

Evaluating the Effectiveness and Challenges of CIDOS LMS in Teaching Communicative English at a Malaysian Polytechnic

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Abstract

In the era of rapid technological advancement, Learning Management Systems (LMS) have become essential tools in higher education. This study investigates the effectiveness of CIDOS (Collaborative and Integrated Digital Online System) as an LMS platform in supporting the DUE30122 Communicative English 2 course at one of the polytechnic institutions in Sabah, Malaysia. The research focuses on third-semester students and explores their level of understanding of CIDOS, the challenges they face in its usage and the factors contributing to their level of engagement. Key issues were identified, including low digital literacy, limited internet access and the complexity of the platform's user interface. Furthermore, the study highlights the importance of relevant, interactive content and strong student-lecturer interaction for effective online learning. The findings aim to provide practical recommendations for improving CIDOS usage and enhancing students' motivation and participation, thereby promoting better communication skills in English. This research contributes to the broader discourse on digital learning implementation in polytechnic education and offers insights for improving LMS adoption in similar contexts.

Keywords

CIDOS, Learning Management System (LMS), Digital Literacy, Student Engagement, Communicative English

1. Introduction

The rapid advancement of technology in the 21st century has significantly transformed various aspects of human life, including the field of education. Digital tools and platforms have reshaped the teaching and learning process, fostering

more flexible, interactive and student-centered learning environments. Among the most impactful innovations in this regard is Learning Management Systems (LMSs) which enable educational institutions to manage course delivery, assessment and communication in virtual settings (Singh & Thurman, 2019a; Watson & Watson, 2012). LMS platforms not only support distance and blended learning models but also facilitate access to educational materials and enhance communication between students and lecturers.

In Malaysia, the use of LMS has been widely implemented in polytechnics and community colleges through CIDOS (Collaborative and Integrated Digital Online System). CIDOS serves as the main LMS platform for delivering online and hybrid instruction in various academic programs. At Sandakan Polytechnic, CIDOS is utilized for several courses including DUE30122 Communicative English 2, a compulsory subject aimed at improving students' English communication skills particularly in professional and academic contexts relevant to the fields of Agrotechnology and Aquaculture Technology. The mastery of English communication is crucial for students as they prepare to enter industries that require global interaction.

Despite the potential benefits of LMS, several challenges hinder its effective usage, including low digital literacy, poor user interface design and limited internet access (Al-Fraihat et al., 2020; Martin et al., 2020b; Dhawan, 2020). Preliminary observations suggest that third-semester students at Sandakan Polytechnic show low interest in engaging with CIDOS for their coursework. This raises concerns about the platform's effectiveness in achieving learning outcomes, particularly in communication-based courses. Prior studies have highlighted that a lack of digital literacy, poor user interface design and limited internet access are significant barriers to effective LMS adoption (Al-Fraihat et al., 2020; Martin et al., 2020b). These challenges are further compounded by the lack of interactivity and relevance of content provided on the platform as well as insufficient support and feedback from instructors (Dhawan, 2020).

Effective use of LMS platforms like CIDOS is critical for promoting learner autonomy and enhancing communication skills through consistent student-lecturer interaction, interactive tasks and accessible learning materials. When properly implemented, LMS platforms can support lifelong learning by allowing students to access resources anytime and anywhere (Ministry of Education Malaysia, 2021). Therefore, it is imperative to assess how CIDOS is currently being used and to identify practical strategies for improving student engagement and optimizing the platform's use in English language learning. This study aims to evaluate students' understanding of CIDOS, identify the key challenges in its implementation and propose improvement strategies to support its role as a learning tool in the DUE30122 Communicative English 2 course. The findings will offer insights into how LMS platforms can be effectively integrated in polytechnic-level education, contributing to the broader discourse on the digital transformation of higher education.

2. Literature Review

2.1. Students' Understanding of CIDOS Functions and Benefits

Students' comprehension of LMS functionalities is critical for effective usage. Singh and Thurman (2019a) argue that students who understand the affordances of LMS such as accessing learning resources, submitting assignments and engaging in assessments tend to use these platforms more frequently. In the context of CIDOS, a Malaysian study by Rahman, Ghazali and Ismail (Rahman et al., 2020) found that digital literacy directly influences the ability to navigate and maximize the use of LMS features. Additionally, students' exposure to technical training enhances their engagement and perceived usefulness of the platform. Martin, Sun and Westine (Martin et al., 2020b) demonstrated that workshops and guided sessions improved students' confidence in self-directed learning using LMS tools. These findings are consistent with the Technology Acceptance Model (TAM) which highlights that perceived ease of use and perceived usefulness are crucial for technology adoption (Davis, 1989; Venkatesh et al., 2003).

2.2. Factors Contributing to Low Student Interest in LMS

Low engagement with LMS platforms like CIDOS can be attributed to multiple interrelated factors. Firstly, digital illiteracy remains a significant barrier. Ashrafi et al. (2022) found that students with inadequate digital skills are often discouraged by technological challenges, while Poon et al. (2021) emphasized the psychological impact of technology anxiety on learner motivation. Technical constraints, particularly in rural areas, further hinder access. Martin and Bolliger (2022) reported that limited access to stable internet and appropriate digital devices disproportionately affects students in remote regions. This finding is particularly relevant to Sandakan Polytechnic where connectivity issues are commonplace.

The user interface design of CIDOS also contributes to students' dissatisfaction. Fillion et al. (2021) observed that non-intuitive interfaces can disorient users, leading to disengagement. Karim et al. (2023) echoed this, emphasizing the need for seamless and user-friendly navigation. In addition, static or irrelevant content diminishes learner interest. Lee and Kim (2022) highlighted that students prefer interactive elements such as gamification and multimedia content to maintain interest and motivation. Psychological and social factors must also be considered. A study by Dhawan and Sharma (2023) noted that the lack of emotional and peer support in virtual environments leads to feelings of isolation, reducing students' willingness to participate. Therefore, fostering meaningful interactions through discussion forums and live sessions is essential for engagement.

2.3. Prior Research on CIDOS Implementation

Several studies have examined the adoption and efficacy of CIDOS in Malaysian higher education. Sulaiman et al. (2020) described CIDOS as a platform supporting hybrid learning, enhancing flexibility and student-teacher interaction. Nonetheless, digital literacy gaps and limited exposure to the platform continue to ob-

struct its effective utilization. In a study on CIDOS at Malaysian polytechnics, [Rahman and Hashim \(2021\)](#) reported that many students struggle with initial exposure and navigation, citing insufficient training as a primary issue. Similarly, [Ismail et al. \(2022\)](#) identified user interface complexity as a key obstacle, recommending improvements to the design and interactivity of learning materials. [Ali and Mohd Yusof \(2023\)](#) emphasized the pivotal role of instructors, noting that students are more inclined to engage with CIDOS when guided by proactive lecturers who provide timely feedback and encourage online discussions. These findings collectively indicate that while CIDOS holds substantial promise, its effectiveness is contingent on user readiness, infrastructure and pedagogical strategies.

2.4. Strategies for Improving CIDOS LMS Usage

Enhancing CIDOS usage requires a multi-pronged approach. According to [Mohamad et al. \(2021\)](#), increasing digital literacy through structured training programs is essential. These initiatives should cover content navigation, assignment submission and interactive communication. Additionally, [Ahmad et al. \(2022\)](#) recommended redesigning the interface to be more intuitive and accessible, incorporating clear navigation cues and interactive elements to improve user experience. Technical support also remains a cornerstone; [Ismail et al. \(2022\)](#) advocated for dedicated online help centers and troubleshooting guides. Another strategy is to boost social interaction within the platform. [Liu and Lee \(2022\)](#) showed that students respond positively to collaborative assignments and real-time engagement opportunities. Such strategies not only improve engagement but also align with the principles of the TAM framework, where perceived ease of use and perceived usefulness enhance user acceptance ([Furneaux, 2010](#)).

2.5. Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) by [Davis \(1989\)](#) serves as a relevant theoretical underpinning for this study. TAM asserts that user acceptance of technology is primarily influenced by two key constructs: Perceived Ease of Use (PEOU) and Perceived Usefulness (PU). In the context of CIDOS, PEOU refers to how effortlessly students can navigate and use the system while PU refers to the perceived benefits in achieving learning objectives such as improving English communication skills. These factors are further influenced by digital literacy and technical support which can either enhance or diminish the perceived value of the system. The expanded Unified Theory of Acceptance and Use of Technology (UTAUT) adds dimensions such as social influence and facilitating conditions which are equally applicable to understanding LMS adoption in higher education ([Venkatesh et al., 2003](#)) ([Figure 1](#)).

3. Methodology

3.1. Research Design

This study employs a mixed-methods research design, specifically the sequential

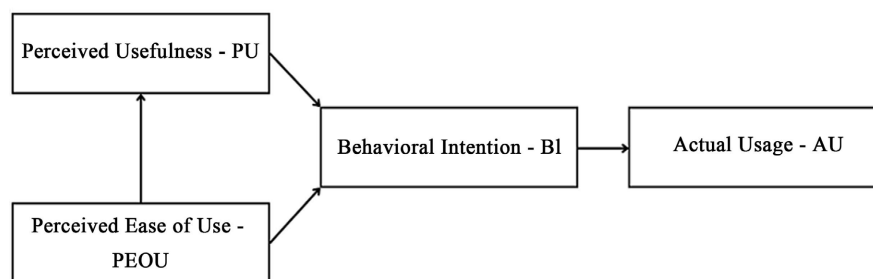


Figure 1. Basic model of technology acceptance (TAM).

explanatory approach, combining quantitative and qualitative methodologies to provide a more comprehensive understanding of the factors influencing the use of CIDOS in the Communicative English 2 course at Sandakan Polytechnic. The mixed-methods design is appropriate as it capitalizes on the strengths of both quantitative precision and qualitative depth (Creswell & Plano Clark, 2018).

The study used a census sampling method for the quantitative phase. This approach involved the entire population of third-semester diploma students at Sandakan Polytechnic enrolled in the Communicative English 2 course. Specifically, 128 students were targeted, ensuring representativeness and minimizing sampling bias. A total of 61 students responded to the distributed questionnaire, yielding a response rate of 47.7%. The quantitative phase involves the use of a structured questionnaire to collect data on students' understanding, perceived ease of use, perceived usefulness and challenges faced when using CIDOS. The data collected through the questionnaire were analyzed using descriptive and inferential statistical techniques to explore patterns and correlations between variables such as digital literacy and system usage.

Following the quantitative phase, the qualitative phase uses semi-structured interviews to gain deeper insights into students' lived experiences, challenges and suggestions for enhancing CIDOS. For the qualitative phase, purposive sampling was employed to select participants based on criteria identified from the quantitative data. These criteria included levels of CIDOS usage such as high or low engagement. A smaller group of 10 students was selected for in-depth semi-structured interviews. This method allowed for richer insights into the varying user experiences. The qualitative data are subjected to thematic analysis (Braun & Clarke, 2006), offering rich contextual details that complement the statistical findings from the first phase. This dual-phase structure enhances the validity of the study through methodological triangulation which corroborates findings across different methods and provides a nuanced understanding of the research problem (Tashakkori & Teddlie, 2010).

Quantitative data, collected through a structured Likert-scale questionnaire, were analyzed using SPSS software. Descriptive statistics including means, standard deviations and frequencies were used to summarize students' perceptions of CIDOS while inferential techniques such as correlation and regression analyses were employed to explore relationships between variables such as digital literacy,

interface design and system effectiveness. This statistical approach enabled the identification of factors that significantly influenced CIDOS usage and its perceived usefulness. For qualitative data, thematic analysis was utilized to analyze transcripts from semi-structured interviews. Following Braun and Clarke's methodology, the data were read repeatedly, coded line by line and organized into themes that reflected participants' experiences and perspectives. Themes such as technical challenges, interface usability and recommendations for improvement emerged, offering rich and contextual insights into the quantitative findings. This dual-phase analytical approach ensured methodological triangulation, enhancing the validity and depth of the study's conclusions.

3.2. Population and Sampling

The study targets all third-semester diploma students at Sandakan Polytechnic enrolled in Communicative English 2. A census approach was employed in the quantitative phase involving the entire population of 128 students to maximize representativeness and reduce sampling bias (Creswell & Creswell, 2018). This ensures that findings are generalizable to the entire cohort and enhances the reliability of the data. For the qualitative phase, a purposive sampling strategy was adopted to select a smaller group of 10 students based on criteria derived from quantitative results, such as high or low CIDOS usage levels, to provide deeper perspectives and uncover variations in user experiences (Patton, 1999).

3.3. Research Instruments

Two main instruments were used are a Likert-scale questionnaire and semi-structured interview protocols. The questionnaire was designed based on TAM, incorporating items to measure Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) as well as factors such as interface usability, technical support and digital literacy. Statements like "CIDOS helps me complete course tasks" and "CIDOS is easy to use even for first-time users" were included, adapted from validated instruments (Venkatesh et al., 2003; Al-Fraihat et al., 2020; Martin et al., 2020b). Interview questions were developed to probe deeper into students' understanding, challenges and recommendations. Sample items include: "What difficulties did you encounter when first using CIDOS?" and "In what ways has CIDOS supported your learning in English?". These were inspired by Dhawan (2020) and Liu & Lee (2022), who emphasized the importance of capturing user perspectives in digital learning contexts.

3.4. Data Collection Procedure

Data were collected over a three-month period during the active semester. The quantitative data were gathered via Google Forms, distributed to all third-semester students through institutional WhatsApp groups. A pilot study was conducted involving 30 randomly selected students to test the instrument's clarity, logical flow and time efficiency as recommended for ensuring adequate representation

and reliability in pilot testing (Johanson & Brooks, 2010). Based on pilot feedback, necessary revisions were made to improve content and format. The internal consistency of the questionnaire was tested using Cronbach's alpha with a threshold of 0.7 set for reliability (Creswell & Creswell, 2018). The qualitative data were collected through face-to-face and online semi-structured interviews with selected participants. Interviews were recorded with consent, transcribed verbatim and analyzed using thematic coding to identify key patterns and emerging themes related to user motivation, barriers and suggested improvements.

3.5. Data Analysis

Quantitative data were analyzed using SPSS. Descriptive statistics such as frequencies, means and standard deviations were calculated to provide an overview of students' perceptions. Reliability analysis via Cronbach's alpha assessed the internal consistency of the survey items. Correlation and regression analyses were conducted to examine relationships between students' digital literacy, perceived ease of use and their intention to use CIDOS, providing insight into causative factors (Tashakkori & Teddlie, 2010). For qualitative data, a thematic analysis approach was adopted. Transcripts were read multiple times, coded line-by-line and clustered into themes reflecting students' challenges (e.g., internet issues, complex interfaces), motivations (e.g., self-paced learning) and proposed enhancements (e.g., interactive content, better technical support). This process followed Braun and Clarke's (Braun & Clarke, 2006) methodology to ensure rigor and depth in analysis.

3.6. Validity and Reliability

The validity of the study was ensured through expert reviews of the instrument, alignment with established theories (TAM and UTAUT) and a pilot study that tested comprehension and clarity. Construct validity was reinforced by aligning survey items with theoretical constructs such as usefulness, usability and engagement. Reliability was established through Cronbach's alpha tests for internal consistency and methodological triangulation. The integration of both survey and interview data strengthens the study's credibility and dependability as it enables cross-verification of findings (Tashakkori & Teddlie, 2010).

4. Findings and Discussions

This study examined the effectiveness of the CIDOS Learning Management System in supporting the DUE30122 Communicative English 2 course at Sandakan Polytechnic. Out of 128 enrolled students, 61 responded to the survey instrument representing a 47.7% response rate. This section presents both quantitative and qualitative findings, beginning with descriptive statistics followed by correlation and regression analyses and concluding with thematic insights from interviews.

4.1. Students' Understanding and Perception of CIDOS

Findings indicate that students generally possess a high level of understanding of

the functions of CIDOS LMS, particularly in terms of accessing learning materials and managing coursework digitally. The item “I understand the basic functions of CIDOS LMS” recorded a mean of 4.54 (SD = 0.50) with all 61 respondents agreeing or strongly agreeing. Similarly, 59 students (96.7%) agreed that CIDOS provided easy access to learning materials (M = 4.56, SD = 0.59). This suggests that CIDOS is well-perceived in facilitating foundational digital learning tasks, a finding consistent with Al-Fraihat et al. (2020), who emphasized ease of access as a critical factor for LMS success. However, while understanding and material access scored highly, perceptions regarding communication through the system were comparatively lower (M = 4.21, SD = 0.73) with 9 students (14.7%) indicating only moderate satisfaction. This gap points to potential underutilization or limited confidence in CIDOS’s communication features such as forums and messaging tools. Addressing this gap could involve targeted training or feature improvements to increase students’ confidence and satisfaction with the platform’s interactive tools (Table 1).

Table 1. Students’ understanding and perception of CIDOS.

Item	Mean	SD	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
Understand basic CIDOS functions	4.54	0.50	0	0	0	28	33
CIDOS helps understand course content	4.43	0.56	0	0	2	31	28
CIDOS facilitates lecturer-student communication	4.21	0.73	0	1	8	29	23
CIDOS provides easy access to learning materials	4.56	0.59	0	1	0	24	36

4.2. Challenges Faced in Using CIDOS

Despite generally positive perceptions, students reported persistent challenges that hinder the optimal use of CIDOS. Chief among these was unstable internet access, which scored a mean of 3.92 (SD = 0.98) with 68.9% of respondents indicating frequent or consistent connectivity issues. This aligns with previous research (Martin & Bolliger, 2022) that identified infrastructural limitations as barriers to LMS adoption especially in rural contexts. Another concern was the user interface design, which although moderately rated (M = 4.02, SD = 0.88), still saw 21.3% of students reporting neutral or negative experiences, suggesting that the platform may lack intuitive navigation or engaging visual elements. While learning content was generally rated as relevant and engaging (M = 4.23, SD = 0.64), technical support also received favorable feedback (M = 4.31, SD = 0.65), highlighting that institutional support is available and largely effective. However, these

positive aspects do not fully compensate for systemic infrastructure limitations that directly impact learning continuity. To address these issues, institutions could explore initiatives to improve internet connectivity particularly in underserved areas, ensuring equitable access to the LMS (Table 2).

Table 2. Students' challenges in using CIDOS.

Item	Mean	SD	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
Internet connection issues	3.92	0.98	1	4	14	22	20
CIDOS interface is user-friendly	4.02	0.88	1	2	11	28	19
CIDOS content is engaging and relevant	4.23	0.64	0	0	7	33	21
Adequate technical support provided	4.31	0.65	0	0	6	30	25

4.3. Students' Recommendations for Improvement

Students expressed a clear need for improvements to CIDOS, particularly in terms of internet accessibility and platform design. The item "Improving internet connectivity" scored the highest mean across all items ($M = 4.65$, $SD = 0.57$), with 95.1% of respondents strongly agreeing or agreeing. This underlines the urgency of addressing digital infrastructure, particularly for underserved populations. Furthermore, there was a significant demand for more interactive content ($M = 4.15$, $SD = 0.72$), including multimedia and quizzes, reflecting students' desire for engaging and varied pedagogical materials. Simplifying the user interface also emerged as a priority ($M = 4.26$, $SD = 0.63$), suggesting a need for more intuitive design to enhance user navigation. Interestingly, responses on the need for additional training were more varied ($M = 3.49$, $SD = 1.01$), indicating that while some students are digitally literate, others require targeted guidance, consistent with findings from Venkatesh et al. (2003) regarding varying levels of technological self-efficacy among users (Table 3).

Table 3. Students' recommendations for improvement.

Item	Mean	SD	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
Need additional training	3.49	1.01	2	8	18	24	9
Need more interactive content	4.15	0.72	1	0	6	36	18
Improve internet connectivity	4.65	0.57	0	0	3	15	43
Simplify CIDOS interface	4.26	0.63	0	0	6	33	22

4.4. Correlation and Regression Analysis

Pearson correlation analysis showed a moderate positive relationship between students' understanding of CIDOS and perceived accessibility of materials ($r = 0.53$), suggesting that increased familiarity enhances the usability of the system. There was a significant correlation between interface design and perceived effectiveness in learning ($r = 0.40$), while internet instability was negatively correlated with overall CIDOS effectiveness ($r = -0.12$ to -0.24). Furthermore, interface improvement was strongly correlated with a desire for more interactive content ($r = 0.60$), highlighting a broader call for a more engaging digital learning environment. Multiple linear regression revealed that user interface design ($\beta = 0.42$, $p < 0.05$) and material accessibility were significant predictors of CIDOS effectiveness, while poor internet connectivity ($\beta = -0.27$, $p < 0.05$) had a detrimental effect. The model explained 46% of the variance in perceived system effectiveness ($R^2 = 0.46$), indicating that nearly half of the user experience is shaped by these key variables.

4.5. Thematic Analysis

Using a thematic analysis approach (Braun & Clarke, 2006), seven prominent themes were identified from semi-structured interviews with 10 selected students. This analysis provides a nuanced view of students' experiences, supplementing the quantitative data with rich qualitative insights.

4.5.1. Positive Initial Experiences with CIDOS

Most participants shared that their initial engagement with CIDOS was encouraging and motivating. Students described the system as "easy to use" and "straightforward, even for first-timers," suggesting that the platform meets basic usability expectations. For many, the transition to digital learning through CIDOS was novel but welcomed. One respondent noted, "I was excited because it was my first time using digital learning," while another mentioned, "I liked that I didn't have to carry books as everything was online." These comments reflect the Perceived Ease of Use construct from the Technology Acceptance Model (TAM) (Davis, 1989), which posits that positive initial user experiences are essential to technology adoption.

4.5.2. Technical Challenges and Infrastructure Limitations

Despite positive sentiments, a consistent concern across interviews was unstable internet connectivity and slow system performance. One participant shared, "The page took too long to load and I couldn't submit my assignments," while another stated, "My internet at home is not strong, so I often can't open CIDOS." These challenges were particularly pronounced for students living in rural areas or campus hostels with limited bandwidth. These findings mirror the quantitative result where internet stability scored the lowest, highlighting that even a well-designed LMS cannot function effectively without proper infrastructure.

4.5.3. Effectiveness in Supporting Learning

CIDOS was recognized as a valuable tool for learning reinforcement, particularly

due to its ability to centralize course content and track learning progress. A student remarked, “CIDOS helps me achieve my course goals because I can access everything I need to revise,” while another mentioned, “I understand topics better because the notes are organized by chapter and I can take quizzes.” These elements promote self-paced, autonomous learning, an essential aspect of 21st-century education (Liu & Lee, 2022).

4.5.4. Interface Design and Desire for Interactivity

While students acknowledged that CIDOS functions well, many critiqued its design aesthetics and lack of engaging visuals. Several respondents proposed enhancements such as “more colours, pictures and videos to make learning fun,” and “features that work better on mobile phones.” This feedback reflects user demand for contemporary, multimedia-rich interfaces and highlights the psychological importance of aesthetically pleasing design in sustaining attention and motivation (Fillion et al., 2021). Moreover, gamified elements such as badges or progress tracking were suggested as strategies to enhance student motivation.

4.5.5. Limited Functional Awareness

Some students revealed gaps in their understanding of CIDOS’s full functionality. A few stated they only used CIDOS for downloading materials and submitting assignments, admitting that “I don’t use the forum because I don’t really know how it works,” and “I understand the basics but not all the features.” These comments suggest a shortfall in digital literacy and indicate a need for structured orientation or training modules to enable students to make full use of the platform (Martin et al., 2020b).

4.5.6. The Crucial Role of Lecturer Support

Participants emphasized the importance of lecturer guidance in navigating CIDOS. One noted, “My lecturer showed me how to use every feature,” and another said, “If my lecturer didn’t help, I’d still be confused.” This aligns with UTAUT’s concept of Facilitating Conditions (Venkatesh et al., 2003), indicating that instructor involvement is a key determinant in students’ technology acceptance. The data highlight that while technology is critical, human mediation particularly from educators remains a core pillar in digital pedagogy.

4.5.7. Student-Initiated Suggestions for Improvement

Students were proactive in suggesting enhancements to the system. Common recommendations included “faster loading speed,” “CIDOS mobile app with notifications,” and “adding live chat or support features.” One student proposed, “Gamify the platform, maybe points or badges to encourage us.” These ideas reflect students’ increasing familiarity with digital ecosystems and their evolving expectations for interactivity, instant feedback and personalization.

4.6. Discussion

The findings of this study provide a comprehensive understanding of the effec-

tiveness and challenges associated with the use of the CIDOS in the DUE30122 Communicative English 2 course at Sandakan Polytechnic. Overall, students demonstrated a high level of familiarity with basic CIDOS functions, particularly in accessing learning materials and managing course tasks. This suggests that the platform successfully fulfills its foundational role as a digital repository and administrative tool. However, despite positive perceptions regarding content accessibility and basic system usability, deeper issues surrounding engagement, infrastructural constraints and system design were uncovered, highlighting the complexity of technology adoption in educational settings.

The high mean scores for understanding CIDOS functionalities and the platform's perceived usefulness in facilitating access to materials align with the Technology Acceptance Model (TAM) (Davis, 1989) which posits that perceived usefulness is a critical determinant of user acceptance. Students' ability to retrieve course content with ease indicates that CIDOS supports self-paced learning and independent study, both of which are central to 21st-century educational paradigms (Martin et al., 2020b). However, the relatively lower satisfaction levels regarding communication features such as forums and messaging systems suggest that the potential for interactive and collaborative learning through CIDOS remains underutilized. This gap reinforces the notion that LMS effectiveness must be evaluated not solely based on content delivery but also on the extent to which the system fosters active, two-way communication between students and instructors (Ali & Mohd Yusof, 2023).

One of the most critical challenges identified was the issue of unstable internet connectivity. Both quantitative and qualitative data reveal that poor internet access significantly hampers students' ability to fully benefit from CIDOS. This finding is consistent with previous research (Martin & Bolliger, 2022; Dhawan & Sharma, 2023) emphasizing that infrastructural limitations are a persistent barrier to equitable digital learning, particularly in rural or underserved regions. The negative correlation between internet instability and overall CIDOS effectiveness further substantiates the argument that digital learning initiatives must be supported by reliable infrastructure if they are to succeed. Thus, technological readiness in terms of stable internet and device accessibility remains a crucial precondition for LMS adoption, a reality that must be acknowledged in both institutional planning and policy development.

The students' critique of CIDOS's user interface design also warrants attention. Although most respondents agreed that the interface was moderately user-friendly, interview insights reveal dissatisfaction with the aesthetic and navigational aspects of the platform. These concerns are echoed in literature (Fillion et al., 2021; Ahmad et al., 2022) which highlights that intuitive, visually appealing and responsive interfaces significantly influence user engagement and satisfaction. The desire for more interactive content such as multimedia, quizzes and gamification elements, underscores students' expectation for dynamic learning experiences that mirror the digital environments they are accustomed to outside

the classroom (Lee & Kim, 2022). Therefore, enhancing CIDOS's design to incorporate such features could substantially improve student motivation, engagement and learning outcomes.

Furthermore, the findings reveal that while students generally understood the basic functionalities of CIDOS, many remained unaware of its full capabilities such as discussion forums, collaborative assignments or assessment tracking. This limited functional awareness suggests a shortfall in digital literacy training, a factor that has been repeatedly identified as a determinant of effective LMS usage (Rahman et al., 2020; Ashrafi et al., 2022). The moderate score on the need for additional training supports the notion that although some students are digitally proficient, a considerable proportion require structured support to maximize their use of the platform. Implementing orientation programs, training modules or embedded tutorials within CIDOS could bridge this gap and enable more comprehensive usage.

An important emergent theme in the qualitative findings is the pivotal role of lecturer support in facilitating students' successful engagement with CIDOS. Students consistently emphasized that instructor guidance, encouragement and technical assistance significantly influenced their comfort and effectiveness in using the platform. This finding reinforces the UTAUT model (Venkatesh et al., 2003) which highlights the importance of facilitating conditions and social influence in technology adoption. It also supports prior research (Ali & Mohd Yusof, 2023; Martin et al., 2020b) indicating that technology alone is insufficient to drive learning; instead, the human element particularly the instructor's proactive involvement is indispensable for fostering a supportive and motivating learning environment.

Finally, the suggestions offered by students for improving CIDOS such as mobile compatibility enhancements, faster loading speeds, the introduction of gamified elements and the provision of live chat support, reflect an evolving expectation for more sophisticated and learner-centered digital environments. These insights align with contemporary discourses in educational technology (Dabbagh & Kitsantas, 2023) advocating for the design of LMS platforms that not only deliver content efficiently but also stimulate motivation, engagement and a sense of community.

In summary, while CIDOS demonstrates substantial effectiveness in facilitating access to learning materials and supporting independent study in the Communicative English 2 course, several barriers must be addressed to optimize its potential. These include infrastructural improvements, user-centered interface redesigns, structured digital literacy training, enhanced interactivity and stronger pedagogical integration through instructor support. Addressing these areas holistically will not only improve the user experience of CIDOS but also contribute to broader goals of digital inclusion and learner empowerment of higher education in Malaysia.

5. Conclusion

This study explored the effectiveness and challenges of using the CIDOS Learning

Management System (LMS) in the Communicative English 2 course at Sandakan Polytechnic. The findings indicate that students generally perceive CIDOS positively, particularly in its ability to facilitate flexible, self-directed learning and provide structured access to course materials. CIDOS supports 21st-century pedagogical goals by promoting independent learning, content accessibility and time management, all critical elements for language acquisition in higher education (Dhawan & Sharma, 2023; Liu & Lee, 2022). The system allows students to revisit recorded content, engage in formative assessments and organize their learning according to their pace and preferences, thus contributing meaningfully to both academic performance and learner autonomy.

However, despite these benefits, several systemic and user-based challenges were identified. Limited internet access especially among students in rural areas alongside a less intuitive interface and insufficient interactivity hindered full engagement with the platform. Moreover, discrepancies in digital literacy and motivation levels resulted in inconsistent usage patterns. These findings echo prior research asserting that technological infrastructure and user readiness are equally critical to the success of LMS initiatives (Al-Fraihat et al., 2020; Martin & Bolliger, 2022). Furthermore, the role of instructor support emerged as a crucial factor, reinforcing the argument that technology must be accompanied by human facilitation to sustain learner motivation and technical confidence (Martin et al., 2020a). These insights support the Technology Acceptance Model (TAM) which posits that perceived usefulness and ease of use significantly influence the adoption of educational technologies (Venkatesh & Davis, 2000).

In light of these findings, it is essential that LMS implementation strategies address not only technological features but also pedagogical integration and institutional policy. Enhancing CIDOS through user-centered design, digital content development and mobile compatibility could improve engagement and reduce barriers to use. Institutions must also prioritize continuous professional development for educators and provide targeted digital literacy support for students to ensure equitable access and effective utilization. Finally, the formulation of data-driven LMS policies and consistent monitoring mechanisms will support long-term improvements and inform national education reform agendas. As highlighted by recent literature, sustainable digital transformation in higher education requires a comprehensive ecosystem that combines infrastructure, pedagogy and user empowerment (Ashrafi et al., 2022; Dabbagh & Kitsantas, 2023). CIDOS, when supported by such a framework, holds significant promise for shaping inclusive and future-ready language education.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

Ahmad, R., Musa, M., & Jamil, N. (2022). Improving LMS User Interfaces for Better Stu-

- dent Engagement. *Journal of Educational Technology*, 38, 123-134.
- Al-Fraihat, D., Joy, M., Masa'deh, R., & Sinclair, J. (2020). Evaluating E-Learning Systems Success: An Empirical Study. *Computers in Human Behavior*, 102, 67-86. <https://doi.org/10.1016/j.chb.2019.08.004>
- Ali, H., & Mohd Yusof, N. (2023). Instructor Influence on Student LMS Usage in Malaysian Polytechnics. *International Journal of Learning Technologies*, 15, 45-56.
- Ashrafi, A., Choo, K., & Hassan, M. (2022). Digital Literacy and LMS Adoption among Tertiary Students in Asia. *Asian Education Review*, 10, 31-46.
- Braun, V., & Clarke, V. (2006). Using Thematic Analysis in Psychology. *Qualitative Research in Psychology*, 3, 77-101. <https://doi.org/10.1191/1478088706qp063oa>
- Creswell, J. W., & Creswell, J. D. (2018). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (5th ed.). SAGE Publications.
- Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and Conducting Mixed Methods Research* (3rd ed.). SAGE Publications.
- Dabbagh, N., & Kitsantas, A. (2023). Designing for Motivation in Digital Learning Environments: A Learner-Centered Perspective. *Educational Technology Research and Development*, 71, 11-28.
- Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13, 319-340. <https://doi.org/10.2307/249008>
- Dhawan, S. (2020). Online Learning: A Panacea in the Time of COVID-19 Crisis. *Journal of Educational Technology Systems*, 49, 5-22. <https://doi.org/10.1177/0047239520934018>
- Dhawan, S., & Sharma, N. (2023). Psychological and Infrastructural Barriers in Online Learning in Southeast Asia. *E-Learning Research Journal*, 7, 55-69.
- Fillion, G., Limayem, M., Laferrière, T., & Mantha, R. (2021). User Interface Design in LMS and Student Experience. *Technology and Education Journal*, 9, 23-37.
- Furneaux, B. (2010). Task Characteristics, Perceived Ease of Use and Perceived Usefulness as Predictors of Technology Acceptance. In *AMCIS 2010 Proceedings*. Association for Information Systems (AIS).
- Ismail, R., Che Mat, S., & Ahmad, Z. (2022). Challenges of LMS CIDOS among Malaysian Polytechnic Students. *Journal of Technical Education*, 28, 76-88.
- Johanson, G. A., & Brooks, G. P. (2010). Initial Scale Development: Sample Size for Pilot Studies. *Educational and Psychological Measurement*, 70, 394-400. <https://doi.org/10.1177/0013164409355692>
- Karim, A., Mokhtar, S., & Lee, H. (2023). Usability of Digital Learning Platforms in Southeast Asia. *International Journal of Educational Technology*, 12, 64-78.
- Lee, Y., & Kim, J. (2022). Gamification and Student Motivation in Online Learning. *Computers & Education*, 179, Article ID: 104110.
- Liu, C., & Lee, S. (2022). Building Student-Centered Digital Learning Environments in Higher Education. *Educational Research and Development Journal*, 13, 88-102.
- Martin, F., & Bolliger, D. U. (2022). Engagement Matters: Student Perceptions on the Importance of Engagement Strategies in the Online Learning Environment. *Online Learning Journal*, 26, 30-46.
- Martin, F., Polly, D., & Ritzhaupt, A. D. (2020a). Best Practices for Teaching K-12 Online: Lessons Learned from the COVID-19 Pandemic. *TechTrends*, 64, 748-754.
- Martin, F., Sun, T., & Westine, C. D. (2020b). A Systematic Review of Research on Online Teaching and Learning from 2009 to 2018. *Computers & Education*, 159, Article ID:

104009. <https://doi.org/10.1016/j.compedu.2020.104009>
- Ministry of Education Malaysia (2021). *Digital Education Policy Framework*. Ministry of Education Malaysia.
- Mohamad, S., Latif, R., & Hamzah, N. (2021). Digital Training for Effective LMS Use. *Malaysian Journal of Educational Management*, 10, 112-121.
- Patton, M. Q. (1999). Enhancing the Quality and Credibility of Qualitative Analysis. *Health Services Research*, 34, 1189-1208.
- Poon, J., Low, M., & Pang, K. (2021). Overcoming Technology Anxiety in Students. *Asian Journal of Educational Psychology*, 11, 50-62.
- Rahman, A., & Hashim, R. (2021). Barriers to CIDOS Implementation in Rural Polytechnics. *Journal of Higher Education Studies*, 19, 79-93.
- Rahman, N., Ghazali, M., & Ismail, N. (2020). Exploring LMS Effectiveness in ESL Classrooms. *English Language Teaching Journal*, 13, 45-53.
- Singh, V., & Thurman, A. (2019a). How Blended Learning Can Improve Teaching and Learning in Higher Education: A Review of the Literature. *Interactive Technology and Smart Education*, 16, 102-116.
- Singh, V., & Thurman, A. (2019b). How Teachers and Students View the Effectiveness of Online Learning during COVID-19. *International Journal of Educational Research Open*, 1, Article ID: 100018.
- Sulaiman, R., Che Hassan, N., & Zulkifli, R. (2020). CIDOS in Hybrid Learning Environments. *Malaysian Journal of Digital Education*, 3, 20-34.
- Tashakkori, A., & Teddlie, C. (2010). *Mixed Methodology: Combining Qualitative and Quantitative Approaches*. SAGE Publications.
- Venkatesh, V., & Davis, F. D. (2000). A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies. *Management Science*, 46, 186-204. <https://doi.org/10.1287/mnsc.46.2.186.11926>
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly*, 27, 425-478. <https://doi.org/10.2307/30036540>
- Watson, W. R., & Watson, S. L. (2012). The Role of Technology and Computer-Based Instruction in a Disadvantaged Alternative School's Culture of Learning. *Computers & Education*, 58, 1348-1357.