



Course Content in LMS: Unveiling User Satisfaction During COVID-19 Pandemic

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Abstract

Understanding students' perspectives on online learning platforms is essential in the current educational environment. This study explores the satisfaction of Communicative English students at a Politeknik Mukah on course content uploaded on LMS during the pandemic. The survey is administered to 100 fourth-term students enrolled in "Communicative English 3," comprising 30% from the engineering field and 70% from non-engineering field. The reliability of the questionnaire indicates good internal consistency with Cronbach Alpha of 0.961. The outcome reveals that understanding the perceptions of students and the impact of course content can enhance online learning experiences, increase students' engagement, and increase satisfaction. The findings can aid educators, institutions, and policymakers in making well-informed decisions to improve online education and acclimatize to the changing educational landscape.

Keywords: - Learning Management System (LMS), course content, satisfaction

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1. Introduction

Before the COVID-19 outbreak, there was a steady rise in the use of educational technology in teaching and learning. According to Zheng Y. et al. (2018), higher education institutions were responsible for implementing web-based learning tools using organizational support software. In step with this trend, the Division of Instructional and Digital Learning at the polytechnic level did a lot to encourage online learning by using educational technology. A study conducted by Azlida & Abdul Halim (2017) discovered that the Malaysian polytechnic system has extensively adopted various Learning Management Systems (LMS) such as the eLearning and Teaching Centre (CeLT), Massive Open Online Courses (MOOCs), the Curriculum Information Document Online System (CIDOS), the new Technology Enabled Collaborative Classroom (TECC), and Moodle. These steps were taken as part of the Ministry's plan to promote and help online learning in the country.

Educators and institutions could create, deliver, and manage courses and educational content.

Learning Management Systems (LMS) were implemented in higher education institutions in 2003. The goal was to improve communication and give students self-paced learning programmes. In this situation, CIDOS was created as a web-based system that lets users manage curriculum documents, teaching and learning tools and help people share knowledge. Hasnan & Mohim (2021) said that using CIDOS-LMS has been shown to improve the quality of teaching and encourage more contact between students and teachers by serving as a flexible tool for making, distributing, and tracking students' progress. Some polytechnics started using LMS in the middle of the 2010s, and by 2011, it was used in all Malaysian polytechnics. The use of CIDOS-LMS in higher education institutions and polytechnics in Malaysia has made a big difference in better teaching and learning and in moving the education system forward.

As a result of the COVID-19 outbreak, online learning has become the most common way to teach and learn

around the world. With the closing of schools and other institutions, online learning has quickly replaced standard teaching methods. During the pandemic, the World Economic Forum mentioned that there was a big rise in educational technology and e-learning use. This led to a major change in education, with teaching now happening remotely on digital platforms (World Economic Forum, n.d.).

In the middle of the pandemic, several recent studies have investigated the obstacles and potential of distant learning (Thathsara & Kelum, 2020; Almekhlafy, 2020; Huang, 2020 and Mailizar et al., 2020). Scholars are actively investigating the benefits and drawbacks of new online learning systems, considering diverse stakeholders' perspectives. According to Mo et al. (2021), the decline in students' intentions to use online learning following the pandemic can be attributed to the lack of dependable course certification methods, the need for scientific and high-quality content, and insufficient student self-motivation and commitment. As a result, performing an inquiry becomes critical to understanding the current situation better, throwing light on the institution's particular problems and potential to improve the effectiveness and acceptance of online learning among students.

This study seeks to explore the perceptions of Communicative English students towards the course content of Communicative English in CIDOS 3.5 at Politeknik Mukah in Sarawak, Malaysia, based on the characteristics of the course content during the COVID-19 Pandemic. This study explores the contentment of Communicative English students at a polytechnic in Sarawak with the course materials that were uploaded onto the Learning Management System (LMS) amid the pandemic.

2. Literature Review

2.1 Raw Material Preparation

Learning Management System (LMS) has been widely implemented in Higher Education in Malaysia. Higher institutions in the country are already outfitted with cutting-edge facilities and various LMS platforms like MOOCS, Blackboard, Moodle, Canvas, and others. CIDOS was upgraded to version 3.5 in December 2018, allowing all lecturers in polytechnics instructing the same course to share the same platform and students to be grouped according to their lecturers. This can assist with standardising the instructional materials used to teach and learn the same courses. According to Wolfinger (2016), education had to be modernised so that students could study at any time and from any location due to the rapid development of technology. CIDOS 3.5 is utilised at our target institution to facilitate distance learning. This web-based technology is utilised to organise and administer students' activities. It also enables educators to develop and deliver curriculum, monitor student participation, and assess student achievement.

English language lecturers teaching Communicative English at polytechnics confronted the challenge of adapting to the new Communicative Language teaching methodology (Sanmugam et al., 2017). Educators were required to develop instructional materials for online instruction. In the wake of the COVID-19 institution closures, developing course material is vital to improving educational systems and maintaining uninterrupted classes during pandemic. Educators and students gain the flexibility to schedule and engage in learning sessions from anywhere by adopting efficient and effective tools. This reduces the need for travel and empowers students to increase their proficiency and output (Quadir & Zhou, 2021).

In 2019, Bhagat (2019) did a study in Malaysia to analyze the effectiveness of blended learning using Moodle 3.5.3. It discovered that blended learning improved students' learning performance and motivation. It was convenient, adaptable, and fascinating for students. They recommended greater professional training for instructors in e-content generation, ICT, instructional design, and other relevant areas (Dhawan, 2020). However, students' impressions of LMS as a substitute for traditional instruction were influenced by the quick change to online learning during the COVID-19 pandemic. Another study published by Bakar et al., (2022) discovered that Open University Malaysia's myINSPIRE Learning Management System with well-designed modules assisted learners in efficiently understanding information and improved their entire study experience.

With the provided platform for lecturers to prepare and upload the content they wish to convey to help students master the topic, Communicative English students could utilize CIDOS 3.5 for online learning; they downloaded the teaching slides in advance and read through them to better comprehend the lectures. Worksheets, videos, and other instructional materials for the English language can be obtained with a single click. CIDOS 3.5 enables the administration of an online exam. Moreover, especially during the COVID-19 pandemic, this creates novel interaction and communication opportunities between students and educators. Online education can be utilized without obstacles or interruptions.

2.2 E-Learning Content

According to Eom (2012), course content is a crucial factor in determining the overall efficacy of the online educational experience. The content's quality, relevance, and appropriateness significantly influence students' engagement, satisfaction, and learning outcomes in an online course. Educators must guarantee high-quality content with interactive elements that align with the pedagogical framework and seamless technology integration to improve online learning. It is the responsibility of educators to provide trustworthy and appropriate content to facilitate interactions and

interventions during online instruction. For online teaching and learning to be successful, it is essential to encourage students' active participation and collaboration on the online platform. Liu (2020) emphasizes the importance of content support, which alludes to a system's capacity to accommodate multiple content standards and formats.

Preparing pertinent and engaging e-learning content is a significant obstacle for many organizations seeking to foster the continuous professional development of their members. To ensure effective learning, Paudel P. (2021) emphasizes the significance of employing effective approaches, such as a calm and straightforward instructional style, content repetition, and efficient time management. Additionally, the study reveals that instructors and students should prioritize self-learning motivation, cooperation, and the ethical use of technology. This section examines the most important factors to consider when developing e-learning content that not only meets the requirements of learners but also encourages their ongoing commitment to professional development.

According to Dunlap & Lowenthal (2018), it is possible to improve students' interactions with the content of a course, as well as facilitate conceptual understanding and the attainment of learning objectives, by presenting that content in a way that is both clear and relevant to the structure of the course. The most efficient strategy for developing e-learning content for a Learning Management System (LMS) entail following a well-defined process that considers the learning administrator's responsibilities, encourages constructive learning experiences for members, and aligns with the goals intended for administrators and learners.

Pham et al. (2019) discovered a favourable association between overall e-learning service quality and e-learning satisfaction in a study that investigated the influence of e-learning service quality on e-learning student satisfaction and loyalty in Vietnam. Notably, the quality of course materials developed as a crucial component of the quality of e-learning services. Meanwhile, a case study conducted at Peking University in 2020 by Bao (2020) indicated that the idea of suitable relevance is extremely important. This includes ensuring that the quality, level of difficulty, and length of educational content correspond to students' academic readiness and online learning behaviour characteristics.

The importance of content in the educational process is underlined in Aguilera-Hermida (2020) research. Well-designed and relevant information is critical in moulding students' learning experiences, allowing them to effectively understand essential concepts and achieve their learning objectives. However, even with high-quality content, negative learning experiences can undermine students' overall experiences and cognitive engagement. While content is important, providing students with a great learning experience entails more than just offering high-quality materials. It necessitates correcting unfavorable conditions, creating a conducive

learning environment, and comprehending and adjusting to students' acceptance and preferences for information delivery. Only by working together can institutions improve the learning experience and boost students' cognitive engagement and academic performance.

2.3 User Satisfaction

Almarashdeh (2016) explains that user satisfaction in the context of a Learning Management System (LMS) pertains to the overall evaluation of the user experience, which significantly impacts users. Understanding user satisfaction is crucial for LMS providers and administrators, as it enables them to comprehend users' requirements and expectations and make educated decisions to improve the overall user experience. Numerous factors, including content quality and relevance, usability, feature availability, accessibility, and functionality, influence LMS satisfaction.

In a study conducted by Tjong et al. (2018), the researchers emphasized that users expect LMS platforms to provide accurate content tailored to their requirements. Additionally, users prefer visually appealing, well-organized layouts with various standard formats. This study emphasizes the significance of contemplating user satisfaction when designing or enhancing LMS systems.

In Malaysia's student-centered education system, user satisfaction is particularly important because it enables instructors to comprehend students' diverse learning styles. According to Kuen et al. (2017), educators can enhance classroom concepts and promote student autonomy by acquiring online and technical skills through LMS learning.

3. Methodology

This study evaluates student satisfaction with CIDOS 3.5 content in Communicative English 3. Quantitative research methodology employing purposive sampling was utilized to collect data. A questionnaire was used to collect data, and responses were measured on a 5-point Likert Scale. The analysis of the collected data was intended to identify behavioral patterns among participants and inform policies and instructors, thereby contributing to a deeper comprehension of the quality of the content.

In this study, the researchers used "judgement sampling," also called "purposive sampling," to choose a group of people who took part. Purposeful sampling refers to selecting people based on specific characteristics important to the study according to Etikan et al. (2016). Bernard (2018) also pointed out how important it was for participants to be available, ready to take part, and able to talk about their experiences and opinions clearly, thoughtfully, and expressively. Hence, the study focused on 100 students in their fourth term who were taking "Communicative English 3" in Session I 2021/2022. and had joined and attended online learning through CIDOS 3.5 to learn Communicative English during the COVID-19 pandemic.

The questionnaire employed a 5-point Likert Scale and was divided into two sections. The first section, Section A, consists of six multiple-choice questions designed to collect demographic information from participants, such as age, gender, semester, department, e-learning experience, and access to high-speed internet. The second section, Section B, consisted of 11 queries about CIDOS 3.5's System Characteristics (Salloum et al., 2019), pertinent to the study context at Politeknik Mukah, a Malaysian higher education institution. Some questions are reworded and simplified so that respondents can comprehend them. According to Rahi et al. (2019), to avoid respondents' confusion, it is preferable for a question to be brief and straightforward rather than complex.

A pilot study was conducted before administering the questionnaire to the intended participants to ensure its clarity, comprehensibility, and efficacy. Thirty polytechnic students already utilizing CIDOS 3.5 during the pilot test were given an online questionnaire (Google form). This pilot test was conducted to identify any potential issues or flaws with the questionnaire. Before using the instrument with a larger sample of participants, researchers could refine and improve the instrument to increase its reliability and validity through this process.

The researchers modified Said et al. (2019) questionnaire items and exerted considerable effort to confirm instrument validity and reliability. Three Malaysian and Indonesian professionals in educational technology evaluated the content's veracity via videoconference. This step involved adapting the questionnaire to the research context. A pilot study assessed the reliability of the questionnaire.

Then, local experts were consulted to evaluate the content and apparent validity. It was requested that three specialists evaluate and enhance the questionnaire draught. To assess the questionnaire's reliability, "reliability" was defined as the measure's consistency across time, similar samples, and various instrument uses. The internal consistency of the questionnaire was evaluated using Cronbach's alpha. The analysis made use of pilot test Likert Scale scores.

The classification of Alias's reliability helped academicians interpret Cronbach Alpha results. The Cronbach Alpha for the construct exceeded 0.80 (0.961), indicating good internal consistency. Descriptive analysis condenses and assesses data to become acquainted with the gathered information. This study utilized five-tiered interpretation method for mean scores. Table 1 illustrates the various levels of mean score interpretation employed in this research.

Table 1. Level of mean interpretation

Mean Value	Level of Interpretation
1.01-1.80	Very Low
1.81-2.60	Low
2.61-3.20	Medium
3.21-4.20	High
4.21-5.00	Very High

4. Result and Discussion

The study examined these students' utilisation of CIDOS3.5 content, specifically their engagement, and satisfaction in the communicative English course during the COVID-19 pandemic. The researchers wanted to understand how well the CIDOS 3.5 platform supported online language learning at the polytechnic by collecting data from this diverse set of students.

The information reported in Table 2 offers valuable insights into students' satisfaction regarding CIDOS 3.5 concerning the structure of LMS material during the COVID-19 pandemic. The investigation primarily centred on examining the advantages of CIDOS 3.5, with a specific emphasis on the instructional content contributed by educators. The results demonstrate that items 1-11 obtained a very high average score of 4.23 (SD 0.75), indicating substantial satisfaction among participants with the Learning Management System (LMS) content across multiple dimensions.

A notable fraction of participants expressed that the Communicative English materials in CIDOS 3.5 were pertinent to their requirements, with a mean score of 4.29 and a standard deviation of 0.70. In addition, the participants positively welcomed the amount of uploaded content, including videos, e-books, handouts, lecture slides, and URL links, as indicated by a mean score of 4.28 (SD = 0.71). The respondents had a favourable perception of the format of the uploaded content, as evidenced by a mean score of 4.27 (SD = 0.75). In a similar vein, the various forms of instructional materials (such as videos, e-books, handouts, lecture slides, and URL links) that instructors uploaded were found to have a significantly high average score of 4.24, with a standard deviation of 0.77.

In relation to the functionalities offered by CIDOS 3.5, such as the inclusion of discussion boards, forums, and chat rooms to facilitate comprehension of educational materials, the participants expressed a consensus, as indicated by a mean score of 4.22 (SD = 0.79). The uploaded content received positive quality ratings, with an average score of 4.21 and a standard deviation of 0.73. Nevertheless, certain elements of the content were found to have comparatively lower average ratings. The data collected from the respondents revealed a slightly decreased level of satisfaction in terms of the comprehensibility of the material (mean = 4.16, SD = 0.71) and its relevance to their requirements (mean = 4.18, SD = 0.77). Educators must be cognizant of these

content-related matters to handle potential concerns effectively.

In contrast, the participants conveyed a notable level of contentment with the functionalities of CIDOS 3.5. These functionalities encompassed communication (such as forum and chat features), Productivity (including calendar and scheduling tools), Course Management (encompassing material sharing and student enrollment capabilities), and Assessment (encompassing grade books and tracking functionalities). The average score for these functions was 4.20 (standard deviation = 0.77), suggesting that the respondents generally had a favorable

perception of them. CIDOS 3.5 demonstrated commendable performance in terms of its reliability and aesthetic attributes, encompassing aspects such as layout, visual design, and organization of course content. The platform garnered continuously elevated ratings, with a mean score of 4.23 and a standard deviation of 0.76. It is worth mentioning that a significant majority of respondents, specifically 82% (n=82), conveyed their positive regard for the platform's layout, visual appearance, and the manner in which course content is organized.

Table 2. Students' satisfaction of course content

No	Items	Mean	SD	Interpretation
1	Content for Communicative English relevant to my needs is learnt through CIDOS 3.5 during the COVID-19 pandemic.	4.29	0.70	Very High
2	The content for Communicative English produced through CIDOS 3.5 during the COVID-19 pandemic is up-to-date for my needs.	4.18	0.77	High
3	The content for Communicative English from CIDOS 3.5 during the COVID-19 Pandemic is comprehensible.	4.16	0.71	High
4	CIDOS 3.5 presents the content of Communicative English in an appropriate format during the COVID-19 Pandemic.	4.27	0.75	Very High
5	The reliability of content (you can trust the content) of Communicative English from CIDOS 3.5 during the COVID-19 pandemic is high.	4.23	0.76	Very High
6	I am satisfied with CIDOS 3.5 communication features (discussion board, forum, chat room) during the COVID-19 Pandemic.	4.22	0.79	Very High
7	I am satisfied with CIDOS 3.5 functions (Communication- forum, Chat; Productivity- Calendar, Schedule; Course Management-Content Sharing, Student Enrolment; Assessment- Grade books, tracking) during the COVID-19 Pandemic	4.20	0.77	High
8	I am satisfied with the types of content (video, e-book, handouts, lecture slides, URL links) uploaded by the lecturer in the CIDOS 3.5 during the COVID-19 Pandemic.	4.24	0.77	Very High
9	I am satisfied with the quality of the uploaded content (video, e-book, handouts, lecture slides, URL links) by the lecturer in the CIDOS 3.5 during the COVID-19 pandemic.	4.21	0.73	Very High
10	I am satisfied with the quantity of the uploaded content (video, e-book, handouts, lecture slides, URL links) by the lecturer in the CIDOS 3.5 during the COVID-19 pandemic.	4.28	0.71	Very High
11	I am satisfied with the ecstatic values (Layout of the platform, visual design, the organization of the course content) of CIDOS 3.5 during the COVID-19 pandemic.	4.23	0.76	Very High
Overall		4.23	0.75	Very High

In general, the data analysis reveals a high degree of students' satisfaction with CIDOS 3.5 amidst the COVID-19 pandemic, with a specific emphasis on the content and platform features of the Learning Management System. This favorable perception of the course material has the potential to improve students' comprehension and application of the course materials. In addition, it can boost their self-efficacy by instilling greater confidence in their subject-matter knowledge. Likewise, the students' positive experience with the course may serve as an incentive for them to explore the various features and resources provided by the Learning Management System (LMS). These insights can be utilized by educators to augment the comprehensibility and relevance of the platform's content, so better addressing the needs of students.

According to the findings of this study, respondents expressed high levels of satisfaction. Kumar et al. (2021) emphasized the necessity of understanding learners' perceived satisfaction with existing material and e-

learning quality in various online courses for content designers and instructors. Effective website content can affect visitors' attitudes, ultimately contributing to learner satisfaction.

According to Eom (2012), course material substantially impacts the overall effectiveness of online education. The content quality, relevance, and appropriateness of an online course can significantly impact learners' engagement, satisfaction, and learning outcomes.

The development of an adaptable online learning system that dynamically interacts with students and tailors content to their particular needs was proposed in the study by Simanora et al. (2020). This system encourages collaboration among students from various backgrounds while meeting their learning needs. Implementing an adaptable method like this could improve learner satisfaction and the overall learning experience.

Overall, the study emphasizes the importance of content quality, relevance, and adaptation in online learning settings, with respondents expressing high satisfaction levels. Understanding these aspects can assist educators and content designers in optimizing online courses to suit the demands of learners better and increase overall satisfaction and learning results.

5. Conclusion

In conclusion, the data analysis highlights a notable level of student satisfaction with CIDOS 3.5 in the challenging context of the COVID-19 pandemic, emphasizing the course content and platform features of the Learning Management System. This positive perspective on the course material has the potential to improve students' comprehension and application of the course materials. The study ensures that online learning systems' material matches students' interests and needs, improving learning. Understanding student challenges and perceptions of online learning during the pandemic can help educational institutions, LMS providers, and educators improve online courses and student engagement.

Instructors should be able to construct course materials, tools, activities, and assessments that let students experience the information in different ways to optimize the learning environment and meet unique learner needs. Faculty and SMEs need professional development to curate and construct culturally inclusive course content. Educators can improve online learning for all students by improving their skills. Future studies can examine the long-term consequences of online learning during and after the COVID-19 pandemic, helping educational institutions develop sustainable and flexible online learning practices. Online education can be improved by studying how different teaching methods, content formats, and technology affect student engagement and satisfaction. Research might also examine the obstacles educators experience in delivering good online courses and find novel solutions to improve learning results and student happiness.

There were some limitations to this study. Firstly, it focused simply on gauging user satisfaction with learning materials without delving into the underlying reasons behind respondents' choices. It is critical to recognize that this study did not address any other elements influencing e-learning students' satisfaction and loyalty. Furthermore, the study's scope was limited to a specific sample of students enrolled in Communicative English course who engaged in online classes during the COVID-19 outbreak. This narrow scope may limit the findings' generalizability to a larger population or different educational situations. Future study ought to seek to investigate a larger range of elements to acquire a more complete picture of e-learning pupil satisfaction.

References

- Aguilera-Hermida, A. P. (2020). College students' use and acceptance of emergency online learning due to COVID-19. *International journal of educational research open*, 1, 100011.
- Almaiah, M. A., Al-Khasawneh, A., & Althunibat, A. (2020). Exploring the critical challenges and factors influencing the E-learning system usage during the COVID-19 pandemic. *Education and information technologies*, 25, 5261-5280.
- Almarashdeh, I. (2016). Sharing instructors experience of learning management system: A technology perspective of user satisfaction in distance learning course. *Computers in Human Behavior*, 63, 249-255.
- Almekhlafy, S. S. A. (2020). Online learning of English language courses via blackboard at Saudi universities in the era of COVID-19: perception and use. *PSU Research Review*, 5(1), 16-32.
- Arshad, N. M., Hassan, Z., & Noh, S. H. M. (2021). Faktor-Faktor Yang Mempengaruhi Penerimaan E-Pembelajaran Dalam Kalangan Pelajar di Politeknik Port Dickson: Kajian Kes Semester 4 Diploma Kejuruteraan Mekanikal Pembuatan: Factors Affecting the Acceptance of E-learning among Students at Port Dickson Polytechnic: A Fourth Semester Case Study for the Engineering Diploma in Mechanical Manufacturing. *International Journal of Humanities Technology and Civilization*, 1(10): 107-123.
- Ahmad, A., Sirajuddin, P. T. S., & Mohamed, A. H. (2017). The Effectiveness of Training: Equipping and Enhancing ICT Knowledge and Skills among Polytechnic Lecturers in Producing Quality Highly Skilled Graduates. *Advanced Journal of Technical and Vocational Education*, 1(3), 01-05.
- Bakar, S. A., Zabidi, N. A., Yasin, N. E., & Ali, S. A. H. (2022). Open University Malaysia Modules Satisfaction with Instructional Design Elements. *International Journal of Academic Research in Business and Social Sciences*, 12(8), 385-394.
- Bao, W. (2020). COVID-19 and online teaching in higher education: A case study of Peking University. *Human behavior and emerging technologies*, 2(2), 113-115.
- Bernard, H. R. (2018). *Research Methods in Anthropology: Qualitative and Quantitative Approaches* (6th edition). Rowman & Littlefield Publishing Group, Inc.
- Bhagat, K. K. (2019). The impact of technology-enabled learning at Universiti Malaysia Sabah.
- Chung, E., Subramaniam, G., & Dass, L. C. (2020). Online learning readiness among university students in Malaysia amidst COVID-19. *Asian Journal of University Education*, 16(2), 45-58.

- Creating eLearning Content: LMS Best Practice | WBT Systems.* (n.d.-a). Retrieved July 25, 2023 from <https://www.wbtssystem.com/learning-hub/blogs/creating-elearning-content-lms-best-practice>.
- Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of educational technology systems, 49*(1), 5-22.
- Dunlap, J., & Lowenthal, P. (2018). Online educators' recommendations for teaching online: Crowdsourcing in action. *Open Praxis, 10*(1), 79-89.
- Eom, S. B. (2012). Effects of LMS, self-efficacy, and self-regulated learning on LMS effectiveness in business education. *Journal of International Education in Business, 5*(2), 129-144.
- Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American journal of theoretical and applied statistics, 5*(1), 1-4.
- Hasnan, M. B., & Mohin, M. B. (2021). Implementation of LMS-CIDOS in Polytechnic English Language Classroom: Issues and Challenges. *Asian Journal of University Education, 17*(4), 527-537.
- Huang, Q. (2020). Analysis of the Pros and Cons of Students' Online Courses during the Epidemic and the Prospects for the Development of English Online Platform in Secondary Vocational School. *Education Reform and Development, 2*(1).
- Kuen, G. L., Rafik-Galea, S., & Heng, C. S. (2017). Effect of oral communication strategies training on the development of Malaysian English as a second language learners' strategic competence. *International Journal of Education and Literacy Studies, 5*(4), 57-77.
- Kumar, P., Saxena, C., & Baber, H. (2021). Learner-content interaction in e-learning-the moderating role of perceived harm of COVID-19 in assessing the satisfaction of learners. *Smart Learning Environments, 8*(1), 1-15.
- Liu, Z. Y., Lomovtseva, N., & Korobeynikova, E. (2020). Online learning platforms: Reconstructing modern higher education. *International Journal of Emerging Technologies in Learning (iJET), 15*(13), 4-21.
- Maddumapatabandi, T. D., & Gamage, K. A. (2020). Novel coronavirus (COVID-2019) pandemic: Common challenges and response from higher education providers. *Journal of Applied Learning and Teaching, 3*(2), 1-11.
- Mailizar, A., Abdulsalam, M., & Suci, B. (2020). Secondary school mathematics teachers' views on e-learning implementation barriers during the COVID-19 pandemic: The case of Indonesia. *Eurasia Journal of Mathematics, Science & Technology Education, 1*-9.
- Mo, C. Y., Hsieh, T. H., Lin, C. L., Jin, Y. Q., & Su, Y. S. (2021). Exploring the critical factors, the online learning continuance usage during COVID-19 pandemic. *Sustainability, 13*(10), 5471.
- Mohamad, S. N. M., Salam, S., & Bakar, N. (2014). Lecturers' Perceptions and Attitudes Towards the Usage of Online Learning at Polytechnic. *Learning, 51*, 43.
- Paudel, P. (2021). Online education: Benefits, challenges and strategies during and after COVID-19 in higher education. *International Journal on Studies in Education (IJonSE), 3*(2).
- Pham, L., Limbu, Y. B., Bui, T. K., Nguyen, H. T., & Pham, H. T. (2019). Does e-learning service quality influence e-learning student satisfaction and loyalty? Evidence from Vietnam. *International Journal of Educational Technology in Higher Education, 16*(1), 1-26.
- Quadir, B., & Zhou, M. (2021). Students perceptions, system characteristics and online learning during the COVID-19 epidemic school disruption. *International Journal of Distance Education Technologies (IJDET), 19*(2), 15-33.
- Rahi, S., Alnaser, F. M., & Abd Ghani, M. (2019). Designing survey research: recommendation for questionnaire development, calculating sample size and selecting research paradigms. *Economic and Social Development: Book of Proceedings, 1157-1169*.
- Salloum, S. A., Alhamad, A. Q. M., Al-Emran, M., Monem, A. A., & Shaalan, K. (2019). Exploring students' acceptance of e-learning through the development of a comprehensive technology acceptance model. *IEEE Access, p. 7, 128445-128462*.
- Salloum, S. A., Alhamad, A. Q. M., Al-Emran, M., Monem, A. A., & Shaalan, K. (2019). Exploring students' acceptance of e-learning through the development of a comprehensive technology acceptance model. *IEEE access, 7, 128445-128462*.
- Sanmugam, S. T., Shah, P. S. A., & Behrang, P. (2013). Target situation needs analysis: Exploring the linguistic needs of polytechnic engineering students across three majors. *English for Specific Purposes World, 14*(39), 1-9.
- Simamora, R. M., De Fretes, D., Purba, E. D., & Pasaribu, D. (2020). Practices, challenges, and prospects of online learning during Covid-19 pandemic in higher education: Lecturer perspectives. *Studies in Learning and Teaching, 1*(3), 185-208.
- Taat, M. S., & Francis, A. (2020). Factors Influencing the Students' Acceptance of E-Learning at Teacher Education Institute: An Exploratory Study in Malaysia. *International Journal of Higher Education, 9*(1), 133-141.
- Tanveer, M., Bhaumik, A., Hassan, S., & Haq, I. U. (2020). Covid-19 pandemic, outbreak educational

- sector and students online learning in Saudi Arabia. *Journal of Entrepreneurship Education*, 23(3), 1-14.
- Tao, D., Fu, P., Wang, Y., Zhang, T., & Qu, X. (2022). Key characteristics in designing massive open online courses (MOOCs) for user acceptance: An application of the extended technology acceptance model. *Interactive Learning Environments*, 30(5), 882–895.
- The COVID-19 pandemic has changed education forever. This is how (no date) *World Economic Forum*. Retrieved July 25, 2023 from <https://www.weforum.org/agenda/2020/04/coronaviruses-education-global-covid19-online-digital-learning>.
- Tjong, Y., Sugandi, L., Nurshafita, A., Magdalena, Y., Evelyn, C., & Yosieto, N. S. (2018, September). User satisfaction factors on learning management systems usage. In 2018 *International Conference on Information Management and Technology (ICIMTech)* (pp. 11-14). IEEE.
- Wolfinger, S. (2016). Exploratory Case Study of Middle School Academic Achievement in A Fully Online Virtual School. In *ICERI2016 Proceedings* (pp. 2684-2691). IATED.
- Zheng, Y., Wang, J., Doll, W., Deng, X., & Williams, M. (2018). The impact of organisational support, technical support, and self-efficacy on faculty perceived benefits of using learning management system. *Behaviour & Information Technology*, 37(4), 311–319.