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Examining E-tutors Experiences of Facilitating Modules through a Learning Management System: A Case Study of an Open Distance E-Learning Institution

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ABSTRACT

The purpose of this paper was to investigate the facilitation experiences of e-tutors who were assigned to teach modules through a Learning Management System (LMS). The article employed an interpretivism quantitative survey method for e-tutors to articulate their impressions about how the LMS leverages them to become experts through facilitation in modules. The paper employed a Constructivism learning theory as a lens for the paper. Quantitative analysis was used to collect accounts from five e-tutors and the accounts were arranged and presented in tables. The five e-tutor samples were based on the criteria set during their appointment by the case institution. It was found that e-tutors cannot facilitate with LMS. It is recommended that e-tutors should be trained to be able to promote their teaching using LMS for different module courses. The study contributes to the growing literature on the ODeL e-tutoring model for student support.

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INTRODUCTION

The Learning Management System (LMS) is software based on a web server, cloud computing, or personal local computer that manages the teaching and learning process in academic environments without the constraint of time and place.[1] LMS equips e-tutors in furnishing educational resources, monitoring online students, and granting students usage of electronic learning aids.[2] The inception of LMS aims to cover itself to make the e-learning desirable environment for students and e-tutors for a more open, individualized and accessible system.[3] An LMS has a practical, systematic use to implement and manage online education for the delivery of educational courses by e-tutors.[4] There is an expectation that e-tutors become providers of technology to administer online learning environments and become content facilitators.[5] Content facilitation is possible only when e-tutors believe that using LMS can

[1] Lisseth Sanchez, Jefferson Penarreta, and Xavier Soria Poma, "Learning Management Systems for Higher Education: A Brief Comparison," *Discover Education* 3, no. 1 (May 23, 2024): 58, https://doi.org/10.1007/s44217-024-00143-5.
[2] Mohammad Usama et al., "Web-Based vs. Mixed Mode Instruction Utilizing e-Learning via LMS: A Comparative Study,"," *International Journal of Information and Education Technology* 14, no. 4 (2024): 612–19.
[3] Sarah Alserhan et al., "Personal Learning Environments: Modeling Students' Self-Regulation Enhancement Through a Learning Management System Platform," *IEEE Access* 11 (2023): 5464–82, https://doi.org/10.1109/ACCESS.2023.3236504.
[4] Zohreh Saadati, Canan Perkan Zeki, and Reza Vatankhah Barenji, "On the Development of Blockchain-Based Learning Management System as a Metacognitive Tool to Support Self-Regulation Learning in Online Higher Education," *Interactive Learning Environments* 31, no. 5 (July 4, 2023): 3148–71, https://doi.org/10.1080/10494820.2021.1920429.
[5] Sara Romiti, Francesco Fabbro, and Eleonora Mattarelli, "Collective Feedback as a Formative Assessment Practice in an E-Learning Platform for Teachers' Professional Development," *Journal of Education Technology and Social Studies*, no. 1 (2023): 563–76.

improve their teaching efficiency since there is no requirement for deep knowledge to operate the system.[6]

Teaching efficiency in an online learning environment is a priority for e-tutors to maintain online students' satisfaction levels. Students' satisfaction ensures that students' instructional experiences are positive during teaching and learning engagements, especially online.[7] Students' satisfaction levels serve as barometers of instruction to evaluate e-tutors' knowledge about synchronous media for practical online lessons.[8] Students' satisfaction levels can be managed by using simple or less complex multimedia application tools which offer increased security systems.[9] The effectiveness of the synchronous teaching media in relation to students' satisfaction was tested and it was discovered that they were better at online learning than in the traditional learning environment.[10]

Online learning demands e-tutors to deliver online courses for their online students. Online courses have become mainstream in higher education because they provide flexibility which most students feel comfortable with, and hence, they can participate in learning.[11] The outcomes of participation in learning are through online exams for the students. Online exams have become topical for e-tutors because it may be due to the decreased chances and opportunities for real-time monitoring of learners.[12] Consideration is for online application tools where gamification is an example of a digital platforms-based tool whose purpose is to raise the cognitive growth rates of students.[13] Some instruments pose a potential risk of integrity to the online exams since their capacities to generate highly realistic results are under scrutiny.[14] The arching research objective for the paper is to evaluate the e-tutors' facilitation experiences of a module through LMS. The study sought the answer the question: What are the e-tutors' facilitation experiences of a Module through a Learning Management System?

LITERATURE REVIEW

A sole purpose was developed to investigate the e-tutors' facilitation experiences of a module through LMS. For the intended purpose, three constructs were developed to make certainties about the facilitation experiences, which were already obtained from the literature. The following three constructs guided the inquiry: I am able to use multimedia files to deliver course content; I am able to deliver online tests for online students; I am able to maintain online students' satisfaction levels with synchronous teaching media. The presentations are argued from previous studies.

[6] Twana Sulaiman et al., "Understanding Antecedents of Learning Management System Usage among University Lecturers Using an Integrated TAM-TOE Model," *Sustainability* 15, no. 3 (January 18, 2023): 1885, https://doi.org/10.3390/su15031885.
[7] Garima Mathur et al., "Students' Satisfaction and Learning: Assessment of Teaching-Learning Process in Knowledge Organization," *Indian Journal of Information Sources and Services* 14, no. 1 (January 20, 2024): 1–8, https://doi.org/10.51983/ijiss-2024.14.1.3798.
[8] Izabela Agata Majewska and Varaidzo Zvobgo, "Students' Satisfaction with Quality of Synchronous Online Learning Under the COVID 19 Pandemic: Perceptions from Liberal Arts and Science Undergraduates," *Online Learning* 27, no. 1 (March 1, 2023), https://doi.org/10.24059/olj.v27i1.3201; Hannah R. Slack and Michael Priestley, "Online Learning and Assessment during the Covid-19 Pandemic: Exploring the Impact on Undergraduate Student Well-Being," *Assessment & Evaluation in Higher Education* 48, no. 3 (April 3, 2023): 333–49, https://doi.org/10.1080/02602938.2022.2076804.
[9] Nurul Nadia Abd Aziz et al., "The Mediating Effects of Student Satisfaction on Technostress and Performance Expectancy," 2023, 834–48, https://doi.org/10.15405/epfe.23081.76.
[10] Ahmet Berk Üstün, "Investigating Impacts of Using Mobile Video Lectures on Student Satisfaction and Academic Achievement in Blended Learning," *Malaysian Online Journal of Educational Technology* 11, no. 3 (July 25, 2023): 199–210, https://doi.org/10.52380/mojet.2023.11.3.474.
[11] Florence Martin and Doris U. Bolliger, "Designing Online Learning in Higher Education," in *Handbook of Open, Distance and Digital Education* (Singapore: Springer Nature Singapore, 2023), 1217–36.
[12] Ismail Celik et al., "Response of Learning Analytics to the Online Education Challenges during Pandemic: Opportunities and Key Examples in Higher Education," *Policy Futures in Education* 21, no. 4 (May 12, 2023): 387–404, https://doi.org/10.1177/14782103221078401.
[13] Fahd Kamis Alzahrani and Waleed Salim Alhalafawy, "Gamification for Learning Sustainability in the Blackboard System: Motivators and Obstacles from Faculty Members' Perspectives," *Sustainability* 15, no. 5 (March 4, 2023): 4613, https://doi.org/10.3390/su15054613.
[14] Celik et al., "Response of Learning Analytics to the Online Education Challenges during Pandemic: Opportunities and Key Examples in Higher Education"; Joost C. F. de Winter, "Can ChatGPT Pass High School Exams on English Language Comprehension?," *International Journal of Artificial Intelligence in Education* 34, no. 3 (September 13, 2024): 915–30, https://doi.org/10.1007/s40593-023-00372-z; Teo Susnjak and Timothy McIntosh, "ChatGPT: The End of Online Exam Integrity?," *Education Sciences* 14, no. 6 (June 17, 2024): 656, https://doi.org/10.3390/educsci14060656.

E-tutor Abilities to use Multimedia Files to Deliver Course Content

This section is presented and urges from the literature. Some negative outcome reports were found in the literature about the construct. The online students stated that third-party videos within LMS which had the instructor in the videos made them lose focus, and it negatively affected their motivation and learning and did not contribute to the formation of the classroom atmosphere.[15] Participants mentioned poor interaction with classmates and teachers in virtual chat space classes as a negative factor affecting the quality of education with online class communication happening only through a chat space on the page and is dependent on the teacher's attention on student comments and questions.[16] E-tutors did not have enough knowledge and skills to use the LMS file effectively due to their lack of ICT skills.[17] The capacities of e-tutors to exploit multimedia applications within LMS were low.[18] E-tutors who wished to incorporate video content into their lessons for deaf students experienced a difficult time locating videos on the internet that were appropriate for the topic that was going to be taught, especially since the videos did not include descriptive prose that deaf students can read even if they are unable to hear the video.[19] The student's attention was distracted from the incorporation of an LMS application tool by their e-tutors during the delivery of online course content for the students.[20] Students who used mixed gamification were dissatisfied with the results they obtained from their e-tutors because they indicated a lot of plagiarism from the leaderboard.[21] Students perceived chatbot multimedia to be annoying and even disappointing in terms of response quality, especially for them to complete high-complexity tasks.[22] Synchronous learning media files, which were used by e-tutors, provided disadvantages to students who experienced being squeezed into the limited time frame of the educational process where their results indicated no mastering of the content in modules.[23]

Some positive accounts were found in the literature which related to the construct. The study's findings revealed that the relationship between multimedia technology and student learning was inherently positive, with numerous benefits that enhanced the learning experiences in various ways.[24] A clear and organized course page LMS may positively impact inclusivity with predictions that students will be more comfortable in online classrooms where they understand how their daily classes will proceed and what to expect with learning materials.[25] The integration of LMS prepared and enabled students to take tests and exams online from a variety of multimedia of computers, smartphones and tablet devices.[26] Some multimedia files (discussion boards, video conferencing, and threaded discussions) provided students with access and collaboration to interactive tools where their online learning setup became smoother.[27] Gamification as a medium with LMS was able to encourage students to engage in learning and stimulate active participation in educational situations where there were results of interactive

[15] Omer Kocak, "Adapting the Flipped Classroom Model to a Design Course in Online Learning Environments: A Case Study," *International Journal of Art & Design Education* 43, no. 1 (February 7, 2024): 51–66, https://doi.org/10.1111/jade.12481.
[16] Zahra Asgari Tapeh and Azar Darvishpour, "Undergraduate Nursing Students' Experiences of Virtual Learning during the COVID-19 Pandemic: A Qualitative Study," *Nursing Research and Practice* 2024, no. 1 (January 15, 2024), https://doi.org/10.1155/2024/7801500.
[17] Hilal Güneş and Müge Adnan, "Online Instructor Roles and Competencies: Voices of EFL Instructors," *International Online Journal of Education and Teaching (IOJET)* 10, no. 2 (2023): 892–916.
[18] Darren Turnbull, Ritesh Chugh, and Jo-Anne Luck, "Learning Management Systems and Social Media: A Case for Their Integration in Higher Education Institutions," 2023.
[19] Mohamad Ahmad Saleem Khasawneh, "The Use of Video as Media in Distance Learning for Deaf Students," *Contemporary Educational Technology* 15, no. 2 (2023): ep418.
[20] Erika Arazo et al., "Online Learning Self-Efficacy as Correlates to Academic Procrastination among Pre-Service Teachers," *International Journal of Scientific and Management Research* 06, no. 05 (2023): 171–87, https://doi.org/10.37502/IJSMR.2023.6508.
[21] Shen Qiao et al., "Examining the Effects of Mixed and Non-digital Gamification on Students' Learning Performance, Cognitive Engagement and Course Satisfaction," *British Journal of Educational Technology* 54, no. 1 (2023): 394–413.
[22] Bouchra El Bakkouri and Samira Raki, "Students Perception Of Chatbots Technology In Education: Case Study In Morocco," *Enhancing Productivity in Hybrid Mode: The Beginning of a New Era* 38 (n.d.).
[23] Veronika Banyoi et al., "Tools for Implementing Distance Learning during the War: Experience of Uzhhorod National University, Ukraine," *Arab World English Journal (AWEJ) Special Issue on Communication and Language in Virtual Spaces*, 2023.
[24] Shengnan Wu, "Application of Multimedia Technology to Innovative Vocational Education on Learning Satisfaction in China," *Plos One* 19, no. 2 (2024): e0298861.
[25] Christina Shane-Simpson, Rita Obeid, and Manna Prescher,"Multimedia Characteristics, Student Relationships, and Teaching Behaviors Predict Perceptions of an Inclusive Classroom across Course Delivery Format,"*Teaching of Psychology* 51,no.3(2024):298–308.
[26] Mohammad Khalil, Paul Prinsloo, and Sharon Slade, "The Use and Application of Learning Theory in Learning Analytics: A Scoping Review," *Journal of Computing in Higher Education* 35, no. 3 (December 1, 2023): 573–94, https://doi.org/10.1007/s12528-022-09340-3.
[27] Alka Pandita and Ravi Kiran, "The Technology Interface and Student Engagement Are Significant Stimuli in Sustainable Student Satisfaction," *Sustainability* 15, no. 10 (May 12, 2023): 7923, https://doi.org/10.3390/su15107923.

communication between online students and their e-tutors.[28] Google Classroom's level of acceptance among state high school students was high and the application was accepted as a learning medium whose usability and ease of use influenced students' attitudes, interests and satisfaction.[29] The integration of WhatsApp and Facebook into the LMS platform significantly increased the involvement among students who were participants in the study.[30] Social media tools within LMS increased social interaction and students' active engagement in the learning process, where students communicated with friends and tutors in real-time and accessed information during learning.[31] The broad range in accuracy results indicated that ChatGPT was rated as a high-performance medium when it scored remarkably accuracies of 89.5% for online classroom activities.[32]

E-tutor Abilities to Deliver Online Tests for Online Students

During the process of teaching and learning by e-tutors, online tests are part of the mandatory process to determine the achievement of students' learning outcomes for the module courses. Literature pointed to non-positive results about the construct. The results indicated that during unproctored online exams, the results could no longer be regarded as possessing validity.[33] The teachers found the use of online assessment challenging, especially in terms of the outcome of practicality, validity, and reliability.[34] Results indicated that online students' cheating became a common phenomenon and could not be removed from online assessments since it exists inherently to a greater extent in online environments.[35] Obscuring reformulation tendencies by students who falsely reformulated answers from another online exam sentence-by-sentence and only structurally plagiarized the original answer.[36] Students who were exposed to the ChatGP tool within the LMS lacked true meaning behind vocabulary, with results that their grasp of understanding of the online test course content was at a negative values score.[37] There were experiences of more time-consuming assessments of online tests from lecturers since they needed to adapt to the online exams and experienced an increase in the workload as a result of the integration of ChatGPT into online exams.[38] ChatGPT, which was a tool employed for online exams, raised concerns from lecturer users who felt threatened to accept the results of their students.[39] There was a copy-and-paste problem with the online exams which were completed in a smaller number of pages and in less amount of time by the students online.[40]

Some positive literature results affirmed e-tutors' abilities to deliver online exams. Respondents were generally positive about the delivery of online formative assessment tests during live sessions and

[28] Alzahrani and Alhalafawy, "Gamification for Learning Sustainability in the Blackboard System: Motivators and Obstacles from Faculty Members' Perspectives"; Tateng Gunadi and Widyo Nugroho, "Google Classroom Acceptance Level of High School Students Using the Technology Acceptance Model.," *Dinasti International Journal of Education Management & Social Science* 4, no. 5 (2023); Alhaji Modu Mustapha et al., "Students' Motivation and Effective Use of Self-Regulated Learning on Learning Management System Moodle Environment in Higher Learning Institution in Nigeria," *International Journal of Information and Education Technology* 13, no. 1 (2023): 195–202; Juni Wati Sri Rizki, "Social Media as Tools of Communication and Learning," *QALAMUNA: Jurnal Pendidikan, Sosial, Dan Agama* 15, no. 1 (2023): 391–404; Sakib Shahriar and Kadhim Hayawi, "Let's Have a Chat! A Conversation with ChatGPT: Technology, Applications, and Limitations," *ArXiv Preprint ArXiv:2302.13817*, 2023.

[29] Gunadi and Nugroho, "Google Classroom Acceptance Level of High School Students Using the Technology Acceptance Model."

[30] Mustapha et al., "Students' Motivation and Effective Use of Self-Regulated Learning on Learning Management System Moodle Environment in Higher Learning Institution in Nigeria."

[31] Rizki, "Social Media as Tools of Communication and Learning."

[32] Shahriar and Hayawi, "Let's Have a Chat! A Conversation with ChatGPT: Technology, Applications, and Limitations."

[33] Susnjak and McIntosh, "ChatGPT: The End of Online Exam Integrity?"

[34] Laiba Tajjamal, Qurratulain Rehan, and Flonia Hafee, "Investigating Teachers' Perceptions Regarding Online Assessment at Undergraduate Level," *Journal of Education And Humanities Research (JEHR), University of Balochistan, Quetta* 17, no. 1 (2024): 1–20.

[35] Anis Shazwani Saringat et al., "EFL Students' Perceptions Of Online Assessment Tool In Malaysian Higher Education Institutions," *International Journal Of Technical Vocational And Engineering Technology* 5, no. 1 (2024): 157–65.

[36] Catherine Cleophas et al., "Who's Cheating? Mining Patterns of Collusion from Text and Events in Online Exams," *INFORMS Transactions on Education* 23, no. 2 (2023): 84–94.

[37] Slack and Priestley, "Online Learning and Assessment during the Covid-19 Pandemic: Exploring the Impact on Undergraduate Student Well-Being."

[38] Michael Neumann, Maria Rauschenberger, and Eva-Maria Schön, "'We Need to Talk about ChatGPT': The Future of AI and Higher Education," in *2023 IEEE/ACM 5th International Workshop on Software Engineering Education for the Next Generation (SEENG)* (IEEE, 2023), 29–32.

[39] Miriam Sullivan, Andrew Kelly, and Paul McLaughlan, "ChatGPT in Higher Education: Considerations for Academic Integrity and Student Learning," 2023.

[40] Kamil Malinka et al., "On the Educational Impact of Chatgpt: Is Artificial Intelligence Ready to Obtain a University Degree?," in *Proceedings of the 2023 Conference on Innovation and Technology in Computer Science Education V. 1*, 2023, 47–53.

using multiple-choice or computer-aided assessment for the e-tutors' virtual learning environment.[41] Some more findings showed that students performed better on online assessments as compared to paper-based assessments.[42] Several student respondents amplified the use of quizzes during online exams and were less concerned about academic integrity.[43] Students' performance in online tests and assessments improved from the combination of talking heads and videos Moorhouse.[44] The results of the experiments showed that the use of teaching methods based on the proposed technology in teaching the course content module provided some good results for the online tests.[45]

Students' Satisfaction Levels with Multimedia during their Online Learning Process

An analysis of indicators indicated positive levels of student satisfaction with online learning in the Computer Education study programme from the use of the e-learning system.[46] It was found that the p-value of 0.000 was smaller than 0.050, so it was concluded that the relationship was significant for the use of computer software in online learning to have a positive effect on online students' satisfaction levels.[47] Based on the students' rating on the online learning platform, they strongly agreed that they were satisfied with the online learning process provided to them, where it was shown that the students experienced a positive view of online learning platforms.[48] It was found that there were good satisfaction and similar levels (male and female) and those in (rural, urban, and peri-urban areas) online students about their satisfaction levels in their online studies.[49] Online students who had access to the required technology experienced satisfaction levels that were at a peak as a result of course modules that were delivered in an e-learning platform.[50] Students who were introduced to a flipped model were more satisfied with the course content and delivery since they were provided with adequate opportunities during their learning process.[51] The online student participants who used Escape Room felt that they understood the procedures involved with the online tool and their understanding heightened their satisfaction levels.[52] Students who participated in flexible online learning achieved good learning outcomes and met the learning completion criteria, which contributed to their satisfaction levels with the course online module.[53] Student satisfaction levels about their online module course had a positive impact on their loyalty since they were provided with the flexibility of learning at a distance platform.[54] E-tutors in all chemistry courses adapted to the changes during the pandemic and utilized LMS more to support

[41] Eabhnat Ní Fhloinn and Olivia Fitzmaurice, "Any Advice? Lessons Learned by Mathematics Lecturers for Emergency Remote Teaching during the COVID-19 Pandemic," in *Takeaways from Teaching through a Pandemic* (Routledge, 2024), 8–14.
[42] Ellis L C Osabutey, P K Senyo, and Bernard F Bempong, "Evaluating the Potential Impact of Online Assessment on Students' Academic Performance," *Information Technology & People* 37, no. 1 (2024): 152–70.
[43] Ziene Mottiar et al., "An Examination of the Impact of COVID-19 on Assessment Practices in Higher Education," *European Journal of Higher Education* 14, no. 1 (2024): 101–21.
[44] Benjamin Luke Moorhouse,"Teachers' Digital Technology Use after a Period of Online Teaching,"*ELT Journal* 77,no.4(2023):445–57.
[45] Tuychi Norbutayevich Jurayev, "The Use of Mobile Learning Applications in Higher Education Institutes," *Advances in Mobile Learning Educational Research* 3, no. 1 (2023): 610–20.
[46] Dwi Maryono, Dewi Tjahyaningtyas Setiowati, and Febri Liantoni, "Factor Analysis of Student Satisfaction Levels with Online Learning in Higher Education during Pandemic COVID-19," *Pegem Journal of Education and Instruction* 14, no. 4 (2024): 92–101.
[47] Agus Purwanto and Tawar Tawar, "Investigating The Role of the Use of Computer Hardware, Software and Lecturer Involvement on Online Universities Student Satisfaction," *UJoST-Universal Journal of Science and Technology* 3, no. 1 (2024): 1–13.
[48] Andie Tangonan Capinding, "Online Teaching Effectiveness and Teacher's Readiness: Impact on Student's Satisfaction and Academic Performance," *International Journal of Instruction* 17, no. 2 (2024): 383–400.
[49] Peter Ofori Atakorah et al., "Challenges to Online Studies during COVID-19: The Perspective of Seventh-Day Adventist College of Education Students in Ghana," *Cogent Education* 10, no. 1 (2023): 2162680.
[50] Adnan Innab and Naji Alqahtani, "The Mediating Role of E-learning Motivation on the Relationship between Technology Access and Satisfaction with E-learning," *Nursing Open* 10, no. 4 (2023): 2552–59.
[51] Arnab Kundu, Tripti Bej, and Gourish C Mondal, "Elementary Math Class in Face-to-Face, Fully Online, and Flipped Mode: A Comparative Study on Students' Achievement and Satisfaction," *E-Learning and Digital Media* 20, no. 4 (2023): 331–51.
[52] Ángel Alberto Magreñán et al., "Teaching Calculus in the First Year of an Engineering Degree Using a Digital Escape Room in an Online Scenario," *Computer Applications in Engineering Education* 31, no. 3 (2023): 676–95.
[53] Shahrokh Nikou and Ilia Maslov, "Finnish University Students' Satisfaction with e-Learning Outcomes during the COVID-19 Pandemic," *International Journal of Educational Management* 37, no. 1 (2023): 1–21.
[54] Adel Abdulmohsen Alfalah, "Factors Influencing Students' Adoption and Use of Mobile Learning Management Systems (m-LMSs): A Quantitative Study of Saudi Arabia," *International Journal of Information Management Data Insights* 3, no. 1 (April 2023): 100143, https://doi.org/10.1016/j.jjimei.2022.100143.

the teaching, and the results indicated that the levels of students' satisfaction from the online multimedia students positively correlated with their online modules. [55]

The opposite of what was presented earlier in the foregone section was also found in other sources of literature. A study finding indicated that there was a negative relationship between computer anxiety and student satisfaction levels, where fear of computers played a role in students' experiences with synchronous e-learning, where an increase in computer anxiety decreased students' online satisfaction levels.[56] Concerning assessment instruments, undergraduate students experience low satisfaction levels with the fact that remote learning focuses mainly on online tests, which may have caused several sorts of negative feelings related to technology issues.[57] The complexity of technologies and insecurity affected e-tutors who were new to online or digital learning for their course modules, and online students experienced negative satisfaction levels with digital learning.[58] Online students experienced negative satisfaction levels in their module courses because e-tutors encountered challenges in fulfilling what constituted excellent teaching practices and the provision of adequate student support with multimedia technologies.[59] Students experienced negative satisfaction levels for online module learning as more not worth the effort and less rewarding given negative experiences about their learning expectations.

THEORETICAL FRAMEWORK

Constructivism learning theory provides an understanding of how e-tutors experienced the facilitation of modules through LMS. Technology-enhanced constructivist learning environments advanced educational technologies that have enabled the development of interactive and multimedia-rich constructivist learning environments in ODeL.[60] In this study, anticipation was to create a system for e-tutors to provide an interactive multimedia learning environment where online students construct meaning from their learning interactions with e-tutors. Constructivist teaching prioritizes the students and emphasizes their active involvement in the learning process, along with the integration of ICT, which has become more prevalent in the current paradigm of teaching activities and exploration. The interactive platforms that promote active learning experiences assist e-tutors in selecting and using appropriate technologies. The anticipation is that the students who engage with e-tutors online might construct new knowledge based on their comprehension of the theory.

METHODOLOGY

Quantitative and web questionnaires were employed for data collection in this paper. Questionnaires were used as data collection instruments designed to gather specific information from respondents. [61] It incorporated a range of statements regarding LMS. The original questionnaire questions from a research project were divided into six thematic groups: E-tutor abilities to use digital media for online assessment; E-tutor abilities to encourage students to do online classroom platform discussions (7 aspects); E-tutor abilities to use multimedia files to deliver course content (8 aspects); E-tutor abilities to delivery of online tests for online students (6 aspects); E-tutor abilities to encourage students to use online technologies for content learning six aspects) and students' satisfaction levels with multimedia during their online learning

[55] Ying Guo and Daniel Lee, "Differential Usage of Learning Management Systems in Chemistry Courses in the Time after COVID-19," *Journal of Chemical Education* 100, no. 5 (May 9, 2023): 2033–38, https://doi.org/10.1021/acs.jchemed.2c00850.
[56] Albanë Gashi, Genc Zhushi, and Besnik Krasniqi, "Exploring Determinants of Student Satisfaction with Synchronous E-Learning: Evidence during COVID-19," *The International Journal of Information and Learning Technology* 41, no. 1 (2024): 1–20.
[57] Vanda Lima et al., "Higher Education Students' Perceptions of Emergency Remote Teaching: Degree Levels and Knowledge Domains," in *Smart Learning Solutions for Sustainable Societies* (Springer, 2024), 111–32; Lilian Anthonysamy and Parmjit Singh, "The Impact of Satisfaction, and Autonomous Learning Strategies Use on Scholastic Achievement during Covid-19 Confinement in Malaysia," *Heliyon* 9, no. 2 (February 2023): e12198, https://doi.org/10.1016/j.heliyon.2022.e12198; T Millidonis et al., "How Teachers Are Affected by Institutional Actions Aiming to Reduce E-Learning Barriers in Higher Education," *INTED2023 Proceedings*, 2023, 1527–36; Slack and Priestley, "Online Learning and Assessment during the Covid-19 Pandemic: Exploring the Impact on Undergraduate Student Well-Being."
[58] Anthonysamy and Singh, "The Impact of Satisfaction, and Autonomous Learning Strategies Use on Scholastic Achievement during Covid-19 Confinement in Malaysia."
[59] Millidonis et al., "How Teachers Are Affected by Institutional Actions Aiming to Reduce E-Learning Barriers in Higher Education."
[60] Miri Barak, "Cloud Pedagogy: Utilizing Web-Based Technologies for the Promotion of Social Constructivist Learning in Science Teacher Preparation Courses," *Journal of Science Education and Technology* 26, no. 5 (October 7, 2017): 459–69, https://doi.org/10.1007/s10956-017-9691-3.
[61] Earl Babbie, *The Basics of Social Research* (Belmont, CA: Wadsworth, 2011).

process 10 aspects). The division was thought of as justifiable since it provided coherent themes and also the ability to comprehensively analyse the topic under discussion. This paper focused on single items within three themes of students' satisfaction levels with multimedia during their online learning process: e-tutor abilities to deliver online tests for online students and e-tutor abilities to use multimedia files to deliver course content. The focus on three constructs within the original scale was to ascertain particular competencies which were guided by the main research question formulated for the paper. A Microsoft form supported the collection process, where within the forms, a five-point Lickert Scale with rating scales was used. The scale's simplicity ranged from "Strongly Disagree" to "Strongly Agree"; "Disagree to Agree" and "Neutral") makes it easy for respondents to understand and respond to survey items. The validity and reliability of the measurement instruments accurately assess intended constructs and yield consistent results from the design and pretest by senior experts in the field specialization.[62]

In terms of the data analysis, the data was obtained from the Google responses as soon as a response was received from an e-tutor, it generated data in the form of tables. The analysis was based and organised in pie charts from the percentages which were obtained about each construct.

Participants

The survey design was administered to five e-tutors who were the informants in course modules within the design thinking course module. Their appointment was based on their qualifications which was set as a criterion from the institution. The number corresponded with the number of students who were enrolled in a course programme which required a total of one hundred students per e-tutor. The e-tutors started at the beginning of the term until the end of the term when the students were about to sit for their final examinations. The e-tutors' participation in the questionnaire was fair in that they were adequately informed, warned, and agreed to participate and that it had no impact on their employment contracts.

PRESENTATION OF FINDINGS

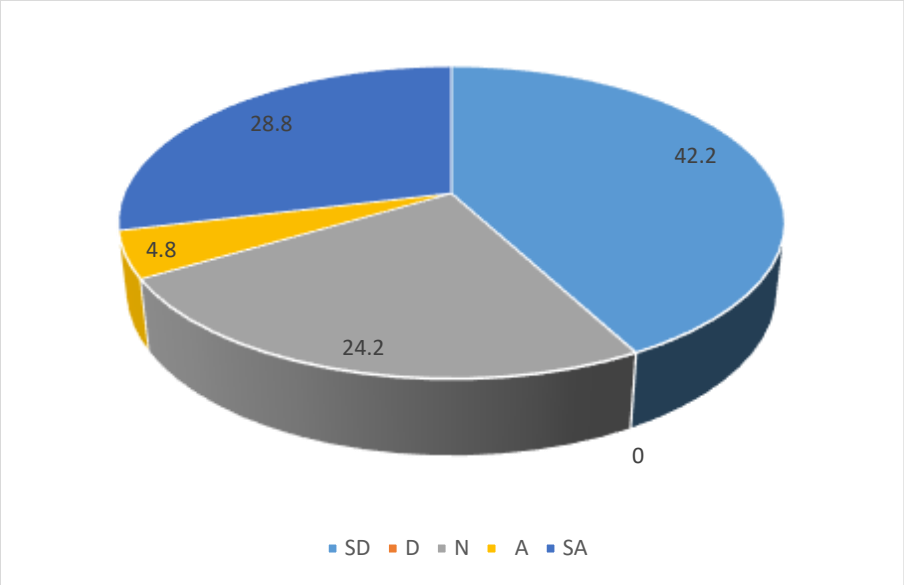

Fig. 1: I am able to use multimedia files to deliver course content

An objective of Figure 1 was to identify the capacities of e-tutors to use multimedia files to deliver course content. The objective was to respond with an assertion to either strongly agree or agree at a value of 33.6% by the respondents. What is reported by the results concerning the construct suggests that e-tutors, by association, were unable to use multimedia files during the delivery of content for the students. The 33.6% value score, when taken together with those at 24.2% neutral score, did not provide different significant results at less than a 50% score to influence what was originally reported about the construct.

[62] A. Bryman, *Social Research Methods* (Oxford: Oxford University Press., 2016).

Further analysis indicated that those who strongly disagreed with the construct were at 42.2% and the best of those who registered 0% agreed. An elaborate commentary based on the results which were obtained about the construct is that e-tutors were on the negative side of utilities of multimedia during presentations of course content.

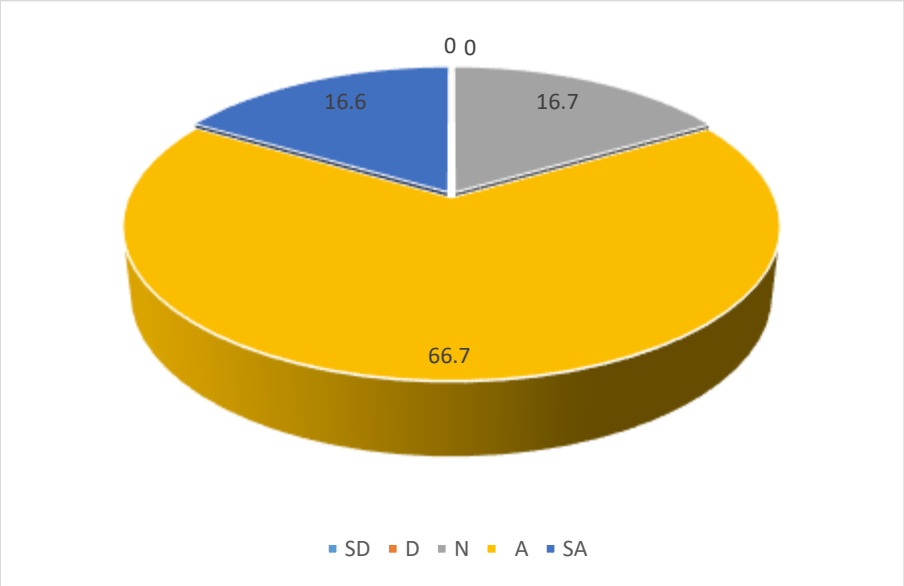

Fig. 2: I am able to deliver online tests for online students

Data from Figure 2 was obtained from an excerpt which needed a response to whether e-tutors were able to deliver online tests for their online students. The results of those who responded strongly agree or agree to the construct contributed to an 83.3% value score. Based on the results, it was considered to extend and make a comment that would assist with how best to describe the results which were obtained from the construct. A comment is that the e-tutors were able to deliver online tests for their online students. Further results were obtained from those who were neutral and did not provide any significant differential results to those whose report was at 83.3% (strongly agree or agree). Those who also accounted for 0% scores strongly disagreed and disagreed offered no influence differences from was obtained with the construct. An extrapolation based on the score of 83.3% is that the e-tutors were able to deliver the online tests for the students in online settings.

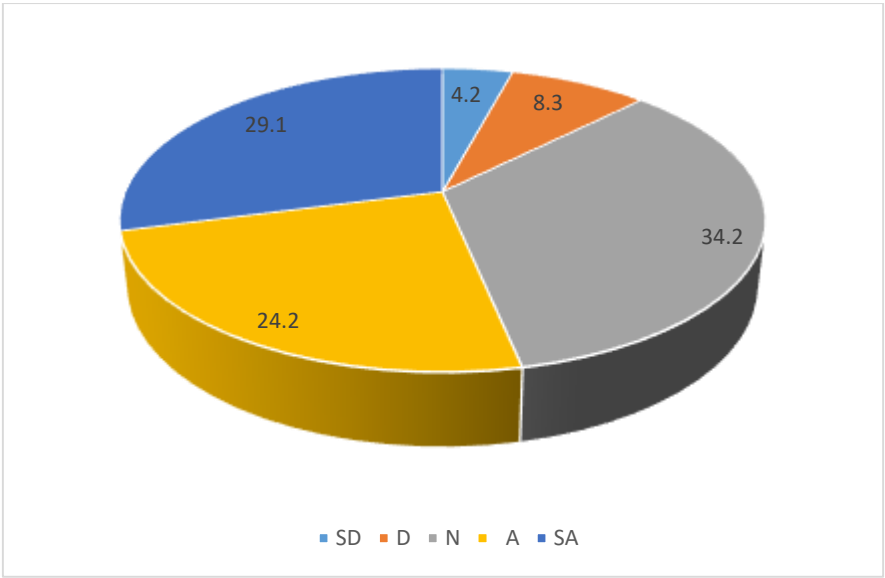

Fig. 3: I am able to maintain online students' satisfaction levels with synchronous teaching media

Figure 3 was formed from a construct whose aim was to explain whether e-tutors were able to maintain online students' satisfaction levels with synchronous teaching media. A slightly above percentage score of 53.3% was a result of three respondents whose submissions either strongly agreed or agreed were captured. What is seen here from the submission might be attached to a conclusion to mean e-tutors were able to maintain their students' satisfaction levels of synchronous teaching media. In another set of other results, which were from those who were neutral (34.2%) about the construct, their feedback did not change the outcome from those whose contributions were positive about the construct. From this, an inference may be sought to mean that the e-tutors were able to maintain their students' satisfaction levels with synchronous teaching media. There were also concurrent results, which revealed a percentage disadvantage (12,5%) from what was already noted about the construct. A conclusion is drawn to say all three e-tutors were able to maintain their students' satisfaction levels with synchronous teaching media.

DISCUSSION

This paper was cushioned by an objective and the constructs that were used to establish some certainties about how to develop the objective further. Based on the two, an elaborate commentary on the results which were obtained is that e-tutors were on the negative side of utilities of multimedia during presentations of course content. The results were similar to those which were obtained in the literature.[63] Arazo, et al. mentioned that the students' attention was distracted by using LMS, which was also cited as a significant disadvantage.[64] Güneş and Adnan, a conclusion results that instructors did not have enough knowledge and skills to use the LMS effectively due to their lack of ICT skills while Qiao, et.al. provided corroboration to the results that students who used mixed gamification were dissatisfied with the results because they indicated a lot of plagiarism from the leaderboard.[65] Also, Turnbull et.al. reported results indicating that the capacities of e-tutors to exploit multimedia applications within LMS were low.[66] Another set of non-positive results was found in the literature, which served as a further corroboration barometer to the construct about multimedia usage by e-tutors.[67] Banyoi et al. results in conclusion narrated that the synchronous learning media files provided disadvantages to students who experienced being squeezed into the limited time frame of the educational process. With El Bakkouri and Raki's conclusion, students perceived chatbot multimedia to be annoying and disappointing in terms of response quality, especially for them to complete high-complexity tasks.[68] Khasawneh, results also corroborated that e-tutors who wished to incorporate video content into their lessons for deaf students experienced **a** difficult time locating videos on the internet.[69]

Earlier, there was a comment about e-tutors who could deliver online tests for their online students. This was based on the analysis, which was founded on the construct. Moorhouse's results report agreed with what was established in the construct. There was an indication that talking heads and videos improved the students' performance in online tests and assessments.[70] In addition, Jurayev's results indicated some good results for the online tests based on the proposed technology used to teach the course module content.[71]

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[63] Arazo et al., "Online Learning Self-Efficacy as Correlates to Academic Procrastination among Pre-Service Teachers"; Güneş and Adnan, "Online Instructor Roles and Competencies: Voices of EFL Instructors"; Qiao et al., "Examining the Effects of Mixed and Non-digital Gamification on Students' Learning Performance, Cognitive Engagement and Course Satisfaction"; Turnbull, Chugh, and Luck, "Learning Management Systems and Social Media: A Case for Their Integration in Higher Education Institutions."

[64] Arazo et al., "Online Learning Self-Efficacy as Correlates to Academic Procrastination among Pre-Service Teachers."

[65] Hilal Güneş and Müge Adnan, "Online Instructor Roles and Competencies: Voices of EFL Instructors," *International Online Journal of Education and Teaching (IOJET)* 10, no. 2 (2023): 892–916; Qiao et al., "Examining the Effects of Mixed and Non-digital Gamification on Students' Learning Performance, Cognitive Engagement and Course Satisfaction."

[66] Turnbull, Chugh, and Luck, "Learning Management Systems and Social Media: A Case for Their Integration in Higher Education Institutions."

[67] Banyoi et al., "Tools for Implementing Distance Learning during the War: Experience of Uzhhorod National University, Ukraine"; El Bakkouri and Raki, "Students Perception Of Chatbots Technology In Education: Case Study In Morocco"; Khasawneh, "The Use of Video as Media in Distance Learning for Deaf Students."

[68] El Bakkouri and Raki, "Students Perception Of Chatbots Technology In Education: Case Study In Morocco."

[69] Khasawneh, "The Use of Video as Media in Distance Learning for Deaf Students."

[70] Moorhouse, "Teachers' Digital Technology Use after a Period of Online Teaching."

[71] Jurayev, "The Use of Mobile Learning Applications in Higher Education Institutes."

There was another construct that was developed. Its aim was to explain whether e-tutors were able to maintain online students' satisfaction levels with synchronous teaching media. In a study by Maryono et al., an analysis of indicators two of the indicated positive levels of student satisfaction with online learning in the Computer Education study programme from the use of the e-learning system and e-tutor teaching abilities.[72]

Other sets of results indicated that e-tutors were able to maintain their students' satisfaction levels with synchronous teaching media. The results mapped some from the literature indicated that there were similar levels (male and female) and those in (rural, urban, and peri-urban areas) about their positive satisfaction levels in the online studies.[73] From Innab and Alqahtani, there was the claim that students were positively influenced and their satisfaction levels were at a peak as a result of course modules, which were delivered in an e-learning platform.[74] The results were corroborated by Kundu et al., who indicated that students who were introduced to a flipped model were more satisfied with the course content. Findings from other scholars also support the results.[75]

Alfalah mentioned that students' satisfaction levels were positively influenced by the flexibility of learning at a distance platform, which matched Guo and Lee.[76] Results from Guo and Lee indicated that the levels of satisfaction from the online students positively correlated in their online modules from the use of LMS.[77] Magreñán et al. submissions alluded that students who were exposed to an Escape Room experienced greater satisfaction levels about their online course module procedures.[78] Nikou and Maslov reported that the satisfaction levels were at positive value scores from students who achieved good learning outcomes with the course online module.[79]

Some results challenged those who agreed with the results of the construct.[80] According to Millidonis et al., online students experienced negative levels of satisfaction about the course module where e-tutors were the course since they were not able to fulfill expectations around good teaching practices.[81] In addition, online students experienced online learning as not worth the effort and less rewarding and, hence, negative satisfaction levels about the module courses.[82] Additionally, Anthonysamy and Singh added an assertion to the results with an indication of negative satisfaction levels with students' scholastic achievement by e-tutors who were new to online or digital learning for course

[72] Maryono, Setiowati, and Liantoni, "Factor Analysis of Student Satisfaction Levels with Online Learning in Higher Education during Pandemic COVID-19."
[73] Ofori Atakorah et al., "Challenges to Online Studies during COVID-19: The Perspective of Seventh-Day Adventist College of Education Students in Ghana," 2023; Peter Ofori Atakorah et al., "Challenges to Online Studies during COVID-19: The Perspective of Seventh-Day Adventist College of Education Students in Ghana," *Cogent Education* 10, no. 1 (December 31, 2023), https://doi.org/10.1080/2331186X.2022.2162680.
[74] Innab and Alqahtani, "The Mediating Role of E-learning Motivation on the Relationship between Technology Access and Satisfaction with E-learning"; Ofori Atakorah et al., "Challenges to Online Studies during COVID-19: The Perspective of Seventh-Day Adventist College of Education Students in Ghana," 2023.
[75] Arnab Kundu, Tripti Bej, and Gourish C Mondal, "Elementary Math Class in Face-to-Face, Fully Online, and Flipped Mode: A Comparative Study on Students' Achievement and Satisfaction," *E-Learning and Digital Media* 20, no. 4 (2023): 331–51; Innab and Alqahtani, "The Mediating Role of E-learning Motivation on the Relationship between Technology Access and Satisfaction with E-learning"; Ofori Atakorah et al., "Challenges to Online Studies during COVID-19: The Perspective of Seventh-Day Adventist College of Education Students in Ghana," 2023; Guo and Lee, "Differential Usage of Learning Management Systems in Chemistry Courses in the Time after COVID-19"; Magreñán et al., "Teaching Calculus in the First Year of an Engineering Degree Using a Digital Escape Room in an Online Scenario"; Nikou and Maslov, "Finnish University Students' Satisfaction with e-Learning Outcomes during the COVID-19 Pandemic."
[76] Ying Guo and Daniel Lee, "Differential Usage of Learning Management Systems in Chemistry Courses in the Time after COVID-19," *Journal of Chemical Education* 100, no. 5 (May 9, 2023): 2033–38, https://doi.org/10.1021/acs.jchemed.2c00850; Adel Abdulmohsen Alfalah, "Factors Influencing Students' Adoption and Use of Mobile Learning Management Systems (m-LMSs): A Quantitative Study of Saudi Arabia," *International Journal of Information Management Data Insights* 3, no. 1 (2023): 100143.
[77] Guo and Lee, "Differential Usage of Learning Management Systems in Chemistry Courses in the Time after COVID-19."
[78] Magreñán et al., "Teaching Calculus in the First Year of an Engineering Degree Using a Digital Escape Room in an Online Scenario."
[79] Nikou and Maslov, "Finnish University Students' Satisfaction with e-Learning Outcomes during the COVID-19 Pandemic."
[80] Millidonis et al., "How Teachers Are Affected by Institutional Actions Aiming to Reduce E-Learning Barriers in Higher Education"; Slack and Priestley, "Online Learning and Assessment during the Covid-19 Pandemic: Exploring the Impact on Undergraduate Student Well-Being"; Anthonysamy and Singh, "The Impact of Satisfaction, and Autonomous Learning Strategies Use on Scholastic Achievement during Covid-19 Confinement in Malaysia."
[81] T. Millidonis et al., "How Teachers Are Affected By Institutional Actions Aiming To Reduce E-Learning Barriers In Higher Education," *INTED2023 Proceedings*, 2023, 1527–36.
[82] Slack and Priestley, "Online Learning and Assessment during the Covid-19 Pandemic: Exploring the Impact on Undergraduate Student Well-Being."

modules.[83] Finally, Abd et al. corroborated that students' levels of satisfaction were affected by the complexity of technology and insecurity affected their satisfaction with the course module programme.[84]

RECOMMENDATIONS

Enhancement of ICT skills for e-tutors: Given the negative experiences e-tutors reported regarding multimedia, there is a clear need to enhance their ICT skills. Providing comprehensive training programmes focused on multimedia tools and techniques can help e-tutors gain confidence and improve their effectiveness in online teaching.

Minimize distractions: To address the issue of distraction, multimedia content should be carefully selected and designed to align closely with the learning objectives. E-tutors should be trained in strategies to minimize distractions, such as using interactive elements sparingly and ensuring that multimedia content is directly relevant to the course material.

Optimization of LMS tools: Synchronous learning media given the noted disadvantages of synchronous learning media. The refinement of the tools to better meet student needs by improving the reliability and user-friendliness of synchronous platforms. Chatbot frustrations highlight the need for better chatbot design and implementation to ensure that chatbots are intuitive, responsive, and capable of handling a wide range of queries can improve user experiences for students.Video content for accessibility of suitable video content for deaf students indicates a need for better-curated and accessible multimedia resources. The need could be met by creating and promoting video content with high-quality captions, and sign language interpretation.Leverage positive multimedia outcomes whereby e-tutors could be encouraged to incorporate videos and other multimedia elements that have been proven to enhance learning outcomes. Best e-tutor practices and successful case studies can help other e-tutors implement these tools more effectively.

Improvement of gamification approaches: The dissatisfaction with gamification suggests the need for more targeted and research-based gamification strategies. The implementation of gamification that is well-integrated with the curriculum and supports specific learning outcomes can enhance student engagement without causing frustration.

CONCLUSION

This paper aimed to establish certainties about developing specific objectives related to e-tutoring and multimedia use. The results indicated that e-tutors generally experienced negative experiences with multimedia during presentations of modules in online contexts. The results align with findings in the literature, which highlighted issues such as distraction, lack of ICT skills, and dissatisfaction with mixed gamification approaches. Further studies corroborated these results, noting disadvantages in synchronous learning media, frustrations with chatbots, and difficulties in finding suitable video content for deaf students. However, there were also positive findings regarding the use of multimedia. For example, incorporating videos improved student performance in online tests, and synchronous teaching media maintained student satisfaction levels. These results were supported by literature indicating high satisfaction levels among diverse student demographics and those using a flipped classroom model. Despite these positive outcomes, some studies presented conflicting results, showing negative satisfaction levels due to unmet expectations, perceived effort-reward imbalance, and technological complexity. These mixed findings underscore the need for further research to optimize multimedia use in e-tutoring and address the challenges identified.

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[83] Anthonysamy and Singh, "The Impact of Satisfaction, and Autonomous Learning Strategies Use on Scholastic Achievement during Covid-19 Confinement in Malaysia."
[84] Aziz et al., "The Mediating Effects of Student Satisfaction on Technostress and Performance Expectancy."

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