Cognitive Theory of Multimedia Learning	122
4.3.3	Principles of the ARCS Model	130
4.4	Summary	139
<b>CHAPTER 5 FINDINGS &amp; DISCUSSION</b>		<b>140</b>
5.1	Introduction	140
5.2	Findings of the Quantitative Data	140
5.2.1	Instructional Materials Motivation Survey (IMMS)	140
5.2.2	Cognitive Load Measuring Scale Using the NASA-TLX	147
5.2.3	MBTT Evaluation module score	152
5.3	Findings of the Qualitative Data	156
5.3.1	Effects of Instructional Design of the MBTT on Students' Cognitive Load	157
5.3.2	Effects of Using the MBTT on Student Motivation	158
5.3.3	Effects of Using MBTT on Learning Experiences	160
5.4	Discussion of the Findings	173
5.4.1	To what extent does use a multimedia-based tense tool (MBTT) increase student motivation in learning English tenses? Hypothesis 1: The outcome of motivation is higher for experimental group than control group after the use of the MBTT	174
5.4.2	To what extent does use multimedia-based tense tool (MBTT) help to effectively manage students' cognitive load? Hypothesis	

2: Cognitive load of students in the experimental group is managed progressively after the use of the MBTT	181
5.4.3 What is the correlation between motivation and cognitive load when MBTT is used?	187
5.4.4 What is students' perception on the benefits and challenges while using MBTT on motivation, cognitive load and language learning experiences?	193
5.5 The overall learning experience of the students on the use of the tool	200
5.6 Summary	205
<b>CHAPTER 6 IMPLICATIONS AND RECOMMENDATIONS</b>	<b>206</b>
6.1 Introduction	206
6.2 Implications of the Study	207
6.2.1 Implications for Instructional Designers	208
6.2.2 Implication On Pedagogical Perspectives	208
6.2.3 Theoretical Implications	211
6.3 The Impact of the Instructional Design of MBTT	216
6.4 Limitation of the study	218
6.5 Directions for Future Studies	218
6.6 Conclusion	221
<b>REFERENCES</b>	<b>226</b>
<b>APPENDICES</b>	<b>259</b>

## REFERENCES

- Ab Manan, N. A., et al. (2017). Mother tongue interference in the writing of English as a Second Language (ESL) Malay learners. *International Journal of Academic Research in Business and Social Sciences* 7(11): 1294-1301.
- Abeysekera, L. and P. Dawson (2015). Motivation and cognitive load in the flipped classroom: definition, rationale and a call for research. *Higher education research & development* 34(1): 1-14.
- Abdel-Basset, M., Manogaran, G., Mohamed, M., & Rushdy, E. (2019). Internet of things in smart education environment: Supportive framework in the decision-making process. *Concurrency and Computation: Practice and Experience*, 31(10), e4515.
- Abd Majid, F., & Mohd Shamsudin, N. (2019). Identifying factors affecting acceptance of virtual reality in classrooms based on technology acceptance model (TAM). *Asian Journal of University Education*, 15(2), 1-10.
- Abuhassna, H., Al-Rahmi, W. M., Yahya, N., Zakaria, M. A. Z. M., Kosnin, A. B., & Darwish, M. (2020). Development of a new model on utilizing online learning platforms to improve students' academic achievements and satisfaction. *International Journal of Educational Technology in Higher Education*, 17(1), 1-23.
- Abdulrahman, M. D., Faruk, N., Oloyede, A. A., Surajudeen-Bakinde, N. T., Olawoyin, L. A., Mejabi, O. V., & Azeez, A. L. (2020). Multimedia tools in the teaching and learning processes: A systematic review. *Heliyon*, 6(11), e05312.
- Ackerley, K. (2017). Effects of corpus-based instruction on phraseology in learner English. *Language Learning & Technology* 21(3): 195-216.
- Acquah, E. O. and H. T. Katz (2020). Digital game-based L2 learning outcomes for primary through high-school students: A systematic literature review. *Computers & Education* 143: 103667.
- Adu, E., Mereku, D., Assuah, C., & Okpoti, C. (2017). Effect of multimedia courseware with cooperative learning on senior high school students' proficiency in solving linear equation word problems. *African Journal of Educational Studies in Mathematics and Sciences*, 13, 1-11.
- Ahmadi, D. and M. Reza (2018). The use of technology in English language learning: A literature review. *International Journal of Research in English Education* 3(2): 115-125.
- Al Bataineh, K. B., et al. (2019). The effect of blended learning on EFL students' grammar performance and attitudes: An investigation of Moodle. *Arab World English Journal (AWEJ)* Volume 10.
- Al Mamun, M. (2014). *Effectiveness of audio-visual aids in language teaching in tertiary level*, BRAC University, Bangladesh.
- Al Mamun, M. A., Lawrie, G., & Wright, T. (2020). Instructional design of scaffolded online

- learning modules for self-directed and inquiry-based learning environments. *Computers & Education*, 144, 103695.
- Aldowah, H., Rehman, S. U., Ghazal, S., & Umar, I. N. (2017, September). Internet of Things in higher education: a study on future learning. *Journal of Physics: Conference Series* (Vol. 892, Issue No. 1, p. 012017).
- Alpizar, D., Adesope, O. O., & Wong, R. M. (2020). A meta-analysis of signaling principle in multimedia learning environments. *Educational Technology Research and Development*, 68(5), 2095-2119.
- Alamer, A. (2015). The Role Of Efl Learners' motivation In Mobile Language Learning. First International Conference on Theory and Practice(ICTO-2015), Al Imam Muhammad Ibn Saud Islamic University (IMSIU), Saudi Arabia.
- Alasmari, J., et al. (2018). A Contrastive Study of The Arabic and English Verb Tense and Aspect A Corpus-Based Approach. *PEOPLE: International Journal of Social Sciences* 3(3): 1604-1615.
- Ali, S., et al. (2013). Factors contributing to the students academic performance: A case study of Islamia University Sub-Campus. *American Journal of Educational Research* 1(8): 283-289.
- Aliakbari, M. and E. Mahjub (2010). Analytical/intuitive EFL learners and gender effect. *International Journal of Pedagogies and Learning* 6(1): 41-48.
- Alizadeh, M. (2016). The impact of motivation on English language learning. *International Journal of Research in English Education* 1(1): 11-15.
- Aljawarneh, S. A. (2020). Reviewing and exploring innovative ubiquitous learning tools in higher education. *Journal of Computing in Higher Education* 32(1): 57-73.
- Alkan, F. (2019). Examining the instructional materials motivation of prospective chemistry teachers' in laboratory. SHS Web of Conferences, EDP Sciences, Hacettepe University, Faculty of Education, 06800, Beytepe, Ankara, Turkey.
- Aloraini, S. (2012). The impact of using multimedia on students' academic achievement in the College of Education at King Saud University. *Journal of King Saud University- Languages and Translation* 24(2): 75-82.
- Alvarez, J. and D. Djaouti (2011). An introduction to Serious game Definitions and concepts. *Serious Games & Simulation for Risks Management* 11(1): 11-15.
- Al-Zu'bi, S., Hawashin, B., Mughaid, A. (2021). Efficient 3D medical image segmentation algorithm over a secured multimedia network. *Multimed Tools Application* Issue no 80, 16887–16905. <https://doi.org/10.1007/s11042-020-09160-6>
- Amalia, O. L. and B. S. Rochmat (2020). A Descriptive Study On Teaching Writing Using Multimedia Video At The Eighth Grade Of Smp N2 Kradenan Grobogan Academic Year 2019/2020, Iain Surakarta.
- Amin, M., Azim, M., & Kalam, M. (2018). The benefit of using multimedia projector in English Language Teaching Classroom. *International Journal of Social Sciences &*

*Humanities*, 3(1), 62-76.

- Annamalai, N. (2019). Using WhatsApp to extend learning in a blended classroom environment. *Teaching English with Technology*, 19(1), 3-20.
- Andrade, J. (2015). Multimedia types as moderators/mediators to the relationship between college students' learning beliefs and the impact on cognitive load in a general education undergraduate course with an asynchronous component, University of Illinois at Urbana-Champaign.
- Andrews, G., Birney, D., & Halford, G. S. (2006). Relational processing and working memory capacity in comprehension of relative clause sentences. *Memory & cognition*, 34(6), 1325-1340.
- Andujar, A., et al. (2020). Integrating flipped foreign language learning through mobile devices: Technology acceptance and flipped learning experience. *Sustainability* 12(3): 1110.
- Ang, L. H., et al. (2020). Error Types in Malaysian Lower Secondary School Student Writing: A Corpus-Informed Analysis of Subject-Verb Agreement and Copula be. 3L: *Language, Linguistics, Literature*, 26(4).
- Anjarani, D. R. and R. Indahwati (2019). An Analysis of Students' Errors in Using Simple Past Tense in Translating Narrative Text. *Prosodi* 13(2): 68-74.
- Anmarkrud, Ø., et al. (2019). Cognitive load and working memory in multimedia learning: Conceptual and measurement issues. *Educational Psychologist* 54(2): 61-83.
- Annamalai, S. (2016). Implementing ARCS Model to Design a Motivating Multimedia E-Book for Polytechnic ESL Classroom. *Journal of Telecommunication, Electronic and Computer Engineering (JTEC)* 8(8): 57-60.
- Arif Bakla (2018), Learner-generated materials in a flipped pronunciation class: A sequential explanatory mixed-methods study, *Computers & Education*, Volume 125, Pages 14-38, ISSN 0360-1315.
- Arnold, S., et al. (2013). Adaptive behavior with user modeling and storyboarding in serious games. *Signal-Image Technology & Internet-Based Systems (SITIS)*, 2013 International Conference on, IEEE.
- Arrosagaray, M., et al. (2019). A comparative study of Spanish adult students' attitudes to ICT in classroom, blended and distance language learning modes. *Computers & Education* 134: 31-40.
- Aslani, M. and H. H. Tabrizi (2015). Teaching Grammar to Iranian EFL Learners through Blended Learning Using Multimedia Softwares. *Journal of Applied Linguistics and Language Research* 2(8): 76-87.
- Aslani, M. and H. H. Tabrizi (2015). Teaching grammar to Iranian EFL learners through blended learning using multimedia softwares. *Journal of Applied Linguistics and Language Research* 2(8): 76-87.
- Asrifan, A., et al. (2020). The Effects Of Call (Computer Assisted Language Learning) Toward The Students'english Achievement And Attitude. *Journal Of Advanced English Studies*

3(2): 94-106.

- Ayar, Z., & Kiziltan, N. (2020). The Effects of Cartoons on the Use of Vocabulary Learning Strategies: A Case in Turkish EFL Classes. *Educational Policy Analysis and Strategic Research*, 15(2), 188-204.
- Azar, A. S. and D. Tanggaraju (2020). Motivation in second language acquisition among learners in Malaysia. *Studies in English Language and Education* 7(2): 323-333.
- Aziz, I. N. and Y. A. S. Dewi (2020). The Use Of Powerpoint As Media Of Language Teaching On Students' speaking Skill. *Humanities & Social Sciences Reviews* 8(1): 344-358.
- Bachore, M. M. (2015). Language Learning through Mobile Technologies: An Opportunity for Language Learners and Teachers. *Journal of education and practice* 6(31): 50-53.
- Baddeley, A. D., & Lieberman, K. (2017). *Spatial working memory*. In *Exploring Working Memory*, Routledge Oxfrdshire, UK Vol 3 pp. 206-223.
- Bai, H. (2019). Pedagogical practices of mobile learning in K-12 and higher education settings. *TechTrends* 63(5): 611-620.
- Bailey, D. R., & Lee, A. R. (2020). Learning from experience in the midst of covid-19: Benefits, challenges, and strategies in online teaching. *Computer-Assisted Language Learning Electronic Journal*, 21(2), 178-198.
- Baier, F., Decker, A. T., Voss, T., Kleickmann, T., Klusmann, U., & Kunter, M. (2019). What makes a good teacher? The relative importance of mathematics teachers' cognitive ability, personality, knowledge, beliefs, and motivation for instructional quality. *British Journal of Educational Psychology*, 89(4), 767-786.
- Balci, Ö. (2017). The Effects of Learning-Style Based Activities on Students' Reading Comprehension Skills and Self-Efficacy Perceptions in English Foreign Language Classes. *Higher Education Studies* 7(4): 35-54.
- Basri, H., Hashim, H., & Yunus, M. M. (2019). Using Google Apps as learning strategy to enhance ESL Writing. *Creative Education*, 10(12), 2649-2657
- Bardovi-Harlig, K. and S. Mossman (2016). *Corpus-based materials development for teaching and learning pragmatic routines*. *SLA research and materials development for language learning*, 250-278, Routage, United Kingdom.
- Bardovi-Harlig, K., et al. (2017). The effect of corpus-based instruction on pragmatic routines. *Language Learning & Technology* 21(3), 76-103.
- Basher, A., (2019). An Error Analysis of Writing Skills Among English Foreign Language Learners at University Utara Malaysia. *English Language Teaching Research in the Middle East and North Africa*, Springer, 507-527.
- Belo, A. A. G. F., (2019). The Ability Of Mastering English Passive Voice (Simple Present, Simple, Past And Simple Future Tense) By The Grade 12 Students Of Escola Secundária Pública Nobel Da Paz Dili Timor-Leste In *The School Year 2019*. *Advancing ELT Quality through Asia & Indonesia TESOL*, 154.



- Benson, S. and R. DeKeyser (2019). Effects of written corrective feedback and language aptitude on verb tense accuracy. *Language Teaching Research* 23(6): 702-726.
- binti Zulkifli, S. K. (2019). *A cross-linguistic analysis of simple present tense usage by arab and malay users of english* (Master's thesis, Kuala Lumpur: Kulliyah of Islamic Revealed Knowledge and Human Sciences, International Islamic University Malaysia, 2019).S
- Blything, R. P., et al. (2018). "Children's Acquisition of the English Past-Tense: Evidence for a Single-Route Account From Novel Verb Production Data." *Cognitive Science* 42: 621-639.
- Bolhuis, J. J., et al. (2015). "Language: UG or not to be, that is the question." *PLoS Biol* 13(2): e1002063.
- Bond, M., & Bedenlier, S. (2019). Facilitating student engagement through educational technology: towards a conceptual framework. *Journal of Interactive Media in Education*, 2019(1).
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, 3(2), 77-101.
- Brown, A. H. and T. D. Green (2019). *The essentials of instructional design: Connecting fundamental principles with process and practice*, Routledge, New York.
- Brutt-Griffler, J. and S. Kim (2018). Gender socialization: From L1 to L2 languacultures. *International Journal of Applied Linguistics* 28(1), 102-118.
- Busse, J., Lange, A., Hobert, S., & Schumann, M. (2020). How to Design Learning Applications that Support Learners in their Moment of Need, *Didactic Requirements of Micro Learning* p- 1-11.
- Burhanuddin, A. (2020). Error analysis of English sentences written by Indonesian college students. *Jurnal Ilmiah Lingua Idea* 11(1), 30-43.
- Burdette, P. J., Greer, D. L., & Woods, K. L. (2013). K-12 Online Learning and Students with Disabilities: Perspectives from State Special Education Directors. *Journal of asynchronous learning networks*, 17(3), 65-72.
- Burston, J., & Giannakou, K. (2021). MALL language learning outcomes: A comprehensive meta-analysis 1994–2019. *ReCALL*, 1-22.
- Burt, C., et al. (2020). Effectiveness of Computer-assisted Vocabulary Instruction for Secondary Students with Mild Intellectual Disability. *International Journal of Disability, Development and Education* 1-22.
- Butler, Y. G. (2015). The use of computer games as foreign language learning tasks for digital natives. *System*, 54, 91-102.
- Cai, Liu, Yang, & Liang, (2019). Tablet-based AR technology: Impacts on students' conceptions and approaches to learning mathematics according to their self-efficacy. *British Journal of Educational Technology* 50(1), 248-263.

- Çakıroğlu, Ü., & Öztürk, M. (2018). Evaluating an online programming instructional process organized through elaboration theory. *International Journal of Web-Based Learning and Teaching Technologies (IJWLTT)*, 13(4), 1-16.
- Calvo-Ferrer, J. R. (2017). Educational games as stand-alone learning tools and their motivational effect on L2 vocabulary acquisition and perceived learning gains. *British Journal of Educational Technology* 48(2), 264-278.
- Cenoz, J. and D. Gorter (2017). Minority languages and sustainable translanguaging: Threat or opportunity? *Journal of Multilingual and Multicultural Development* 38(10), 901-912.
- Cha, Y. J. (2012). Learners' perspectives and use of different learning methods on blended learning in English classes. *Multimedia-Assisted Language Learning* 15(2), 11-40.
- Chambers, G. J., & Yunus, M. M. (2017). Enhancing Learners' Sentence Constructions via "Wheel of Grammar". *Pertanika Journal of Social Sciences & Humanities*, 25 (4): 1641 - 1650
- Chamot, A. U. and V. Harris (2019). *Learning strategy instruction in the language classroom: Issues and implementation*, Vol 9, Issue 4, publisher: Multilingual Matters, NBN, blue summit, USA.
- Chang, Y. S., Hu, K. J., Chiang, C. W., & Lugmayr, A. (2020). Applying Mobile Augmented Reality (AR) to teach Interior Design students in layout plans: Evaluation of learning effectiveness based on the ARCS Model of learning motivation theory. *Sensors*, 20(1), 105.
- Chen, C.-M. and C.-H. Wu (2015). Effects of different video lecture types on sustained attention, emotion, cognitive load, and learning performance. *Computers & Education Vol, 80: 108-121*.
- Chen, C.-P. (2018). Understanding mobile English-learning gaming adopters in the self-learning market: The Uses and Gratification Expectancy Model. *Computers & Education Vol, 126: 217-230*.
- Cheng, K.-H. (2017). Reading an augmented reality book: An exploration of learners' cognitive load, motivation, and attitudes. *Australasian Journal of Educational Technology* 33(4).
- Cheung, Y. L. (2018). The effects of writing instructors' motivational strategies on student motivation. *Australian Journal of Teacher Education (Online)* 43(3): 55.
- Cheung, C. K., & Jhaveri, A. D. (2016). Developing students' critical thinking skills through visual literacy in the New Secondary School Curriculum in Hong Kong. *Asia Pacific Journal of Education*, 36(3), 379-389.
- Chin, Pillai, & Zainuddin. (2019). The Role of Noticing in the Acquisition of the Past Tense Form in English through Oral Corrective Feedback. *The English Teacher* 48(2): 25.
- Choi, I.-C. (2016). Efficacy of an ICALL tutoring system and process-oriented corrective feedback. *Computer assisted language learning* 29(2): 334-364.
- Chomsky, N. (2015). An interview on linguistic variation with. Noam Chomsky. *Issogloss: A Journal on Variation of Romance and Iberian Languages* 1(1): 143.

- Chou, I.-C. (2016). Reading for the purpose of responding to literature: EFL students' perceptions of e-books. *Computer assisted language learning* 29(1): 1-20.
- Chwo, G. S. M., et al. (2018). Meta-analysis of MALL research and design. *System* 74: 62-72.
- Clark, R. C. and R. E. Mayer (2016). *E-learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning*, Third Edition, John Wiley & Sons, 989 Market Street, San Francisco, CA. ISBN: 978-1-119-15866-0.
- Cooper, G., Park, H., Nasr, Z., Thong, L. P., & Johnson, R. (2019). Using virtual reality in the classroom: preservice teachers' perceptions of its use as a teaching and learning tool. *Educational Media International*, 56(1), 1-13.
- Council of Europe (2020), *Common European Framework of Reference for Languages: Learning, teaching, assessment – Companion volume*, Council of Europe Publishing, Strasbourg, available at [www.coe.int/lang-cefr](http://www.coe.int/lang-cefr).
- Coleman, E., & O'Connor, E. (2019). The role of WhatsApp in medical education; a scoping review and instructional design model. *BMC medical education*, 19(1), 1-13.
- Creswell, J. W., & Creswell, J. D., (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Fifth Edition, Sage publications, Carnegie Mellon University, USA.
- Craig, K. (2018). *Motivation in Instructional Design*. Doctorate in Education from Concordia University, St. Paul. Retrived from : <https://digitalcommons.csp.edu/edd/2>
- Crum, C. E. (2017). *Influence of Technology on English Language Learners' Vocabulary*. A dissertation of Doctor of Philosophy, Walden University. Retrived from <https://scholarworks.waldenu.edu/dissertations/3290/>
- Czerkawski, B. C. and E. W. Lyman (2016). An instructional design framework for fostering student engagement in online learning environments. *TechTrends* 60(6): 532-539.
- Dash, N. S. and S. Arulmozi (2018). *Definition of 'Corpus'. History, Features, and Typology of Language Corpora*, Springer: 1-15.
- Daskalovska, N. (2015). Corpus-based versus traditional learning of collocations. *Computer assisted language learning* 28(2): 130-144.
- de la Guía, E., et al. (2016). Introducing IoT and Wearable Technologies into Task-Based Language Learning for Young Children. *IEEE Transactions on Learning Technologies* 9(4): 366-378.
- de Winter, J. C. (2014). Controversy in human factors constructs and the explosive use of the NASA-TLX: a measurement perspective. *Cognition, technology & work* 16(3): 289-297.
- Deegan, R. (2015). Complex mobile learning that adapts to learners' cognitive load. *International Journal of Mobile and Blended Learning (IJMBL)* 7(1): 13-24.
- Delage, H. and U. H. Frauenfelder (2019). Syntax and working memory in typically-developing children: Focus on syntactic complexity. *Language, Interaction and Acquisition* 10(2):

141-176.

- Demir, S. and A. Erdogan (2018). The Role of Teaching Grammar in First Language Education. *European Journal of Educational Research* 7(14): 87-101.
- Dinçer, S. and A. Doğanay (2017). The effects of multiple-pedagogical agents on learners' academic success, motivation, and cognitive load. *Computers & Education* 111: 74-100.
- Ding, A.-C. E., et al. (2019). EFL teachers' pedagogical beliefs and practices with regard to using technology. *Journal of Digital Learning in Teacher Education* 35(1): 20-39.
- Dörnyei, Z. (2019). Towards a better understanding of the L2 Learning Experience, the Cinderella of the L2 Motivational Self System. *Studies in Second Language Learning and Teaching* 9(1), 19-30.
- Dörnyei, Z. (2018). *Motivating students and teachers*. In Liantas, J. I. (Ed.), *The TESOL encyclopedia of English language teaching* (Vol. 7; pp. 4293-4299) . Alexandria, VA: TESOL.
- Dörnyei, Z. (2019a). From integrative motivation to directed motivational currents: The evolution of the understanding of L2 motivation over three decades. In M. Lamb, K. Csizér, A. Henry & S. Ryan (Eds.), *Handbook of motivation for language learning* (pp. 39-69). Basingstoke: Palgrave.
- Dörnyei, Z. (2019b). Psychology and language learning: The past, the present and the future. *Journal for the Psychology of Language Learning*, 1(1), 27-41.
- Dörnyei, Z., Ibrahim, Z., & Muir, C. (2015). 'Directed Motivational Currents': Regulating complex dynamic systems through motivational surges,. In Z. Dörnyei, P. MacIntyre, & A. Henry (Eds.), *Motivational dynamics in language learning* (pp. 95-105). Bristol: Multilingual Matters.
- Dörnyei, Z. & C. Muir (2019). Creating a motivating classroom environment. *Second handbook of English language teaching*: 719-736.
- dos Santos, L. S., et al. (2018). Technology integration and pedagogical practice in English language teaching: Lessons learnt. *European Journal of Applied Linguistics and TEFL*, 7(2), 25-51.
- Dousay, T. A. (2016). Effects of redundancy and modality on the situational interest of adult learners in multimedia learning. *Educational Technology Research and Development*, 64(6), 1251-1271.
- Duran, D., et al. (2019). Word search sequences in teacher-student interaction in an English as medium of instruction context. *International Journal of Bilingual Education and Bilingualism* 1-20.
- Durrani, U., & Kamal, M. M. (2020). Towards Applying ARCS Model for a Blended Teaching Methodologies: A Quantitative Research on Students' Motivation Amid the COVID-19. In *International Conference on Design, Learning, and Innovation* (pp. 198-207). Springer, Cham.

- Dunn, J. C., & Zimmer, C. (2020). *Self-determination theory. Routledge handbook of adapted physical education*, 296-312, Routledge, New York.
- Eccles, J. S., & Wigfield, A. (2020). From expectancy-value theory to situated expectancy-value theory: A developmental, social cognitive, and sociocultural perspective on motivation. *Contemporary Educational Psychology*, 61, 101859.
- Efendioğlu, A., & Yelken, T. Y. (2016). How do the cognitive load, self-efficacy and attitude of pre-service teachers shift in the multimedia science learning process?. *Educational Research and Reviews*, 11(8), 743-764.
- Elaish, M. M., et al. (2019). Development of a mobile game application to boost students' motivation in learning English vocabulary. *IEEE Access* 7: 13326-13337.
- Ellis, R., Skehan, P., Li, S., Shintani, N., & Lambert, C. (2019). *Task-Based Language Teaching: Theory and Practice* (Cambridge Applied Linguistics). First Edition, Cambridge: Cambridge University Press. doi:10.1017/9781108643689
- Eng, L. S., et al. (2020). A Comparison of the English Grammatical Errors of Chinese Undergraduates from China and Malaysia. *International Journal of Instruction* 13(1): 931-950.
- English Grammar Profile : The CEFR for English. Retrieved from <https://www.englishprofile.org/english-grammar-profile>
- Fazil, K. F. and N. E. M. Said (2020). A Grammar-learning innovation for Malaysian Indigenous learners in an EFL context: The TurTense Mobile Game App. *International Journal of Academic Research in Progressive Education & Development* 9(1), 220-235.
- Fathi, J., Ahmadnejad, M., & Yousofi, N. (2019). Effects of blog-mediated writing instruction on L2 writing motivation, self-Efficacy, and self-Regulation: A mixed methods study. *Journal of Research in Applied Linguistics*, 10(2), 159-181.
- Feldon, D. F., et al. (2019). Cognitive load as motivational cost. *Educational Psychology Review* 31(2): 319-337.
- Fitrawati, F. and W. Oktavia (2017). Do Students Need Multimedia Based Grammar 3 Teaching Material? *Lingua Didaktika: Jurnal Bahasa dan Pembelajaran Bahasa* 11(1): 111-122.
- Fodor, A.-G. and B. V. COVACI (2016). eLearning Mobile App for Android and Ios English Grammar Learn & Test. *Database Systems Journal* 7(2), 10-18.
- Fonseca, D., et al. (2014). Relationship between student profile, tool use, participation, and academic performance with the use of Augmented Reality technology for visualized architecture models. *Computers in Human Behavior* 31, 434-445.
- Fonseca, D., et al. (2015). Mixed-methods research: a new approach to evaluating the motivation and satisfaction of university students using advanced visual technologies. *Universal Access in the Information Society* 14(3), 311-332.
- Frankenberg-Garcia, A., et al. (2019). Developing a writing assistant to help EAP writers with collocations in real time. *ReCALL* 31(1), 23-39.

- Fu, Q.-K., et al. (2019). Impacts of a mind mapping-based contextual gaming approach on EFL students' writing performance, learning perceptions and generative uses in an English course. *Computers & Education* 137: 59-77.
- Fukushima, S., Hautasaari, A., & Hamada, T. (2019). *Second language vocabulary learning while walking*. In Proceedings of the 10th Augmented Human International Conference 2019 (pp. 1-2).
- Gamlo, N. (2019). The Impact of Mobile Game-Based Language Learning Apps on EFL Learners' Motivation. *English Language Teaching* 12(4): 49-56.
- Gamage, S. (2019). Cartoons as an Authentic Supplementary Teaching Tool in English as a Second Language Classrooms. *Advances in Language and Literary Studies*, 10(1), 107-116.
- Ganapathy, M., et al. (2016). Malaysian ESL Students' Perceptions on the Usability of a Mobile Application for Grammar Test: A Case Study of ESL Undergraduates in Universiti Sains Malaysia. *3L: Southeast Asian Journal of English Language Studies* 22(1).
- Gao, Y. (2019). *An Analysis of Social Media Use Within and Outside of College English Classes in China*. Dissertation submitted for Masters, The University of Western Ontario. Electronic Thesis and Dissertation Repository. 6004. Retrived from <https://ir.lib.uwo.ca/etd/6004>
- Gonzalez-Vera, P. (2016). The e-generation: the use of technology for foreign language learning. *New perspectives on teaching and working with languages in the digital era*, 51-61.
- Gopalan, V., Bakar, J. A., & Zulkifli, A. N. (2020). A review of motivation theories, models and instruments in learning environment. *Journal of Critical Reviews*, 7(6), 554-559.
- Grangeia, T. d. A. G., et al. (2016). Cognitive load and self-determination theories applied to E-learning: impact on students' participation and academic performance. *PLoS One* 11(3): e0152462.
- Garzón, J., Baldiris, S., Gutiérrez, J., & Pavón, J. (2020). How do pedagogical approaches affect the impact of augmented reality on education? A meta-analysis and research synthesis. *Educational Research Review*, 31, 100334.
- Geng, X., Xu, Y., Chen, L., Ogata, H., Shimada, A., & Yamada, M. (2020, July). Learning analytics of the relationships among learning behaviors, learning performance, and motivation. In *2020 IEEE 20th International Conference on Advanced Learning Technologies (ICALT)* (pp. 161-163). IEEE.
- Guaqueta, C. A., & Castro-Garces, A. Y. (2018). The use of language learning apps as a didactic tool for EFL vocabulary building. *English Language Teaching*, 11(2), 61-71.
- Gunbas, N. and M. Gozukucuk (2020). Digital listening texts versus traditional listening texts: Fourth graders' listening comprehension. *Issues in Educational Research* 30(1): 97.
- Hadley, G. and M. Charles (2017). Enhancing extensive reading with data-driven learning. *Language Learning & Technology* 21(3): 131-152.

- Hamzah, W. M. A. F. W., et al. (2015). Influence of gamification on students' motivation in using e-learning applications based on the motivational design model. *International Journal of Emerging Technologies in Learning (iJET)* 10(2): 30-34.
- Handayani, N. D. (2019). Common Error in Using English Tenses by EFL Students. *Ide Bahasa* 1(2): 85-94.
- Hao & Lai-Chung Lee (2021) The development and evaluation of an educational game integrating augmented reality, ARCS model, and types of games for English experiment learning: an analysis of learning. *Interactive Learning Environments*, 29:7, 1101-1114, DOI: 10.1080/10494820.2019.1619590
- Hao, Y., et al. (2019). An evaluative study of a mobile application for middle school students struggling with English vocabulary learning. *Computers in Human Behavior* 95: 208-216.
- Hassan R., Foong L.M., Ismail A.A. (2019) TVET in Malaysia. In: Bai B., Paryono (eds) *Vocational Education and Training in ASEAN Member States. Perspectives on Rethinking and Reforming Education*, Springer, Singapore. [https://doi.org/10.1007/978-981-13-6617-8\\_5](https://doi.org/10.1007/978-981-13-6617-8_5)
- Hariyanto, H., et al. (2019). Correlation of Learning Motivation Based on ARCS Model With English Achievement of Midwifery Students. *Lingua Cultura* 13(3): 161-166.
- Hart, S. G. (2006). NASA-task load index (NASA-TLX); 20 years later. *Proceedings of the human factors and ergonomics society annual meeting*, Sage Publications Sage CA: Los Angeles, CA.
- Hart, S. G., & Staveland, L. E. (1988). Development of NASA-TLX (Task Load Index): Results of empirical and theoretical research. In *Advances in psychology* (Vol. 52, pp. 139-183). North-Holland.
- Hartwell, P. (1985). Grammar, grammars, and the teaching of grammar. *College English* 47(2): 105-127.
- Harun, H. and M. K. Kabilan (2020). Errors in writing made by Malaysian rural primary school pupils. *Studies in English Language and Education* 7(2): 438-456.
- Hasanah, A., et al. (2019). Developing the interactive multimedia in physics learning. *Journal of Physics*, Conference Series, IOP Publishing.
- Hassan, N. S. I. C., et al. (2019). ESL Learners' Language Errors in a Reflective Writing Assessment. *Issues in Language Studies* 8(1): 31-43.
- Hava, K. (2021). Exploring the role of digital storytelling in student motivation and satisfaction in EFL education. *Computer Assisted Language Learning*, 34(7), 958-978.
- Hauze, S. and J. Marshall (2020). Validation of the instructional materials motivation survey: measuring student motivation to learn via mixed reality nursing education simulation. *International Journal on E-Learning*, 19(1), 49-64.
- Heritage, M., Walqui, A., & Linqunti, R. (2020). *English language learners and the new standards: Developing language, content knowledge, and analytical practices in the*

- classroom*. San Francisco, CA: WestEd., Harvard Education Press. Retrived from
- Heift, T. and N. Vyatkina (2017). Technologies for teaching and learning L2 Grammar. *The handbook of technology and second language teaching and learning*, 26-44.
- Hirsch, S. E., Chow, J. C., Randall, K. N., Nemer, S. L., & McKown, G. (2020). Evaluating the Effect of Embedded Responses in Multimedia-Based Instruction With Preservice Teachers. *Behavioral Disorders*, 46(1), 18-28.
- Hidayat, N., Hadi, S., Basith, A., & Suwandi, S. (2018). Developing e-learning media with the contiguity principle for the subject of autocad. *Jurnal pendidikan teknologi dan kejuruan*, 24(1), 72-82.
- Hoidn, S., & Reusser, K. (2020). Foundations of student-centered learning and teaching. In *The Routledge International Handbook of Student-Centered Learning and Teaching in Higher Education* (pp. 17-46). First Edition, London, United Kingdom, Routledge.
- Honarzad, R. & E. Rassaei (2019). The Role of EFL Learners' Autonomy, Motivation and Self-Efficacy in Using Technology-Based Out-of-Class Language Learning Activities. *JALT Call Journal*, 15(3), 23-42.
- Hossain, M. (2019). Impact of mobile phone usage on academic performance. *World Scientific News*, 118, 164-180.
- Hodges, C. B., & Kim, C. (2013). Improving college students' attitudes toward mathematics. *TechTrends*, 57(4), 59-66.
- Hsiao, E.-L., et al. (2020). Establishing A Multimedia-Rich Environment To Support Experiential E-Learning In Business Education. *Journal of Educators Online* 17(2).
- Huang, H. M., & Liaw, S. S. (2018). An analysis of learners' intentions toward virtual reality learning based on constructivist and technology acceptance approaches. *International Review of Research in Open and Distributed Learning*, 19(1), 90-120.
- Huang, X. (2017). Example-based learning: Effects of different types of examples on student performance, cognitive load and self-efficacy in a statistical learning task. *Interactive Learning Environments* 25(3), 283-294.
- Huang, L. S., Su, J. Y., & Pao, T. L. (2019). A context aware smart classroom architecture for smart campuses. *Applied Sciences*, 9(9), 1837.
- Huang, H. C., & Fang, W. C. (2010). Techniques and applications of intelligent multimedia data hiding. *Telecommunication Systems*, 44(3), 241-251.
- Hwang, W. Y., Shih, T. K., Ma, Z. H., Shadiey, R., & Chen, S. Y. (2016). Evaluating listening and speaking skills in a mobile game-based learning environment with situational contexts. *Computer Assisted Language Learning*, 29(4), 639-657.
- Idris, M. I., et al. (2020). "Game-Based Learning Platform and its Effects on Present Tense Mastery: Evidence from an ESL Classroom." *International Journal of Learning, Teaching and Educational Research* 19(5): 13-26.
- İlter, B. G. (2015). How does technology affect language learning process at an early age?



- Ionescu, B., Müller, H., Péteri, R., Abacha, A. B., Datla, V., Hasan, S. A., ... & Constantin, M. G. (2020). Overview of the ImageCLEF 2020: multimedia retrieval in medical, lifelogging, nature, and internet applications. In *International Conference of the Cross-Language Evaluation Forum for European Languages* (pp. 311-341). Springer, Chambridge.
- Isnawati, I. (2017). Students' Views On The Use Of Book And Web-Based Materials For Their EIt Classes: A Study On Ict-Based Education In Indonesian Context. *KnE Social Sciences* 1(3): 112-120.
- Iwaniec, J. (2015). The role of gender in language learning motivation of Polish students. *EuroSLA 25: 25th Annual Conference of the European Second Language Association*, University of Bath, United Kingdom.
- Jagaiah, T. (2017). *Analysis of syntactic complexity and its relationship to writing quality in argumentative essays*, dissertation of Doctor of Philosophy, University of Connecticut - Storrs.
- Jagaiah, T., et al. (2020). Syntactic complexity measures: variation by genre, grade-level, students' writing abilities, and writing quality. *Reading and Writing* 33: 2577-2638.
- Jalaluddin, I., Ismail, L., & Darmi, R. (2020). Developing Vocabulary Knowledge among Low Achievers: Mobile Augmented Reality (MAR) Practicality. *International Journal of Information and Education Technology*, 10(11), 813-819.
- Jebb, A. T., Ng, V., & Tay, L. (2021). A review of key Likert scale development advances: 1995–2019. *Frontiers in psychology*, 12, 1590.
- Jeon, E.-Y. (2020). What makes them the best English teachers? An analysis of the motivational strategy use based on ARCS model. *Educational Research for Policy and Practice*, 1-16.
- Jeong, k. O. (2018). Developing efl learners'communicative competence through multimedia-assisted language learning. *Journal of Theoretical & Applied Information Technology*, 96(5)..
- Jiang, Y. and J.-M. Dewaele (2019). How unique is the foreign language classroom enjoyment and anxiety of Chinese EFL learners? *System* 82: 13-25.
- Jiang, Y., Sabitha, R., & Shankar, A. (2021). An IoT Technology for Development of Smart English Language Translation and Grammar Learning Applications. *Arabian Journal for Science and Engineering*, 1-10.
- Joo, Y. J., et al. (2018). Factors influencing preservice teachers' intention to use technology: TPACK, teacher self-efficacy, and technology acceptance model. *Journal of Educational Technology & Society* 21(3): 48-59.
- Jun, L. S., Pakirathan, P. G., & Edwina, M. (2020). Language Needs of Malaysian Public Relations Undergraduates in ESL Writing. *The English Teacher*, 49(1), 27-40.
- Kacetyl, J. and B. Klímová (2019). Use of smartphone applications in english language

- learning—A challenge for foreign language education. *Education Sciences* 9(3): 179.
- Kalyuga, S. and T.-C. Liu (2015). Managing Cognitive Load in Technology-Based Learning Environments. *Journal of Educational Technology & Society* 18(4): 1.
- Kalyuga, S. and T.-C. Liu (2015). Managing Cognitive Load in Technology-Based Learning Environments. *Journal of Educational Technology & Society* 18(4), 1.
- Kalyuga, S. and J. L. Plass (2017). *Cognitive load as a local characteristic of cognitive processes. Cognitive load measurement and application: A theoretical framework for meaningful research and practice*. Routledge, 711, third Avenue, New York, 73-88.
- Kamal, A. and S. Junaini (2019). The Effects Of Design-Based Learning In Teaching Augmented Reality For Pre-University Students In The ICT Competency Course. *International Journal of Scientific & Technology Research* 8(12), 2726-2730.
- Kanellopoulou, C., et al. (2019). The dual-coding and multimedia learning theories: Film subtitles as a vocabulary teaching tool. *Education Sciences* 9(3), 210.
- Kang, K. A., Kim, S., Kim, S. J., Oh, J., & Lee, M. (2015). Comparison of knowledge, confidence in skill performance (CSP) and satisfaction in problem-based learning (PBL) and simulation with PBL educational modalities in caring for children with bronchiolitis. *Nurse education today*, 35(2), 315-321.
- Kanokpermpoon, M. (2013). Managing Working Memory in Language Instructions: An Overview of Cognitive Load Theory. *Thammasat Review* 16(2), 93-108.
- Kaplan-Rakowski, R. and B. Loranc-Paszylk (2019). The impact of verbal and nonverbal auditory resources on explicit foreign language vocabulary learning. *System* 85, 102114.
- K. N. Bauer, K. A. Orvis, K. Ely, and E. A. Surface. Reexamination of motivation in learning contexts: Metaanalytically investigating the role type of motivation plays in the prediction of key training outcomes. *Journal of Business and Psychology*, vol. 31, no.1, 33-50, 2016
- Karagiorgas, D. N. and S. Niemann (2017). Gamification and game-based learning. *Journal of Educational Technology Systems* 45(4): 499-519.
- Karimi, M. N. and S. S. Hosseini Zade (2019). Teachers' use of motivational strategies: effects of a motivation-oriented professional development course. *Innovation in Language Learning and Teaching* 13(2): 194-204.
- Karimi, M. N. and S. S. Hosseini Zade (2019). Teachers' use of motivational strategies: effects of a motivation-oriented professional development course. *Innovation in Language Learning and Teaching* 13(2), 194-204.
- Kashanizadeh, I. and M. Shahrokhi (2021). The Use of Mobile to Boost Iranian EFL Learners' Grammar Knowledge: The Case of Grammar Learning Application in Focus. *Journal of Applied Linguistics and Language Research* 8(1), 1-10.
- Kasuma, S. A. A. (2017). Using facebook for english language learning: The differences among gender and ethnicity. *Journal of Nusantara Studies (JONUS)* 2(1), 177-193.

- Keller, J. M. (1983). Motivational design of instruction. *Instructional design theories and models: An overview of their current status 1*(1983): 383-434.
- Keller, J. M. (1987). Development and use of the ARCS model of instructional design. *Journal of instructional development*, 10(3), 2.
- Keller, J. M. (2010). What is motivational design?. In *Motivational design for learning and performance* (pp. 21-41). Springer, Boston, MA.
- Keller, J. M. (2010). *What is Motivational Design? Motivational Design for Learning and Performance: The ARCS Model Approach*. Boston, MA, Springer US: 21-41.
- Keller, J. M. (2016). Motivation, learning, and technology: Applying the ARCS-V motivation model. *Participatory Educational Research*, 3(2): 1-15.
- Khan, A., et al. (2017). Use of digital game based learning and gamification in secondary school science: The effect on student engagement, learning and gender difference. *Education and Information Technologies* 22(6): 2767-2804.
- Khalil, M. K., & Elkhider, I. A. (2016). Applying learning theories and instructional design models for effective instruction. *Advances in physiology education*, 40(2), 147-156
- Khodarahmi, Z. and M. A. Heidari-Shahreza (2018). Effect of MALL on the acquisition of word stress patterns of English by Iranian EFL learners: The case of Telegram. *Journal of Applied Linguistics and Language Research* 5(1), 40-55.
- Khong, H. K. and M. K. Kabilan (2020). "A theoretical model of micro-learning for second language instruction." *Computer assisted language learning*: 1-24.
- Klimova, B., & Zamborova, K. (2020). Use of Mobile Applications in Developing Reading Comprehension in Second Language Acquisition, *A Review Study*. *Education Sciences*, 10(12), 391.
- Kirkwood, A., & Price, L. (2014). Technology-enhanced learning and teaching in higher education: what is 'enhanced' and how do we know? *A critical literature review*. *Learning, media and technology*, 39(1), 6-36.
- Kobis, D. C., & Tomatala, M. F. (2019, September). The Utilization of English4IT Website in Improving Computer Major Students' English Competence. In *The 4th International Conference of Vocational Higher Education*, Indonesia.
- Korbach, A., Brünken, R., & Park, B. (2018). Differentiating different types of cognitive load: A comparison of different measures. *Educational Psychology Review*, 30(2), 503-529.
- Krashen, S. (1982). *Principles and practice in second language acquisition*. Oxford, pergamon.
- Krashen, S. & B. Mason (2019). A note on comprehension checking. *Journal of English Language Teaching*, 61(1), 22-24.
- Krouska, A., et al. (2019). Using Learning Analytics to Improve the Efficacy of Mobile Authoring Tools. 2019 10th *International Conference on Information, Intelligence, Systems and Applications (IISA)*, IEEE.

- Krystalli, P., Panagiotidis, P., & Arvanitis, P. (2020). Criteria for motivational technology-enhanced language learning activities. In *Technology and the psychology of second language learners and users* (pp. 571-593). Palgrave Macmillan, Cham.
- Kruk, M. (2016). Temporal fluctuations in foreign language motivation: Results of a longitudinal study. *Iranian Journal of Language Teaching Research* 4(2): 1-17.
- Kruk, M., & Zawodniak, J. (2018). Boredom in practical English language classes: Insights from interview data. *Interdisciplinary views on the English language, literature and culture*, 177-191.
- Kruk, M. and J. Zawodniak (2019). On the possible interactions of varied EFL activities and learning styles with EFL students' motivational changes. *Innovation in Language Learning and Teaching* 13(2): 178-193.
- Kurt, P. Y. (2015). *The effects of ARCS motivational model on student motivation to learn English* (Doctoral dissertation, Anadolu University (Turkey)).
- Kurucova, Z., Medová, J., & Tirpakova, A. (2018). The effect of different online education modes on the English language learning of media studies students. *Cogent Education*, 5(1), 1523514.
- Lai, C., et al. (2016). Enhancing learners' self-directed use of technology for language learning: the effectiveness of an online training platform. *Computer assisted language learning* 29(1): 40-60.
- Lai, C., & Zheng, D. (2018). Self-directed use of mobile devices for language learning beyond the classroom. *ReCALL*, 30(3), 299-318.
- Larsen-Walker, M. (2020). *How the Use of Learner-generated Images and Authentic Materials Affects the Comprehension and Production of Vivid Phrasal Idioms in L2 English Learners*, a dissertation published for fulfilment of doctor of philosophy, University of South Florida.
- Law, K. M., et al. (2019). Student enrollment, motivation and learning performance in a blended learning environment: The mediating effects of social, teaching, and cognitive presence. *Computers & Education* 136: 1-12.
- Lee, I., et al. (2019). Assessment as learning in primary writing classrooms: An exploratory study. *Studies in Educational Evaluation* 62, 72-81.
- Lee, J.H., & Lo, Y. (2017). An exploratory study on the relationships between attitudes toward classroom language choice, motivation, and proficiency of EFL learners. *System*, 67, 121-131.
- Leow, F.-T. and M. Neo (2014). Interactive multimedia learning: Innovating classroom education in a Malaysian university. *Turkish Online Journal of Educational Technology-TOJET* 13(2): 99-110.
- Li, C. (2020). Study on Learning Strategies of English Language Based on Multimedia Computer-Aided. *Journal of Physics: Conference Series*, IOP Publishing.
- Li, J., et al. (2015). Rethinking the role of automated writing evaluation (AWE) feedback in ESL writing instruction. *Journal of Second Language Writing* 27, 1-18.

- Li, K. and J. M. Keller (2018). Use of the ARCS model in education: A literature review. *Computers & Education* 122: 54-62.
- Li, S. (2017). "Using corpora to develop learners' collocational competence." *Language Learning & Technology* 21(3): 153-171.
- Li, T., et al. (2016). Design and evaluation of a Facebook game for self-directed e-learning. *Learning*, 464-480.
- Liao, C.-W., et al. (2019). The interactivity of video and collaboration for learning achievement, intrinsic motivation, cognitive load, and behavior patterns in a digital game-based learning environment. *Computers & Education* 133: 43-55.
- Lin, C. J., Hwang, G. J., Fu, Q. K., & Cao, Y. H. (2020). Facilitating EFL students' English grammar learning performance and behaviors: A contextual gaming approach. *Computers & Education*, 152, 103876.
- Lin, C.-J., et al. (2018). A flipped contextual game-based learning approach to enhancing EFL students' English business writing performance and reflective behaviors. *Journal of Educational Technology & Society* 21(3): 117-131.
- Lin, H.-C. K., et al. (2015). From a perspective on foreign language learning anxiety to develop an affective tutoring system. *Educational Technology Research and Development* 63(5): 727-747.
- Listia, R. and E. R. Febriyanti (2020). "EFL Learners' Problems in Using Tenses: An Insight for Grammar Teaching." *IJET (Indonesian Journal of English Teaching)* 9(1): 86-95.
- Liu, P.-L. and C.-J. Chen (2015). Learning English through actions: a study of mobile-assisted language learning. *Interactive Learning Environments* 23(2), 158-171.
- Liu, Y. T. and A. N. Leveridge (2017). Enhancing L 2 vocabulary acquisition through implicit reading support cues in e-books. *British Journal of Educational Technology* 48(1): 43-56.
- Locke, E. A., & Schattke, K. (2019). Intrinsic and extrinsic motivation: Time for expansion and clarification. *Motivation Science*, 5(4), 277.
- Lohse, K., et al. (2019). Errors, rewards, and reinforcement in motor skill learning. Skill acquisition in sport: *Research, theory & practice*, 39-60.
- Longo, L. (2018). On the Reliability, Validity and Sensitivity of Three Mental Workload Assessment Techniques for the Evaluation of Instructional Designs: A Case Study in a Third-level Course. *CSEU* (2), 166-178.
- Lubis, A. R., Lubis, M., & Azhar, C. D. (2019). The effect of social media to the sustainability of short message service (SMS) and phone call. *Procedia Computer Science*, 161, 687-695.
- Ma'mor, M. H. & H. Yamat (2019). Learning Present Continuous Tense Made Easy through "Son, Mummy and the-ing Cat" Module. *Creative Education*, 10(12), 2831-2839.
- Ma, F. (2015). A review of research methods in EFL education. *Theory and Practice in*

*Language Studies*, 5(3), 566.

- Ma, L., & Lee, C. S. (2021). Evaluating the effectiveness of blended learning using the ARCS model. *Journal of Computer Assisted Learning*, 37(5), 1397-1408.
- Mauludin, L.A. (2021). Students' Perceptions of the Most and the Least Motivating Teaching Strategies in ESP Classes. *Iranian Journal of Language Teaching Research* 9(1), (Jan., 2021) 139-157.
- Makransky, G., Borre-Gude, S., & Mayer, R. E. (2019). Motivational and cognitive benefits of training in immersive virtual reality based on multiple assessments. *Journal of Computer Assisted Learning*, 35(6), 691-707.
- Mangaroska, K., & Giannakos, M. (2018). Learning analytics for learning design: A systematic literature review of analytics-driven design to enhance learning. *IEEE Transactions on Learning Technologies*, 12(4), 516-534.
- Mahdi, H. S. (2018). Effectiveness of mobile devices on vocabulary learning: A meta-analysis. *Journal of Educational Computing Research*, 56(1), 134-154.
- Malekzadeh, M., et al. (2015). A review of emotion regulation in intelligent tutoring systems. *Journal of Educational Technology & Society*, 18(4), 435-445.
- Mallick, P., et al. (2020). "Addressing Impact of Technology in English Language Teaching at Secondary Level Education in Bangladesh. *International Journal of English Literature and Social Sciences (IJELS)* 5(3), 665-671.
- Maniam, M., & Rajagopal, P. (2016). Simple past tense errors based on surface structure taxonomy in ESL Malaysian undergraduates writing. *Global Journal of Advanced Research*, 3(6), 547-553.
- Mansour, L. A., et al. (2020). Exploring the Use of Multimedia Resources in Online Medical Education: A Targeted Literature Review. Proceedings of the *International Symposium on Human Factors and Ergonomics in Health Care*, SAGE Publications Sage CA: Los Angeles, CA.
- Manurung, S. R. (2020). Improving Students' thinking Ability In Physics Using Interactive Multimedia Based Problem Solving. *Jurnal Cakrawala Pendidikan* 39(2): 460-470.
- Margaryan, A., et al. (2015). Instructional quality of massive open online courses (MOOCs). *Computers & Education* 80, 77-83.
- Maros, M., et al. (2017). Interference in learning English: Grammatical errors in English essay writing among rural Malay secondary school students in Malaysia. *e-Bangi* 4(1).
- Martínez Pardo, A. (2014). *Computer-based vs. textbook-based grammar instruction: effectiveness and students perceptions*, A dissertation for Masters degree, Universidad Publica di Navarda. Retrived from : <https://hdl.handle.net/2454/11604>.
- Martin, A. J., & Evans, P. (2019). Load reduction instruction (LRI): 14, Sequencing explicit instruction and guided discovery to enhance students' motivation, engagement, learning, and achievement. In *Advances in cognitive load theory* (pp. 15-29). Routledge.

- Marzulina, L. and L. M Pd (2019). The grammatical awareness of student teachers: The case of an english education study program in indonesia. *The Grammatical Awareness of Student Teachers: The Case of an English Education Study Program in Indonesia* 7(9).
- Matthew, D., Joro, I. D., & Manasseh, H. (2015). The role of information communication technology in Nigeria educational system. *International Journal of Research in Humanities and Social Studies*, 2(2).
- Matkasimova, D. B. K., & Makhmudov, K. S. U. (2020). Importance of interactive methods in the english language grammar teaching. *Science and Education*, 1(Special Issue 2).
- Maulina, U., et al. (2019). Attractive Learning Media to Cope with Students' Speaking Skills in the Industry 4.0 Using Sparkol Videoscribe. *Online Submission* 2(5), 132-140.
- Mwilima, F., & Hangula, V. (2017). The effects of cell phone use on academic performance Mayer, R. E. (2017). "Using multimedia for e-learning. *Journal of Computer Assisted Learning* 33(5): 403-423.
- Mayer, R. E. (2019). Thirty years of research on online learning. *Applied Cognitive Psychology*, 33(2), 152-159.
- Mayer, R. E., et al. (2014). Multimedia learning in a second language: A cognitive load perspective. *Applied Cognitive Psychology* 28(5): 653-660.
- Mayer, R. E. (2017). Using multimedia for e-learning. *Journal of Computer Assisted Learning*, 33(5), 403-423.
- Mengmeng, W. (2018). A study of qualitative research method used in language teaching. *International Journal of Learning and Teaching* 4(4), 306-310.
- Michel, M., et al. (2019). The role of working memory in young second language learners' written performances. *Journal of Second Language Writing* 45, 31-45.
- Mompean, J. A. and J. Fouz-González (2016). Twitter-based EFL pronunciation instruction. *Language Learning & Technology* 20(1): 166-190.
- Mohamad, S. N. A., Embi, M. A., & Nordin, N. M. (2016). Designing E-Portfolio with ARCS Motivational Design Strategies to Enhance Self-Directed Learning. *Higher Education Studies*, 6(4), 138-145.
- Moyano, N., Quílez-Robres, A., & Cortés Pascual, A. (2020). Self-esteem and motivation for learning in academic achievement: The mediating role of reasoning and verbal fluidity. *Sustainability*, 12(14), 5768.
- Morrison, G. R., et al. (2019). *Designing effective instruction*, John Wiley & Sons. publisher: John Wiley & Sons, Inc, Hoboken, NJ.
- Muir, C., et al. (2016). *Motivational currents in language learning: Frameworks for focused interventions* first Edition, New York, publisher Routledge. Retrived from: <https://doi.org/10.4324/9781315772714>
- Murray, M. C. and J. Pérez (2015). Informing and Performing: A Study Comparing Adaptive Learning to Traditional Learning. *Informing Science: The International Journal of an*

*Emerging Transdiscipline* 18, 111.

- Mustafa, N., et al. (2018). Testing the Usability of a Mobile Learning Module. *International Journal of Engineering & Technology* 7(4.21), 113-117.
- Mwilima, F., & Hangula, V. (2017). The effects of cell phone use on academic performance in tertiary education. *International Journal of Law, Humanities & Social Science*, 1(5), 33-38.
- Mutlu-Bayraktar, D., et al. (2019). Cognitive load in multimedia learning environments: A systematic review. *Computers & Education* 141: 103618.
- Naismith, L. M., et al. (2015). Limitations of subjective cognitive load measures in simulation-based procedural training. *Medical education* 49(8), 805-814.
- Namaziandost, E. and M. Nasri (2019). The impact of social media on EFL learners' speaking skill: a survey study involving EFL teachers and students. *Journal of Applied Linguistics and Language Research* 6(3), 199-215.
- Neville, D. O. (2015). The story in the mind: The effect of 3D gameplay on the structuring of written L2 narratives. *ReCALL: the Journal of EUROCALL* 27(1), 21.
- Ng, S. F., Azlan, M. A. K., Kamal, A. N. A., & Manion, A. (2020). A quasi-experiment on using guided mobile learning interventions in ESL classrooms: Time use and academic performance. *Education and information technologies*, 25(6), 4699-4719.
- Nikulin, C., et al. (2019). NASA-TLX for predictability and measurability of instructional design models: Case study in design methods. *Educational Technology Research and Development* 67(2): 467-493.
- Nilson, L. B., & Goodson, L. A. (2021). *Online teaching at its best: Merging instructional design with teaching and learning research*, Second Edition, 111 River street Hoboken, USA. Publisher : John Wiley & Sons.
- Niemeier, S. (2017). *Task-based grammar teaching of English: Where cognitive grammar and task-based language teaching meet*, Germany, Publisher : Narr Francke Attempto Verlag.
- Noetel, M., Griffith, S., Delaney, O., Harris, N. R., Sanders, T., Parker, P., ... & Lonsdale, C. (2021). Multimedia design for learning: An overview of reviews with meta-meta-analysis. *Review of Educational Research*, 133(3), 206-217.
- Norman, H., Ally, M., & Nordin, N. (2018). *Use of social media and social network analysis for mobile learning*. In *Mobile and ubiquitous learning* (pp. 249-259). Springer, Singapore.
- Noels, K. A., et al. (2019). Self-determination and motivated engagement in language learning. *The Palgrave handbook of motivation for language learning*, Springer 95-115.
- Oh, H.-S. (2017). Influence of learning motivation, communication skill, academic self-efficacy on self-directed learning ability in nursing students. *Journal of Digital Convergence* 15(8), 311-321.



- Orru, G. and L. Longo (2018). The evolution of cognitive load theory and the measurement of its intrinsic, extraneous and germane loads: a review. *International Symposium on Human Mental Workload: Models and Applications*, Springer.
- Ossiannilsson, E. (2018). Promoting active and meaningful learning for digital learners. *Handbook of research on mobile technology, constructivism, and meaningful learning*, IGI Global, 294-315.
- Owusu, A. (2020). The impact of audio-visual technologies on university teaching and learning in a developing economy. *South African Journal of Information Management*, 22(1), 1-9.
- Paas, F., et al. (2003). Cognitive load theory and instructional design: Recent developments. *Educational Psychologist* 38(1): 1-4.
- Paas, F., et al. (2004). Cognitive load theory: Instructional implications of the interaction between information structures and cognitive architecture. *Instructional science* 32(1-2): 1-8.
- Paivio, A. (2014). Intelligence, dual coding theory, and the brain. *Intelligence*, 47, 141-158.
- Pallant, J. (2011). *Survival manual. A step by step guide to data analysis using SPSS*, 4. Open University Press, Shoppenhangers Road Maidenhead, Berkshire England
- Pappas, C. (2015). Instructional design models and theories: Keller's ARCS Model of Motivation. *Pridobljeno* 18(9): 2017.
- Park, B., Flowerday, T., & Brünken, R. (2015). Cognitive and affective effects of seductive details in multimedia learning. *Computers in Human Behavior*, 44, 267-278.
- Park, J. and M. Park (2016). Qualitative versus quantitative research methods: Discovery or justification? *Journal of Marketing Thought* 3(1), 1-8.
- Park, S. W. (2017). *Motivation Theories and Instructional Design. Foundations of Learning and Instructional Design Technology*. Retrieved from [https://edtechbooks.org/lidtfoundations/motivation\\_theories\\_and\\_instructional\\_design](https://edtechbooks.org/lidtfoundations/motivation_theories_and_instructional_design)
- Parong, J. and R. E. Mayer (2018). "Learning science in immersive virtual reality." *Journal of Educational Psychology* 110(6): 785.
- Patahuddin, P., Syawal, S., & Bin-Tahir, S. Z. (2017). Investigating Indonesian EFL learners' learning and acquiring English vocabulary. *International Journal of English Linguistics*, 7(4), 128.
- Pawlak, M., et al. (2020). Investigating factors responsible for boredom in English classes: The case of advanced learners. *System*, 102259.
- Pellas, N., et al. (2019). Augmenting the learning experience in primary and secondary school education: A systematic review of recent trends in augmented reality game-based learning. *Virtual Reality* 23(4): 329-346.
- Peng, X., Chen, H., Wang, L., Tian, F., & Wang, H. (2020). Talking head-based L2 pronunciation training: Impact on achievement emotions, cognitive load, and their

- relationships with learning performance. *International Journal of Human–Computer Interaction*, 36(16), 1487-1502.
- Peng, Z. E., & Wang, L. M. (2019). Listening effort by native and nonnative listeners due to noise, reverberation, and talker foreign accent during English speech perception. *Journal of Speech, Language, and Hearing Research*, 62(4), 1068-1081.
- Pérez, A., et al. (2019). Differential brain-to-brain entrainment while speaking and listening in native and foreign languages. *Cortex* 111, 303-315.
- Petroni, F., Rocktäschel, T., Lewis, P., Bakhtin, A., Wu, Y., Miller, A. H., & Riedel, S. (2019). Language models as knowledge bases?. Retrived from arXiv preprint arXiv:1909.01066.
- Pimenta, A., et al. (2015). Mental workload management as a tool in e-learning scenarios. 2015 *International Conference on Pervasive and Embedded Computing and Communication Systems (PECCS)*, IEEE.
- Piedmont, R. L., & Hyland, M. E. (1993). Inter-item correlation frequency distribution analysis: A method for evaluating scale dimensionality. *Educational and psychological measurement*, 53(2), 369-378.
- Pinner, R. (2016). Using self-assessment to maintain motivation in a dynamic classroom environment: An Exploratory Practice inquiry of one Japanese university speaking course. *The Asian Journal of Applied Linguistics* 3(1), 27-40.
- Polat, M. and B. Eristi (2019). "The Effects of Authentic Video Materials on Foreign Language Listening Skill Development and Listening Anxiety at Different Levels of English Proficiency." *International Journal of Contemporary Educational Research* 6(1), 135-154.
- Potapova, I. and S. L. Pruitt-Lord (2019). Spanish-English Bilingual Children's Relative Use of English Tense and Agreement Morphemes. *Journal of Monolingual and Bilingual Speech* 1(1), 118–142-118–142.
- Prayitno, T. A. and N. Hidayati (2020). Multimedia development based on science technology engineering and mathematics in microbiology learning. *JPBIO (Jurnal Pendidikan Biologi)* 5(2), 234-247.
- Rafiq, S., Boeriswati, E., & Usman, H. (2020). Multimedia-based English language learning interventions programs for elementary grades. *Journal of Xi'an University of Architecture & Technology*, 1251-1259.
- Rahimi, M. and A. Allahyari (2019). Effects of multimedia learning combined with strategy-based instruction on vocabulary learning and strategy use. *SAGE Open* 9(2), 2158244019844081.
- Rahman, M. S. and M. Ali (2015). Problems in mastering English tense and aspect and the role of the practitioners. *IOSR Journal of Humanities and Social Science* 20(1), 131-135.
- Ramezanali, N., et al. (2020). Efficacy of Multimodal Glossing on Second Language Vocabulary Learning: A Meta-analysis. *TESOL Quarterly* 55(1), 105-133.

- Ramli, A. F. (2020). An Error Analysis Of Perfect Tense Among Islamic Secondary School Students In Terengganu. *e-Bangi* 17(2).
- Ranalli, J. (2018). Automated written corrective feedback: how well can students make use of it? *Computer assisted language learning* 31(7): 653-674.
- Rashid, T. and H. M. Asghar (2016). Technology use, self-directed learning, student engagement and academic performance: Examining the interrelations. *Computers in Human Behavior* 63, 604-612.
- Rasheed, R. A., Kamsin, A., & Abdullah, N. A. (2020). Challenges in the online component of blended learning: A systematic review. *Computers & Education*, 144, 103701
- Rassaei, E. (2019). Computer-mediated text-based and audio-based corrective feedback, perceptual style and L2 development. *System* 82, 97-110.
- Rau, M. A. (2018). Sequencing support for sense making and perceptual induction of connections among multiple visual representations. *Journal of Educational Psychology*, 110(6), 811.
- Regan, K., et al. (2019). Teacher perceptions of integrating technology in writing. *Technology, Pedagogy and Education* 28(1), 1-19.
- Revathy Kumar, Stuart A. Karabenick, Jeffery H. Warnke, Susan Hany, Nancy Seay,(2019) *Culturally Inclusive and Responsive Curricular Learning Environments (CIRCLES): An exploratory sequential mixed-methods approach, Contemporary Educational Psychology*, Volume 57, 87-105.
- Reigeluth, C. and R. Stein (1983). *Elaboration theory. Instructional-design theories and models: An overview of their current status* (1983), 335-381. Roultag, New York.
- Reigeluth, C. M., et al. (1980). "The elaboration theory of instruction: A model for sequencing and synthesizing instruction." *Instructional science* 9(3): 195-219.
- Reigeluth, C. M. (2018). Lesson blueprints based on the elaboration theory of instruction. In *Instructional theories in action*, First Edition, Routledge, New York (pp. 245-288).
- Reinhardt, J. (2018). *Gameful second and foreign language teaching and learning: Theory, research, and practice* (1<sup>st</sup> Ed.), Springer.
- Rezapour, Y., & Taghipour, K. (2013). Effectiveness of Simple to Complex Sequences and Composition Instructional Strategies in Learning and Retention of Concept of Experimental Science in Secondary School. *European Online Journal of Natural and Social Sciences*, 2(2s), pp-262.
- Richards, J. (1969). Songs in language learning. *TESOL Quarterly* 3(2): 161-174.
- Rosenzweig, E. Q., Wigfield, A., & Eccles, J. S. (2019). *Expectancy-value theory* (pp. 617–644). Cambridge University Press. <https://doi.org/10.1017/9781316823279.026>.
- Roy, A. (2019). Technology in Teaching and Learning. *Journal of Emerging Technologies and Innovative Research (JETIR)*, 6(4), 356-362.

- Ruhama, U. and D. I. Purwaningsih (2019). Improving Students' Writing Skills through the Application of Synectic Model of Teaching Using Audiovisual Media. *English Language Teaching Educational Journal* 1(3), 176-190.
- Rusli, Y. A. and J. Montgomery (2020). Sentence Comprehension and Working Memory in Malay Adults. *GEMA Online Journal of Language Studies* 20(1), 16-34. 0 <http://doi.org/10.17576/gema-2020-2001-02>.
- Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. *Contemporary Educational Psychology*, 61, 101860.
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. 9th Edition, Guilford Publications, New York, 1-756. <https://search.ebscohost.com/login.aspx>
- Saddhono, K. and H. Wahyono (2019). Learning vocabularies using multimedia-based Teaching Indonesian to Speakers of Other Languages (TISOL). *Journal of Physics: Conference Series, IOP Publishing* (Vol. 1339, No. 1, p. 012108).
- Sadeghi, M. (2019). A shift from classroom to distance learning: Advantages and limitations. *International Journal of Research in English Education* 4(1), 80-88.
- Saheb, V. (2015). Motivation in English as a Foreign Language Learning: A study of motivation toward English language learning in Stockholm's upper secondary schools for adults. The paper was presented at the conference of (KOMVUX), Sweden. 1-32.
- Saito, K., et al. (2018). Motivation, emotion, learning experience, and second language comprehensibility development in classroom settings: A cross-sectional and longitudinal study. *Language Learning* 68(3), 709-743.
- Saleh, N. S. and S. F. Murtaza (2018). "English language use in Malaysian government and private civil engineering workplaces." *International Journal of Education and Literacy Studies* 6(3): 84-91.
- Salehi, V., et al. (2016). Examining the Effectiveness of Instructional Multimedia Based on Reducing the Extraneous Cognitive Load in English Language Learning among Nursing Students. *Future of Medical Education Journal* 6(3), 3-6.
- Sanh, V., Wolf, T., & Ruder, S. (2019, July). A hierarchical multi-task approach for learning embeddings from semantic tasks. *In Proceedings of the AAAI Conference on Artificial Intelligence* (Vol. 33, No. 01, 6949-6956).
- Saracho, O. N. (2019). Motivation Theories, Theorists, and Theoretical Conceptions. *Contemporary Perspectives on Research in Motivation in Early Childhood Education* 21-44.
- Saricaoglu, A. (2019). "The impact of automated feedback on L2 learners' written causal explanations." *ReCALL* 31(2): 189-203.
- Saydaliyeva, U. F. Q. (2020). The role of using authentic video materials in efl classrooms. *Science and Education*, 1(9), 333-340.

- Scherer, R., et al. (2019). The technology acceptance model (TAM): A meta-analytic structural equation modeling approach to explaining teachers' adoption of digital technology in education. *Computers & Education* 128, 13-35.
- Scherer, R., et al. (2020). All the same or different? Revisiting measures of teachers' technology acceptance. *Computers & Education* 143, 103656.
- Schneider, G. J. and R. Ackels (2019). Vocabulary Mashup using Online Resources and Games for Vocabulary Training at School, *CSEDU* 2, 519-526.
- Schneider, S., Beege, M., Nebel, S., & Rey, G. D. (2018). A meta-analysis of how signaling affects learning with media. *Educational Research Review*, 23, 1-24.
- Schreiber, B. R. (2015). "I am what I am": Multilingual identity and digital translanguaging. *Language Learning & Technology* 19(3), 69-87.
- Schremm, A., et al. (2017). Training predictive L2 processing with a digital game: Prototype promotes acquisition of anticipatory use of tone-suffix associations. *Computers & Education* 114, 206-221.
- Scott, E., et al. (2017). Adaptive 3D Virtual Learning Environments—A Review of the Literature. *IEEE Transactions on Learning Technologies* 10(3): 262-276.
- Seufert, T. (2018). The interplay between self-regulation in learning and cognitive load. *Educational Research Review*, 24, 116-129.
- Schunk, D. H., & DiBenedetto, M. K. (2020). Motivation and social cognitive theory. *Contemporary Educational Psychology*, 60, 101832.
- Schunk, D. H., & DiBenedetto, M. K. (2020). Social Cognitive Theory, Self-Efficacy, and Students with Disabilities: Implications for Students with Learning Disabilities, Reading Disabilities, and Attention-Deficit/Hyperactivity Disorder. In *Handbook of educational psychology and students with special needs* (pp. 243-261). Routledge.
- Setiawan, B. (2018). English grammar on 2013 curriculum: The development of game based learning multimedia. In *MATEC Web of Conferences* (Vol. 205, p. 00011). EDP Sciences.
- Shah, A. P., & Galantino, M. L. (2019). Building Emotional Intelligence for Student Success: A Pilot Study. *Perspectives of the ASHA Special Interest Groups*, 4(6), 1445-1461.
- Shabiralyani, G., et al. (2015). "Impact of Visual Aids in Enhancing the Learning Process Case Research: District Dera Ghazi Khan." *Journal of education and practice* 6(19): 226-233.
- Shadiev, R., Hwang, W. Y., Huang, Y. M., & Liu, T. Y. (2018). Facilitating application of language skills in authentic environments with a mobile learning system. *Journal of Computer Assisted Learning*, 34(1), 42-52.
- Shadiev, R. & M. Yang (2020). "Review of studies on technology-enhanced language learning and teaching." *Sustainability* 12(2): 524.
- Shadiev, R., Wang, X., & Huang, Y. M. (2020). Promoting intercultural competence in a learning activity supported by virtual reality technology. *International Review of*

*Research in Open and Distributed Learning*, 21(3), 157-174.

- Sharifati, S., et al. (2020). The Effect of Educational Multimedia Based on ASSURE's model on perceived motivational atmosphere and student's mental well-being. *Biquarterly Journal of Cognitive Strategies in Learning* 8(15), 107-127.
- Shangguan, C., Wang, Z., Gong, S., Guo, Y., & Xu, S. (2020). More attractive or more interactive? The effects of multi-leveled emotional design on middle school students' multimedia learning. *Frontiers in psychology*, 10, 3065.
- Sharina Azni, A. (2019). *The efficacy of direct and indirect written corrective feedback in ESL learners'* A Doctoral Dissertation, University of Malaya.
- Shen, H., et al. (2015). English learning websites and digital resources from the perspective of Chinese university EFL practitioners. *ReCALL: the Journal of EUROCALL* 27(2), 156.
- Shen, X. L., Li, Y. J., Sun, Y., Chen, Z., & Wang, F. (2019). Understanding the role of technology attractiveness in promoting social commerce engagement: Moderating effect of personal interest. *Information & Management*, 56(2), 294-305.
- Shih, H.-J. (2019). L2 Anxiety, Self-Regulatory Strategies, Self-Efficacy, Intended Effort and Academic Achievement: A Structural Equation Modeling Approach. *International Education Studies* 12(3): 24-35.
- Shorten, A., & Smith, J. (2017). Mixed methods research: expanding the evidence base. *Evidence-based nursing*, 20(3), 74-75.
- Shofi, A. T. (2020). Employing Multimedia-Based Learning to improve English speaking skills. *ELTICS: Journal of English Language Teaching and English Linguistics*, 5(1).
- Shuib, M., et al. (2015). "Designing an Intelligent Mobile Learning Tool for Grammar Learning (i-MoL)." *International Journal of Interactive Mobile Technologies* 9(1).
- Simonson, M., et al. (2019). *Teaching and Learning at a Distance: Foundations of Distance Education* 7th Edition, IAP, North Carolina, USA.
- Singh, C. K. S., et al. (2017). Grammar Errors Made by ESL Tertiary Students in Writing. *English Language Teaching* 10(5), 16-27.
- Sintawati, M. and G. Abdurrahman (2020). The effectiveness of blended learning to improve pre-service teacher in developing multimedia learning mathematics at elementary school. *Journal of Physics: Conference Series*(Vol. 1521, No. 3, p. 032014).
- Slavuj, V., Kovačić, B., & Jugo, I. (2016, May). Adaptive E-learning system for language learning: Architecture overview. In *2016 39th International Convention on Information and Communication Technology, Electronics and Microelectronics (MIPRO)* (pp. 951-955). IEEE.
- Smith, B. L., et al. (2019). "ESL learners' intra-speaker variability in producing American English tense and lax vowels." *Journal of Second Language Pronunciation* 5(1): 139-164.
- So, S. (2016). Mobile instant messaging support for teaching and learning in higher education.

- So, W. W. M., Chen, Y., & Wan, Z. H. (2019). Multimedia e-learning and self-regulated science learning: A study of primary school learners' experiences and perceptions. *Journal of Science Education and Technology*, 28(5), 508-522.
- Soleimani, H. and S. Mirsayafi (2019). The Effect of Multimedia Technology on Improving Listening Achievement of Iranian Secondary School Students. *Iranian Distance Education Journal* 1(3): 59-71.
- Soria-Oliver, M., et al. (2017). Relations between mental workload and decision-making in an organizational setting. *Psicologia: Reflexão e Crítica* 30:7, pp 1-14. DOI <http://10.1186/s41155-017-0061-0>.
- Spence, B. (2019). Using Bloom's taxonomy matrix to reach higher-level learning objectives. *Radiologic Technology*, 90(6), 622-624.
- Stajkovic, A. D., Bandura, A., Locke, E. A., Lee, D., & Sergent, K. (2018). Test of three conceptual models of influence of the big five personality traits and self-efficacy on academic performance: A meta-analytic path-analysis. *Personality and individual differences*, 120, 238-245
- Stiller, K. D. and S. Schworm (2019). Game-based learning of the structure and functioning of body cells in a foreign language: Effects on motivation, cognitive load, and performance. *Frontiers in Education, Frontiers*, (Vol. 4, p. 18).
- Stockwell, G. (2007). Vocabulary on the move: Investigating an intelligent mobile phone-based vocabulary tutor. *Computer assisted language learning* 20(4), 365-383.
- Stockwell, G. (2008). Investigating learner preparedness for and usage patterns of mobile learning. *ReCALL* 20(3), 253-270.
- Suartama, I. K., Setyosari, P., & Ulfa, S. (2019). Development of an instructional design model for mobile blended learning in higher education. *International Journal of Emerging Technologies in Learning*, 14(16)
- Subekti, A. S. (2017). A Study of the Mastery of Complex Sentences of Pre-Service English Teachers. *Ahmad Dahlan Journal of English Studies (ADJES)* 4(2), 1-12.
- Sulaiman, N. L., et al. (2015). "Technical and vocational education in Malaysia: policy, leadership, and professional growth on Malaysia women." *Asian Social Science Journal* 11(24): 153-161.
- Sweller, J. (1994). Cognitive load theory, learning difficulty, and instructional design. *Learning and instruction*, 4(4), 295-312.
- Sweller, J. (2010). Element interactivity and intrinsic, extraneous, and germane cognitive load. *Educational psychology review*, 22(2), 123-138.
- Sweller, J. (2017). Cognitive load theory and teaching English as a second language to adult learners. *Contact Magazine* 43(1): 10-14.
- Sweller, J. (2020). Cognitive load theory and educational technology. *Educational Technology*

*Research and Development*, 68(1), 1-16.

- Sweller, J., van Merriënboer, J. J., & Paas, F. (2019). Cognitive architecture and instructional design: 20 years later. *Educational Psychology Review*, 31(2), 261-292.
- Syafii, M. L., et al. (2019). Improving Students' speaking Skill By Using Multimedia Presentation Strategy. *English Review volume* , 7, issue (2).
- Syukri, A., et al. (2020). Constructivism-Based Mathematics Learning Multimedia to Improve Students' Mathematical Communication Skills. *Indonesian Journal of Science and Mathematics Education* 3(2), 117-132.
- Tafazoli, D., et al. (2019). Technology-based review on Computer-Assisted Language Learning: A chronological perspective. *Pixel-Bit: Revista de Medios y Educación*, 54, 29-43.
- Taub, M., Azevedo, R., Rajendran, R., Cloude, E. B., Biswas, G., & Price, M. J. (2021). How are students' emotions related to the accuracy of cognitive and metacognitive processes during learning with an intelligent tutoring system? *Learning and Instruction*, 72, 101200.
- Tanrikulu, F. (2020). The Effect of L2 Listening Texts Adapted to the Digital Story on the Listening Lesson. *Turkish Online Journal of Distance Education* 21(1), 1-18.
- Tayan, B. M. (2017). Students and teachers' perceptions into the viability of mobile technology implementation to support language learning for first year business students in a Middle Eastern university. *International Journal of Education and Literacy Studies* 5(2), 74-83.
- Teopilus, S., et al. (2015). Developing Computer-Based Timeline Media To Teach English Tenses. In *UNNES International Conference on ELTLT (English Language Teaching, Literature, and Translation)* (pp. 836-851), Widya Mandala Catholic University Surabaya, India.
- Tiarina, Y., et al. (2019). Students' need on basic English grammar teaching material based on interactive multimedia: an innovative design. *COUNS-EDU: The International Journal of Counseling and Education* 4(1), 29-37.
- Thohir, L. (2017). Motivation in a foreign language teaching and learning. *Vision: Journal for language and foreign language learning*, 6(1), 20-29.
- Thornberg, R., Forsberg, C., Chiriac, E. H., & Bjereld, Y. (2020). Teacher–student relationship quality and student engagement: a sequential explanatory mixed-methods study. *Research Papers in Education*, 1-20.
- Tondeur, J., et al. (2017). "Understanding the relationship between teachers' pedagogical beliefs and technology use in education: a systematic review of qualitative evidence." *Educational Technology Research and Development* 65(3): 555-575.
- Troussas, C., et al. (2019). "An intelligent adaptive fuzzy-based inference system for computer-assisted language learning." *Expert Systems with Applications* 127: 85-96.
- Tsai, M.-C., et al. (2019). Exploring the effects of web-mediated activity-based learning and meaningful learning on improving students' learning effects, learning engagement, and



academic motivation. *Universal Access in the Information Society*, 1-16.

- Tsai, Y.-R. (2019). "Promotion of learner autonomy within the framework of a flipped EFL instructional model: perception and perspectives. *Computer assisted language learning* 1-32.
- Tsay, C. H. H., Kofinas, A., & Luo, J. (2018). Enhancing student learning experience with technology-mediated gamification: An empirical study. *Computers & Education*, 121, 1-17.
- Turan, Z., & Göktaş, Y. (2018). Innovative redesign of teacher education ICT courses: How flipped classrooms impact motivation?. *Journal of Education and Future*, (13), 133-144.
- Ullah, A., & Anwar, S. (2020). The Effective Use of Information Technology and Interactive Activities to Improve Learner Engagement. *Education Sciences*, 10(12), 349.
- Uppal, M. A., et al. (2020). Factors Determining Student's Perception Towards Mobile Learning: An Empirical Study of Pakistan's Higher Education. *Pakistan Journal Of Distance And Online Learning* 5(2).
- Urmeneta, C. E. (2019). "An introduction to content and language integrated learning (CLIL) for teachers and teacher educators." CLIL. *Journal of Innovation and Research in Plurilingual and Pluricultural Education* 2(1): 7-19.
- Usai, F., et al. (2017). Design and empirical validation of effectiveness of LANGA, an online game-based platform for second language learning. *IEEE Transactions on Learning Technologies* 11(1): 107-114.
- Uygun, M., et al. (2018). Analyzing the Views of Pre-Service Teachers on the Use of Augmented Reality Applications in Education. *European Journal of Educational Research* 7(4), 849-860.
- Valverde-Berrocoso, J., Garrido-Arroyo, M. D. C., Burgos-Videla, C., & Morales-Cevallos, M. B. (2020). Trends in educational research about e-learning: A systematic literature review (2009–2018). *Sustainability*, 12(12), 5153.
- van Merriënboer, J. J., et al. (2005). Taking the load off a learner's mind: Instructional design for complex learning. *Educational Psychologist*, 38(1), 5-13.
- van Merriënboer, J. J. and J. Sweller (2010). Cognitive load theory in health professional education: design principles and strategies. *Medical education*, 44(1), 85-93.
- Varol, B. and G. Erçetin (2019). Effects of gloss type, gloss position, and working memory capacity on second language comprehension in electronic reading. *Computer assisted language learning*, 1-25.
- Vedadi, S., et al. (2019). The Effects of Multi-Sensory Augmented Reality on Students' Motivation in English Language Learning. *IEEE Global Engineering Education Conference (EDUCON)*, IEEE, (pp. 1079-1086). doi:10.1109/EDUCON.2019.8725096.
- Vergara, D., et al. (2019). Meaningful learning through virtual reality learning environments: A case study in materials engineering. *Applied Sciences* 9(21): 4625.

- Vijaya, K. and S. Shahin (2016). "Integration of multimedia for teaching writing skills." *Computer-Assisted Language Learning-Electronic Journal* 17: 57-86.
- Viberg, O., Mavroudi, A., Ma, Y. (2020). Supporting Second Language Learners' Development of Affective Self-regulated Learning Skills Through the Use and Design of Mobile Technology. In: *Alario-Hoyos, C., Rodríguez-Triana, M.J., Scheffel, M., Arnedillo-Sánchez, I., Dennerlein, S.M. (eds) Addressing Global Challenges and Quality Education. EC-TEL 2020. Lecture Notes in Computer Science*, vol 12315. Springer, Cham. [https://doi.org/10.1007/978-3-030-57717-9\\_13](https://doi.org/10.1007/978-3-030-57717-9_13).
- Vo, M. H., et al. (2020). "Students' performance in blended learning: disciplinary difference and instructional design factors. *Journal of Computers in Education*, 1-24.
- Walliman, N. (2017). *Research methods : 2<sup>nd</sup> Edition*, Routledge, 270 Madison Avenue, New York, NY 10016, p 7-15.
- Wang, F., Li, W., Mayer, R. E., & Liu, H. (2018). Animated pedagogical agents as aids in multimedia learning: Effects on eye-fixations during learning and learning outcomes. *Journal of Educational Psychology*, 110(2), 250.
- Wang, J., et al. (2019). Strategies for multimedia learning object recommendation in a language learning support system: Verbal learners vs. Visual learners. *International Journal of Human-Computer Interaction* 35(4-5), 345-355.
- Wang, Z., et al. (2019). Elaborated feedback and learning: Examining cognitive and motivational influences. *Computers & Education* 136, 130-140.
- Wang, F. L., Zhong, J., Zou, D., Xie, H., Lun, Y., & Wong, L. P. (2020). A Digital Educational Game Based on the ARCS Model for Enhancing Information Literacy. In *2020 International Symposium on Educational Technology (ISET)* (pp. 122-126).
- Warsono, W., et al. (2020). Multimedia Learning Modules (MLMs) Based on Local Wisdom in Physics Learning To Improve Student Diagram Representations in Realizing the Nature of Science. *International Journal of Interactive Mobile Technologies (iJIM)* 14(06): 148-158.
- Watson, A. (2015). The problem of grammar teaching: A case study of the relationship between a teacher's beliefs and pedagogical practice. *Language and Education*, 29(4), 332-346.
- Wichadee, S. and F. Pattanapichet (2018). Enhancement of performance and motivation through application of digital games in an English language class. *Teaching English with Technology* 18(1): 77-92.
- Wiana, W. (2018). Interactive multimedia-based animation: a study of effectiveness on fashion design technology learning. *Journal of Physics: Conference Series* Vol. 953, No. 1, p. 012024.
- Wirzberger, M., Herms, R., Bijarsari, S. E., Eibl, M., & Rey, G. D. (2018). Schema-related cognitive load influences performance, speech, and physiology in a dual-task setting: A continuous multi-measure approach. *Cognitive research: principles and implications*, 3(1), 1-16.
- Wong, R. M., & Adesope, O. O. (2021). Meta-analysis of emotional designs in multimedia

- learning: A replication and extension study. *Educational Psychology Review*, 33(2), 357-385.
- Wright, N. and C. Wrigley (2019). Broadening design-led education horizons: Conceptual insights and future research directions. *International Journal of Technology and Design Education* 29(1): 1-23.
- Wu, T. T. (2018). Improving the effectiveness of English vocabulary review by integrating ARCS with mobile game-based learning. *Journal of Computer Assisted Learning* 34(3): 315-323.
- Wu, W.-c. V., et al. (2011). Using online EFL interaction to increase confidence, motivation, and ability. *Journal of Educational Technology & Society* 14(3): 118-129.
- Xiao, Y., et al. (2005). The appraisal of reliability and validity of subjective workload assessment technique and NASA-task load index. *Chinese journal of industrial hygiene and occupational diseases* 23(3): 178-181.
- Xu, M. (2016). The Application of Input Hypothesis and Affective Filter Hypothesis in Colleges English Listening Teaching. *2nd International Conference on Education Technology, Management and Humanities Science*, Atlantis USA.
- Xu, Q. and H. Peng (2017). Investigating mobile-assisted oral feedback in teaching Chinese as a second language. *Computer assisted language learning* 30(3-4): 173-182.
- Xu, Z., et al. (2019). The effectiveness of educational technology applications on adult English language learners' writing quality: A meta-analysis. *Computer assisted language learning* 32(1-2): 132-162.
- Yang, T.-C., et al. (2013). Development of an adaptive learning system with multiple perspectives based on students' learning styles and cognitive styles. *Journal of Educational Technology & Society* 16(4): 185.
- Yang, Q., Su, M., Li, Y., & Wang, R. (2019). Revisiting the relationship between correlation coefficient, confidence level, and sample size. *Journal of chemical information and modeling*, 59(11), 4602-4612.
- Yau, H. K. and A. L. F. Cheng (2012). Gender difference of confidence in using technology for learning. *Journal of Technology Studies* 38(2): 74-79.
- Yeh, H.-C. (2018). Exploring the perceived benefits of the process of multimodal video making in developing multiliteracies. *Language Learning & Technology* 22(2): 28-37.
- Yen, C. H. (2017). Exploring the Choices for an Effective Method for Cognitive Load Measurement in Asynchronous Interactions of E-Learning. *Cognitive Load Measurement and Application* (pp. 183-198). Routledge.
- Yen, L., et al. (2016). Effects of mobile game-based English vocabulary learning APP on learners' perceptions and learning performance: A case study of Taiwanese EFL learners. *ReCALL*, 31(2), 170-188.
- Yilmaz, T. K. and K. Cagiltay (2016). Designing and Developing Game-Like Learning Experience in Virtual Worlds: Challenges and Design Decisions of Novice Instructional

- Designers. *Contemporary Educational Technology* 7(3): 206-222.
- Yosraveevorakul, S., et al. (2017). Learning Styles of ASEAN Students: A Pilot Case Study of Thai Freshmen in English Major at the School of Liberal Arts, Mae Fah Luang University. *International Journal of Applied Engineering Research* 12(24): 14889-14894.
- You, C., et al. (2016). "Motivation, vision, and gender: A survey of learners of English in China." *Language Learning* 66(1): 94-123.
- Young, J. Q., et al. (2016). Measuring cognitive load: mixed results from a handover simulation for medical students. *Perspectives on medical education* 5(1): 24-32.
- Yukselturk, E., et al. (2018). Using game-based learning with kinect technology in foreign language education course. *Journal of Educational Technology & Society* 21(3): 159-173.
- Zakaria, S. and M. M. Yunus (2020). Flipped classroom in improving ESL primary students tenses learning. *International Journal of English Language and Literature Studies* 9(3): 151-160.
- Zambrano, J., Kirschner, P., Kirschner, F., & Sweller, J. (2018). From Cognitive Load Theory to Collaborative Cognitive Load Theory. *Intern. J. Comput.-Support. Collab. Learn* (2018) 13:213–233 <https://doi.org/10.1007/s11412-018-9277-y>
- Zen, E. L. and A. Apriana (2015). Contributing factors toward first and second language acquisition: A manifestation of Krashen's affective filter hypothesis. Engaging linguistics and literature: Perspectives and insights beyond the curriculum: Paper presented at *The 2nd Forum on Linguistics and Literature (FOLITER) UIN Maliki Malang, Indonesia*, p 256-264.
- Y. Zhang, H. Zheng, Y. Duan, L. Meng and L. Zhang, An integrated approach to subjective measuring commercial aviation pilot workload, *IEEE 10th Conference on Industrial Electronics and Applications (ICIEA)*, 2015, pp. 1093-1098, doi: 10.1109/ICIEA.2015.7334270.
- Zhen, Z. (2016). The use of multimedia in English teaching. *US-China Foreign Language* 14(3): 182-189.
- Zheng, L. (2015). A systematic literature review of design-based research from 2004 to 2013. *Journal of Computers in Education* 2(4): 399-420.
- Zhonggen, Y., et al. (2019). Student satisfaction, learning outcomes, and cognitive loads with a mobile learning platform. *Computer assisted language learning* 32(4): 323-341.
- Zhu, M., Bonk, C. J., & Doo, M. Y. (2020). Self-directed learning in MOOCs: exploring the relationships among motivation, self-monitoring, and self-management. *Educational Technology Research & Development*, 68(5).
- Zilka, G. C., et al. (2019). Sense of challenge, threat, self-efficacy, and motivation of students learning in virtual and blended courses. *American Journal of Distance Education* 33(1): 2-15

Zoghi, M., et al. (2013). The effect of gender on language learning. *Journal of Novel Applied Sciences* 2(4): 1124-1128.