

LEVERAGING DLO IN ELP CLASSROOMS: INSIGHTS FROM ASPIRING EDUCATORS

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ABSTRACT

Digital Learning Object (DLO) refers to a self-contained unit of instructions or activities designed using any digital resource or medium to facilitate teaching and learning in a digital environment. The shift of language learning from Google Classrooms to augmenting the Google Site as a form of DLO has changed how lecturers and students deal with teaching and learning activities. Therefore, this study explores the teacher trainees' perceptions of using DLO in English Language Proficiency (ELP) classrooms and its effect on their 6C's global competencies. A purposive sampling technique was employed to collect qualitative data from five classes of teacher trainees enrolling in ELP course. Data were gathered from Focus Group Discussions (FGD), video-recorded students' reflections, the Curriculum Implementation Evaluation Report (CIER), and teacher trainees' reflections in Padlets. The audio recordings of the FGD and video recordings of the reflections were transcribed verbatim, and later all the data were analysed thematically. The emerging themes are: (i) DLO makes learning more organised and efficient; (ii) DLO paves the way for new digital tool knowledge; (iii) DLO creates a new learning environment; and (iv) DLO helps teacher trainees learn new vocabulary. Besides, DLO also boosts teacher trainees' 6C's global competencies. Findings are significant to English Language teaching and learning by offering some insights for designing activities beyond the classrooms by augmenting the Google sites.

Keywords: digital learning object; English language proficiency; teacher education institute; global competencies
Introduction

Integrating technology into the classroom is now a common practice in education. When applied appropriately, it can significantly enhance teaching and learning outcomes (Mashadi & Kargozari, 2011). Various digital tools are used to support instruction, with Learning Objects (LOs) being among the most prominent. LOs are digital, open educational resources designed to facilitate specific learning activities. They include software, applications, platforms, and both online and offline materials that can be accessed through computers, mobile devices, or other digital tools, enabling students to complete tasks more effectively and engage actively in the learning process.

Digital Learning Objects (DLOs) are multimedia-supported digital resources that promote interactive learning through elements such as animations (Fonseca et al., 2012). They may consist of structured materials including text, hypertext, graphics, simulations, videos, and audio, all aligned with specific educational goals (Maschio & Correia, 2020). Key features of DLOs include reusability and accessibility, with each object designed to be adapted for use across various subjects. For example, a DLO may guide the writing process in an English class or illustrate decision-making in social studies (Fallon, Janson & Janson, 2019).

Technology integration in education has reshaped the traditional classroom into a collaborative, self-directed learning environment, redefining the educator's role as both activator and co-learner. In Institute of Teacher Education in Malaysia, this aligns with *Kapasiti Pedagogi Pembelajaran Bermakna* (KPPB), or the New Pedagogy for Deep Learning (NPDL), which promotes knowledge co-creation through digital tools and authentic, real-world learning experiences. KPPB emphasizes learning partnerships between teachers and students, encouraging co-designed projects and shared responsibility for learning outcomes. Deep learning tasks are designed to develop and assess six essential competencies known as the 6Cs: collaboration, communication, creativity, critical thinking, citizenship, and character (Fullan & Langworthy, 2014).

For effective implementation, Digital Learning Objects (DLOs) should be designed based on KPPB pedagogical frameworks and aligned with specific learning outcomes through systematic curriculum unpacking. The shift from Google Classroom to Google Sites as DLOs introduces new modalities in language teaching and learning. In today's educational context, teacher trainees are expected to demonstrate global 6C competencies, yet traditional approaches often fall short. While DLOs offer interactive, student-centered alternatives, empirical evidence on their impact remains limited. This study explores how DLOs can foster 6C global competencies among teacher trainees, preparing them for the demands of 21st-century classrooms.

Previous studies show that the use of Digital Learning Objects (DLOs) among educators remains limited due to challenges such as insufficient training, technical issues, lack of institutional support, time constraints, low student readiness, and limited pedagogical resources (Sim & Ismail, 2023). Research on DLO implementation in Malaysian higher education and teacher training contexts is also scarce. Given the rapid advancement of educational technology and its effectiveness in language learning (Falloon, 2015; Lin Tan & Yanti Idaya, 2021; Maschio & Correia, 2020), exploring students' views on DLOs and their impact on 6C competencies is timely.

The 21st-century education landscape requires teacher trainees to develop global competencies known as the 6Cs: Critical thinking, Creativity, Collaboration, Communication, Citizenship, and Character. Traditional teaching methods often fail to support the development of these skills. Digital Learning Objects (DLOs) offer interactive, student-centered experiences that may foster the 6Cs. However, empirical research on their effectiveness remains limited. This study seeks to address this gap by examining how DLOs can be strategically integrated to enhance teacher trainees' 6C competencies, better preparing them for the demands of today's classrooms.

The development of DLO should increase the use of digital tools, as educators must keep up with the technology skills of the younger generation. Due to the increasing digitalization of society, the learning process is no longer linked to teachers' actions in the classroom (Santos et al., 2022). Teachers and students are increasingly relying on LO repositories as key learning tools. It provides access to a wide range of resources and content (Santos et al., 2022). Therefore this study aims to answer these research questions; (1) What are teacher trainees' perceptions of using DLOs in ELP classrooms?, (2) How does the use of DLO help boost the 6C global competencies of teacher trainees?

LITERATURE REVIEW

DLO in a variety of subject areas

Digital Learning Objects (DLOs) have proven effective across a range of academic disciplines beyond language education. An experimental study by Fonseca et al. (2012) involving nursing students at a Brazilian public university found that those with access to DLOs reported significant improvements in their learning experiences, emphasizing the positive impact of DLOs on the teaching-learning process. As Mashadi and Kargozari (2011) explain, DLOs present content in smaller, self-contained, and reusable units, offering a more flexible and

efficient approach to learning. In mathematics education, DLOs support the practice of complex problem-solving, while in science, they aid in clarifying abstract concepts (Falloon et al., 2010). Groccia et al. (2023) observed that middle school students using interactive DLOs developed a deeper understanding of algebraic ideas by visualizing abstract content.

Similarly, Manca et al. (2020) demonstrated that DLOs improve learning in engineering by breaking down complex concepts into manageable components, promoting structured learning and enabling concept review. Students also reported greater engagement and satisfaction with digital formats compared to traditional textbooks. In health sciences, Kim, Lee, and Park (2021) found that medical students using DLO-based modules significantly outperformed their peers in clinical assessments such as the Objective Structured Clinical Examination (OSCE), underscoring DLOs' effectiveness in delivering practical, simulation-based content.

Furthermore, platforms such as MERLOT offer peer-reviewed, high-quality DLOs across disciplines including Education, Humanities, and Sciences (Sadykova & Meskill, 2009). Collectively, these findings highlight the versatility of DLOs in supporting personalized, interactive, and student-centered learning across educational contexts.

Digital tools and English Language teaching

Technology has long been recognized for its potential to transform language teaching and learning, with growing evidence supporting its integration both within and beyond classroom contexts (Moorhouse & Yan, 2023). Numerous studies have explored the use of digital tools in language education across diverse settings. In a study involving English language schoolteachers in Hong Kong, Moorhouse and Yan (2023) found that teachers utilized 98 types of digital tools in their practice. Among the most commonly used were Kahoot!, Padlet, Google Classroom, YouTube, Nearpod, Seesaw, Gathertown, Quizizz, Mentimeter, Flipgrid, Book Creator, and Google Forms.

Digital tools enable educators to design more engaging and interactive instructional materials, while also allowing students to access learning resources anytime and anywhere with an internet connection (Idaryani & Fidyati, 2021; Sakurai & Donelson, 2021). Learning Objects (LOs), in particular, have been identified as innovative tools in 21st-century education. Sakurai and Donelson (2021) describe LOs as small, digital, self-contained, and reusable learning units that are adaptable and organized with metadata such as keywords, objectives, instructions, language skills, and activity types. These LOs can be combined into larger instructional structures, offering teachers flexibility in lesson design.

Sakurai and Donelson (2011) developed a Google Sites-based Learning Object (LO) repository for Mexican EFL students, integrating tools like Jamboard, Google Docs, Slides, Sheets, and YouTube. Students reported increased motivation and engagement, particularly in grammar and writing tasks. Similarly, Nugroho and Atmojo (2020) found that Indonesian EFL students viewed digital learning positively, using platforms such as Google Classroom, and Facebook to support English instruction. These tools extended learning beyond the classroom, enhancing engagement and productivity. As noted by Mashadi and Kargozari (2011), DLOs promote learner autonomy and enable flexible, self-paced learning, offering an alternative to traditional lecture-based instruction.

In summary, the integration of digital tools and learning objects has transformed English language teaching by enhancing accessibility, interactivity, and flexibility. Their adaptability and reusability enable teachers to craft more effective and personalized instruction, while empowering students to engage in autonomous and meaningful learning beyond conventional classroom boundaries.

Application of DLO in English Language Proficiency classrooms

The use of technology by English language educators has been shown to offer numerous benefits, including the development of the four language skills, increased student engagement and motivation, improved access to learning materials, and greater integration of digital tools (Moorhouse & Yan, 2023; Idaryani & Fidayati, 2021). Learning objects have also been used by Yemeni undergraduates to enhance their English proficiency in informal learning contexts. Ali bin-Hady and Al-Tamimi (2021) found that students utilised various technologies—such as social networking, media platforms, and websites—to support their language learning outside the classroom and compensate for limited face-to-face interaction. Studies show that Learning Objects (LOs) create a more interactive and engaging learning environment, increasing student motivation—especially when using dynamic formats like videos and games instead of traditional texts (Hussain, 2020). These tools are particularly helpful for lower-proficiency learners, as visual and auditory aids support better understanding of complex concepts. Digital Learning Objects (DLOs) also enable personalized learning by allowing content to be tailored to individual student needs, which is crucial in classrooms with varying proficiency levels. As highlighted by Mudra (2020), DLOs help teachers differentiate instruction and provide targeted activities, promoting learner autonomy and supporting language skill development at a self-directed pace.

Recent literature highlights persistent challenges in integrating Digital Learning Objects (DLOs) in English Language Proficiency (ELP) classrooms. Despite their benefits, issues such as digital literacy gaps, limited access to technology, and ineffective implementation remain. Studies from both developed and developing countries emphasise the need for digital literacy training for both teachers and students to optimise DLO use. This is particularly important in contexts with inconsistent or limited technological access (Eryansyah et al., 2019; Palacios Hidalgo et al., 2020).

Digital Learning Objects and Students' Global Competencies 6Cs

Digital Learning Objects (DLOs) significantly contribute to the development of the 6Cs of Deep Learning—Critical Thinking, Communication, Collaboration, Creativity, Citizenship, and Character—as emphasized by Fullan et al. (2018). DLOs support critical thinking by integrating simulations, problem-solving tasks, and visualizations that enhance learners' ability to analyse and synthesize information. For example, Qurrota A'yun et al. (2020) found that STEM-based digital books improved students' critical thinking skills in science. Similarly, Falloon (2010) observed that interactive learning objects promoted deeper reasoning and decision-making among students. Tools such as Flipgrid, Google Forms, and Padlet also strengthen communication skills by facilitating oral and written expression, peer feedback, and real-time collaboration (Moorhouse & Yan, 2023). Sakurai and Donelson (2021) highlighted improved writing and grammar competencies in EFL students who engaged with language-based DLO activities via Google Sites.

Collaboration is strengthened when learners engage in group tasks using collaborative DLO platforms, including shared digital workspaces and peer-review tools. Falloon (2010) observed that DLOs foster meaningful teamwork and peer learning in classroom settings. In higher education, Manca et al. (2020) found that engineering students working on project-based DLOs showed greater group accountability and cooperative engagement. DLOs also promote creativity by enabling learners to create multimedia content such as digital storytelling, visual reports, and presentations. Sun, Li, and Zhu (2016) highlighted how interactive visualization tools helped students creatively engage with abstract mathematical concepts, while Ellyza et al. (2021) reported that digital storytelling enhanced creative thinking in language classrooms. Beyond cognitive skills, Digital Learning Objects (DLOs) foster citizenship and character by embedding content within authentic, intercultural, or social themes. MERLOT-hosted DLOs, for example, have been used to promote global awareness and empathy across disciplines (Sadykova & Meskill, 2019). Fullan et al. (2018) argue that digital tasks linked to real-world challenges build students' social responsibility. DLOs also support self-directed learning, helping students work at their own pace while developing persistence, responsibility, and reflection (Mashadi & Kargozari, 2011). In primary education, digital resources have instilled empathy and resilience (Anggraeni et al., 2021), aligning with deep learning's holistic educational goals.

METHODOLOGY

This study investigates teacher trainees' perceptions of using Digital Learning Objects (DLOs) in English Language Proficiency (ELP) learning, with a particular focus on how such tools support the development of 6C global competencies: Critical thinking, Communication, Collaboration, Creativity, Citizenship, and Character. A qualitative research design was employed to gain in-depth insights into participants' experiences. Data were gathered through Focus Group Discussions (FGDs), involving three groups of five teacher trainees each. FGDs were selected for their capacity to foster dynamic, interactive dialogue and collective meaning-making among participants (Liamputtong, 2014). To optimize group interaction and maintain diversity of viewpoints, the number of participants per group was limited to five, aligning with established guidelines suggesting ideal FGD sizes range from 4 to 12 participants (Dawson, 1993, as cited in Liamputtong, 2014; Liamputtong, 2015)..

The teacher trainees' perceptions were elicited through a series of open-ended questions that guided each Focus Group Discussion (FGD), lasting approximately 1.5 hours per group. To ensure the validity of the data collection process, the FGD question protocol was reviewed and verified by a TESL (Teaching English as a Second Language) lecturer and two experts in qualitative research. The protocol was then piloted with a separate group of teacher trainees who shared similar characteristics with the actual participants. Based on their feedback, necessary refinements were made to enhance clarity and appropriateness of the questions.

For data triangulation, additional sources were used to support findings from the focus group discussions. These included teacher trainees' individual video-recorded and written reflections submitted via Padlet at the end of the course. These reflections documented their learning experiences and use of Digital Learning Objects (DLOs). Such reflective practices are standard in teacher education, supporting both trainee and lecturer development. Data were also drawn from the lecturer's Curriculum Implementation Evaluation Report (CIER), which compiled student feedback on teaching effectiveness throughout the semester. Every teacher trainee has to complete the CIER survey when the respective course has ended. The evaluation is in the form of written feedback on the lecturer's teaching performance and rating (from 1 to 5) on 10 criteria. The data obtained from the all the sources had reached the saturation point and therefore, the data collected is rich enough to draw meaningful conclusions without needing additional reflections from other participants (Strauss and Corbin, 1998)

Three two-hour video recordings were transcribed verbatim. Data from the videos, Padlet reflections, and the CIER report were thematically analysed. Responses were organised by question, and transcripts were reviewed multiple times to identify perceptions of ELP activities using DLOs. Key excerpts were highlighted, coded, and the most relevant were included in the results.

Research Participants

The study respondents consisted of 25 second-year teacher trainees enrolled in the Bachelor of Teaching Education programme (Program Ijazah Sarjana Muda Perguruan), organized into five units of 5 students each. These units were purposively selected as they had been taught by the researcher using Digital Learning Objects (DLOs) over the course of one semester. All participants were enrolled in the English Language Proficiency (ELP) course, a two-credit elective with two contact hours per week over 15 weeks. The course content included instruction in grammar, listening, speaking, reading, and writing skills.

To support teaching and learning, the researcher—who also served as the course lecturer—developed a Google Site as a Digital Learning Object (DLO) platform. The site featured structured materials such as slides, videos, articles, and tutorial activities, aligned with the semester plan. Its design was shaped by the KPPB Learning Design Model and the 6C Global Competencies. The KPPB model includes four elements: learning partnerships, leveraging digital tools, learning environments, and pedagogical practices. Weekly tasks integrated into the site required students to use various digital tools, including Google Slides, Jamboard, Piktochart, Padlet, MindMup, and Coggle. Each task was designed to activate specific KPPB components, especially the use of digital tools. Examples of the DLO interface is shown below. Image 1.0: The Google Site (DLO) Interface



Image 1.1: The Deep Learning 1 Interface

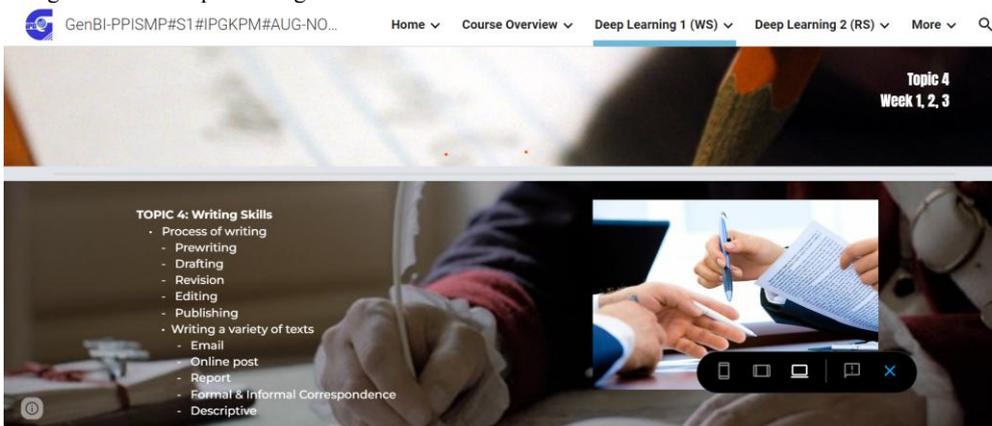


Image 1.2: The tutorial activity's page.



Data Analysis

Qualitative data were analysed to generate themes and sub-themes related to teacher trainees' perceptions and how the use of Digital Learning Objects (DLOs) enhanced their 6C Global Competencies. Data were collected through Focus Group Discussions (FGDs) and end-of-course student reflections via audio and video recordings. These recordings were transcribed verbatim. Additional data from the CIER survey and written reflections on Padlet were analysed in their original format, as transcription was not required.

An inductive approach was employed, following Braun and Clarke's (2006) six-phase guide to thematic analysis. First, the researcher read and re-read the transcripts while taking notes to form early impressions of the data. Next, initial codes were generated using a colour-coding system, where different colours were used to represent different themes. From the analysis, six themes emerged in response to the first research question, while four themes were identified for the second research question.

RESULTS AND DISCUSSION

This study generated themes related to the perceptions of teacher trainees on DLO application in teaching and learning ELP and how it boosts the teacher trainees' 6C global competencies. The themes are: (i) DLO makes learning more organised and efficient, (ii) DLO creates new learning environment, (iii) DLO increases students' readiness to learn English; (iv) improve teacher trainees language skills; (v) increase teacher trainees vocabulary; (vi) DLO paved the way for new digital tools knowledge, and (v) activities in DLO boosts teacher trainees' 6C's global competencies.

DLO makes learning more organised and efficient

The materials and activities were systematically organized on the Google Site based on weekly topics and schedules. Students were given access to the site and submitted their tutorial and e-learning tasks upon completion. Respondents consistently reported that the integration of Digital Learning Objects (DLOs) enhanced their English Language Proficiency (ELP) learning experience by making it more structured, efficient, and systematic. During the Focus Group Discussions (FGDs), respondents—mainly Bahasa Melayu majors—highlighted that the course content delivered via the Digital Learning Object (DLO) was more structured and coherent than that available through Google Classroom. This improved the efficiency and flow of their learning process. They noted that locating relevant language skill materials was easy, as all resources were thoughtfully curated and systematically uploaded on the DLO platform. One respondent suggested that consistent use of the DLO-based approach across semesters could significantly improve their overall English language proficiency.

DLO itself is in English, let say we learn subject and predicate, the lecturer had chosen the best materials in the DLO, we get the best videos, articles, everything is in one page, easier for us to click one by one. Videos and notes are placed next to each other. However, in Google Classroom, when we click the Youtube, it will go to the Youtube page and we can't refer to the notes. In DLO, the video will be played on the site itself without effecting the students' view on the notes. We can refer to the notes and videos on the same page. It is easy to learn and study. Google Site (DLO) is more efficient than Google Classrooms. (FGD G1/TT2/MLMO)

Another respondent in the FGD echoed the previous participant's view:

From DLO, I know what are we going to learn in the next class, and all the related topics. The DLO is more systematic, more organised & we can easily access the information. To compare with Google Classrooms, it is more complicated. All the files are attached separately using different links in different slots. In Google Classrooms, the attendance, tutorial, lecture, and everything is in different slot. We have to click at the link one by one to access. Sometimes, the internet is not good, we can't find the files and slot is empty. At the end, we have to search for ourselves. When we open one file, we can't view the other files on the same page. However, in DLO, everything is in one place, one page, we can play the videos on the page itself and read the notes at the same time. Furthermore, our e-learning drive storage is effected when we use Google Classroom as all the files and videos (MP4) are auto downloaded. (FGD G1/TT3/MLMO)

In DLO, we don't only see words, but movement of images which are more attractive. I don't get bored and tired to see the Google Site (DLO) and to learn English Language. (FGD G3/TT4/MLMO)

Data from the video-recorded reflections and IPPK report further justified the respondents explanation.

This DLO makes it easier to submit works and it is also easy for me to find notes or to see evidence of my works using this DLO. (Video recorded reflection/G3/TT4/MLMO)

Other than that, I am always amazed by the DLO structure, because it is so systematic and the activities are very organised. This indirectly makes me and my friends easy to find materials and follow the activities that have been set easily and efficiently. (Video recorded reflection/G2/TT5/MLMO)

DLO makes it easier for me to refer to all the information and read the materials freely without limitations. (Video recorded reflection/G3/TT1/MLMO)

There are many interesting activities and tutorials provided in the DLO. The DLO is also very organised and filled with various learning contents. Through DLO, it is easier for us to get all the information and knowledge related to the class on that day. (Video recorded reflection/G2/TT2/MLMO)

With the existence of DLO, all teaching and learning activities become easy to implement... all teaching materials can be accessed easily and organised. DLO helps me to refer or check on the notes given for the particular class...learning is more effective, systematic and easier. (Video recorded reflection/G1/TT5/MLMO)

Leveraging digital tools (DLO) by the lecturer in the class really helps the students in learning as it can be accessed anytime, all the activities in the DLO is very useful and meaningful. (IPPK Report/G3/TT3/MLMO)

This findings is also supported by the IPPK report, wherein the teacher trainees stated that the weekly activities in the DLO are very interesting, organised, and easy to be comprehended. Google site allows students to access information pertaining to the topic in advance. Lecturer always uploaded content materials and activities prior to classes.

All activities carried out is well planned in the DLO, they are interesting and organised, hence it is easy to understand the content. (IPPK report/G1/TT2/MLMO)

The lecturer teaching techniques, use of videos, slides which are all embedded in the DLO site, easy for me to understand and they helps me to complete the tasks given (IPPK Report/G2/TT4/MLMO)

DLO creates new and enjoyable learning environment

Traditionally, learning had always taken place in a classroom full of teachers' talk and students spent some of their time sitting quietly at their places and listening to one student after another recite his or her lesson, until each had been called upon. The presence of digital learning object has enlighten the environment of teaching and learning. This is depicted in the students' reflection.

The use of DLO as the main medium of learning and application of various latest and up-to-date digital tools in the DLO, has made learning more enjoyable. Not only that, through planning and organising diverse, systematic and interesting activities makes my learning process more enjoyable. Honestly, I enjoyed learning this subject so much and I never expect it will be this nice. (Written reflection in Padlet/G1/TT3/NELE)

I really enjoy this course, from learning to the activities. During lectures, I would love to say that it is really fun and exciting at the same time. Plus, the activities in the DLO that Madam had prepared for us really made us wonder: what would today's activities be? I'm over the moon every time I learn this course since English has been my favourite subject. (Written reflection in Padlet/G3/TT1/NELE)

The facility (DLO) is very professional and there is no problem with connectivity. Our lecturer is an expert and her teaching method is very clear. All the exercises given used technology and the class interaction is excellent. (Written Reflection in Padlet/G2/TT5/NELE)

The lecturer effectively incorporated various multimedia resources, interactive activities, and online platforms that complemented the teaching methods. By utilising DLO, the lecturer had created a dynamic and immersive learning environment that catered for different learning styles and preferences. (Written Reflection in Padlet/G2/TT1/NELE)

By utilising DLO, the lecturer has created a dynamic and immersive learning environment that catered to different learning styles and preferences. Overall, this semester has been a transformative journey, equipping me with valuable knowledge, experiences, and lessons. (Reflection in Padlet/G1/TT3/NELE)

The integration of technology to support English language learning gained prominence in the 1990s. Today, the use of technology in English language classrooms is increasingly vital. One notable form is the Digital Learning Object (DLO), whose application has advanced rapidly. Digital classrooms, incorporating tools like DLOs, play a significant role in enhancing traditional teaching and learning methods.

DLO increases students' readiness to learn English

The respondents repeatedly stressed that the application of DLO enable them to get ready prior to the ELP class. They can access the DLO anywhere and anytime, and thus they can just log into it and browse through the notes and prepare for the tutorial and e-Learning activities. Therefore, this will increase their readiness to learn English Language. They are more interested to learn English.

The use of DLO is good, as we are able to know what are the topics that we are going to learn on that day. For me, before ELP class, I always go into the DLP and read the topics/notes of the next day class, so that I can get ready and inform my friends what they need to prepare prior to class. In the DLO, there are a lot of notes pertaining to the topics, and the tutorial tasks and e-Learning have been uploaded by the lecturer. I can just log in into the DLO and read all the notes without troubling myself to search for them in the internet. DLO is just like a text book. It is good to use DLO in our learning context. (FGD/G1/TT2/ISR)

If we need to catch the students attention to learn the subject, we need to prepare something that can make the students attracted to learn, DLO itself is interesting. (FGD/G2/TT3/ISR)

We can also refer to the previous topics, notes and we can already anticipate what we are going to learn next week, from the DLO. (FGD/G3/TT2/ISR)

I like the google site and activities carried out in the class. I admitted that throughout the course, I become more interested to learn English because the DLO is very comprehensive and attractive. It is very colourful. It has aroused my interest to learn English and I always excited and can't wait for the next class, I am anxious to know what are the activities that we are going to do in the upcoming class. (CIER report/G3/TT4/ISR)

The application of DLO by the lecturer in the teaching and learning is really helpful because it can be accessed anytime. Besides that, all the activities carried out in the classroom during tutorial is very meaningful, beneficial and engaging. Google sites enable students to access the teaching materials even before class. (CIER Report/G2/TT5/ISR)

DLO improves teacher trainees' language skills

The use of DLO has the potential to develop students' four language skills; reading, writing, listening, speaking and grammar. The respondents exerted that DLO helps them to improve their language skills especially vocabulary and grammar.

Reviewing the English course and the DLOs that I utilized, I concluded that they were beneficial learning tools that helped me improve my language abilities. The course materials were well-organized and offered numerous opportunities to acquire new vocabulary, practice grammar, and engage in conversation with fellow students and the instructor. In addition, the DLOs were helpful in presenting course materials and providing personalized, flexible, and convenient learning opportunities. I believe this combination of structured learning and online resources was effective in enhancing my knowledge and abilities. I would recommend this English course and the use of DLOs to anyone interested in enhancing their language skills. (Reflection in Padlet/G2/TT2/ILS)

Based on what I have learned in this course, I gained a lot of new knowledge especially through the interesting activities carried out in class. The very well planned content and activities in the DLO allows us to improve various skills such as listening, speaking and writing skills. (Reflection in padlet/G2/TT1/ILS)

Helps to Increase Vocabulary Knowledge

The respondents also claimed that, the DLO helps them to acquire new vocabulary. In the FGD, one of the respondents from unit 4 stressed:

In the DLO, there are lots of new words which I have never seen before, when reading the DLO, I also learn new words and that increase my vocabulary knowledge. By the end of the semester so many new words. The presentation and layout make me want to read more and surf the site (FGD/G2/TT5/IVK)

I like to read the notes on various language skills in the DLO, I learn a lot of new words. I like to read the DLO because it is so beautiful and attractive (FGD/G1/TT1/IVK)

There are many new words used in the DLO, I love to read the notes as the background is beautiful and soothing. From there I learn many new words such as “tentative”, “rigidly” etc (Video Reflection/G3/TT2/IVK)

This is supported by another respondent in the video reflection. She mentioned that, from the DLO, she learn many English words. In the video reflection, she wrote:

I learn many new words from the DLO, the layout and design are very up-to-date, it makes me excited to surf the google site. Hence, I read lots of new English words. Sometimes, we know the words, but forgot, when we surf the site, we met the words again, so we can recall and remember. (Reflection in Padlet/G2/TT1/IVK)

DLO pave the way for new digital tools knowledge

The google sites are embedded with various digital tools as each activity in the site used different digital tool. The students got the chance to explore many kinds of digital tools while accomplishing the tasks and activities in the Digital Learning Object. This is uttered by many students in the Focus Group Discussion and CIER report from unit 3:

From the ELP subject, I learned a lot of new things, among them is the use of digital learning tools such as Wakalet, Padlet, Pictochart, and many more. Through this subject, I can learn to use those applications so that I can apply them for other uses. (FGD/G3/TT4/NDTK)

She is one of the lecturers who imparted a lot of knowledge and opens our thinking about the digital world and technology with the DLO use that can be applied when we become teachers at school one day. (FGD/G2/TT5/NDTK)

This course has given a lot of exposure to student teachers about information technology and applications that can be applied in the classroom. (FGD/G1/TT4/NDTK)

I was excited when the activities were not using Google Classroom, and many interesting digital applications were used that I had never explored before. I am grateful to be able to spend this entire semester within the subject and be able to gain a wider experience for use in the future. (FGD/G2/TT4/NDTK)

...from the English class using DLO I know and learn many digital tools which I have never heard before and I'll make use of them after this in the future... (IPPK Report/G2/TT2/NDTK)

Activities and tutorial prepared by the lecturers in the DLO are able to give new knowledge especially in terms of latest technology applications. (CIER Report/G3/TT2/NDTK)

Activities in DLO boosts teacher trainees' 6C's global competencies

Digital Learning Objects (DLOs) enable teacher trainees to engage in collaborative learning across geographical boundaries. These digital platforms support peer interaction, allowing trainees to work together on group projects and problem-solving tasks. This mirrors the collaborative dynamics of modern classrooms, where teachers interact with students and colleagues from diverse contexts. Vlachopoulos and Makri (2021) emphasize that DLOs promote teamwork and online collaborative learning, underscoring the relevance of these skills in today's educational landscape. Similar perceptions were expressed by teacher trainees during the Focus Group Discussions (FGDs) and were also reflected in the CIER report, indicating a shared recognition of DLOs' collaborative value.

Throughout this course, I have learned many new things and improve my English, my grammar got better and I know more about English, working with others online allow me to collaborate no matter where I am, and it also improve my communication skills as I need to get in touch with my learning partnership over the Google Meet and WhatsApp. (FGD/G1/TT4/GC6C)

Learning through DLO is more interesting and impactful, all the activities are challenging and we really need to be creative and critical in completing them. (FGD/G2/TT3/GC6C)

In addition, the use of Digital Learning Objects (DLOs) significantly enhances learners' creativity and communication skills. Multimedia platforms such as Canva and interactive game-design tools within DLOs encourage trainees to explore diverse teaching approaches, fostering innovation in instructional strategies. DLOs also promote critical and creative thinking in English through tasks like blog writing, digital storytelling, and online debates, which help develop argumentation, narrative, and creative writing skills. Interactive tools such as story generators and simulation games further support real-world language use and problem-solving. These outcomes were consistently highlighted by teacher trainees during Focus Group Discussions (FGDs) and reflective entries, reinforcing the impact of DLOs on creative and communicative competence..

...using all the digital tools and DLO helps me to improve my character: communication skills, collaboration skills, and creativity by giving me the chance to explore my own creativity and skills. The teaching and learning is based on “students-centered” and the lecturer as facilitator and activator. All the activities involve collaboration, experimental learning activities, such as group projects, discussions, and hands-on activities to help us develop our critical thinking skills, problem solving, and communication skills. (FGD/G3/TT3/6CGC)

I like all the activities in the DLO, the one I like most is the collaboration with friends from all sorts of institutions. That had changed my character from someone who is introvert to extrovert, and I also gained confidence when I had to be the moderator for the webinar programme. (Reflection in Padlet/G1/TT5/6CGC)

The integration of Digital Learning Objects (DLOs) into the teaching and learning of ELP is highly effective in fostering the 6C's of global competencies. Post-2020 literature shows that DLOs not only enhance traditional classroom learning but also prepare teacher trainees to navigate the complexities of global education. These digital tools promote critical thinking, collaboration, creativity, and communication, while also fostering global citizenship and character development, equipping trainees to be effective, culturally competent, and innovative educators in a connected world.

Conclusion

The application of Digital Learning Objects (DLOs) in English teaching and learning has revolutionized the way language is taught and acquired. These tools make learning more engaging, personalized, and interactive, fostering deeper comprehension of language skills. DLOs accommodate various learning preferences by integrating text, audio, and visual elements, which makes English accessible to a broader range of students. Furthermore, DLOs encourage creativity, collaboration, and critical thinking, essential competencies in language acquisition. By providing instant feedback and varied assessment methods, DLOs enhance learners' performance and confidence in using English, ultimately supporting more effective and engaging language instruction. In conclusion, integrating DLOs into English language learning not only enhances students' language skills but also prepares them to thrive in a digital and interconnected world where communication and creativity are key.

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