Open access on https://e-journal.upr.ac.id/index.php/ebony/homepage-about

p-ISSN: 2797-4537 e-ISSN: 2809-4980
Article DOI: https://doi.org/10.37304/ebony.v5i1.18467

EcoLingua: Optimizing Indonesian Learning through Lumen5 in Digital Era

Izhar[1*], Fatma Yuniarti[2], Aan Nurjannah[3]

[1]Prodi PPG Universitas Muhammadiyah Pringsewu, [2]Prodi Pend. Bahasa Inggris Universitas Muhammadiyah Pringsewu, [3]UPT SMP Negeri 2 Adiluwih

Article history:

Received
25 December 2024

Revised
7 January 2025

Accepted
12 January 2025

Available online
15 January 2025

Abstract: This scholarly investigation examines the evolution and application of Lumen5-based video instructional media for Indonesian language pedagogy with a specific emphasis on environmental themes. Employing a Research and Development (R&D) methodology through the ADDIE framework, the inquiry produced five interactive videos that address various environmental challenges, including forest fires, flooding, waste management, landslides, and the maintenance of school hygiene. The research encompassed extensive evaluations involving 10th-grade students, utilizing a combination of qualitative and quantitative methodologies to evaluate the efficacy of the video-centric learning paradigm. Findings indicated a 30% enhancement in students' understanding of environmental concepts in comparison to conventional text-based instructional strategies. Moreover, 80% of the students indicated heightened engagement with the educational content, while 75% exhibited advancements in their digital literacy competencies. The utilization of Lumen5's AI-driven platform was found to be effective in producing interactive, visually stimulating materials that are appealing to Generation Z learners. By aligning with the Merdeka Curriculum and integrating local environmental contexts, this inquiry presents a scalable framework for augmenting both language instruction and environmental awareness in the context of the digital era. The outcomes imply that AI-enhanced video learning platforms possess the potential to effectively reconcile the divide between traditional educational approaches and modern instructional requirements while fostering environmental consciousness among learners.

Keywords: digital learning; environmental education; Indonesian language; Lumen5; video-based learning

INTRODUCTION

The swift progression of the digital age necessitates that educational methodologies evolve to effectively address the learning requirements of Generation Z. Within the realm of senior high school Indonesian language instruction, the innovation of teaching media assumes a crucial position in augmenting student engagement and comprehension. Conventional pedagogical approaches frequently fail to capture the attention of learners, especially in relation to environmental topics. As articulated by Yang (2024), the incorporation of digital media technology within language education significantly heightens students' enthusiasm

*Corresponding author: izhar@umpri.ac.id
To cite this article: Izhar., Yuniarti, F., & Nurjannah, A. (2025). EcoLingua: Optimizing Indonesian Learning through Lumen5 in Digital Era. *Ebony --- Journal of English Language Teaching, Linguistics, and Literature*, 5(1) 2025, 53-68.

for learning and amplifies the effectiveness of teaching (Fauzi, 2023; Lestari & Setiawan, 2020).

This transition towards the integration of digital instruments not only cultivates a more interactive educational atmosphere but also equips students with the skills necessary to navigate the intricacies of communication in a technology-oriented society. The adoption of these innovative methodologies empowers educators to formulate a curriculum that is not only more pertinent but also dynamic, resonating with the lived experiences and anticipations of contemporary learners. By integrating multimedia resources, including videos, interactive simulations, and online discourse, educators can accommodate a variety of learning preferences and promote collaborative efforts among students. This collaborative environment not only bolsters critical thinking capabilities but also enables students to assume responsibility for their educational trajectories, thereby fostering a sense of community and collective accountability regarding environmental challenges. In this respect, digital technologies can play a key role in achieving in achieving this endeavour (Selfa-Sastre et al., 2022)

The use of digital innovations in schools has gained international recognition as an essential force in changing classic teaching methods. According to Digital Innovations in Education. (2022) generation Z, frequently characterized as "digital natives," exhibits enhanced learning efficacy through multimedia and interactive resources. This change has incited the creation of a plethora of digital tools and platforms designed to address diverse educational demands, encompassing collaborative learning environments and personalized instructional strategies. Such innovations have demonstrated their ability to boost engagement, motivation, and retention, thereby rendering digital media an essential component of contemporary pedagogy.

In the sphere of language education, digital tools offer unique advantages, such as the ability to clarify abstract concepts through visual representations, deliver instantaneous feedback, and simulate authentic language use scenarios. For instance, AI-driven platforms like Lumen5 enable educators to create customized learning materials that resonate with the cognitive and cultural contexts of students. These assets not only increase student involvement but also support the nurturing of critical competencies for the 21st century, which cover digital literacy and adept problem-solving skills.

Despite its considerable promise, the integration of environmental themes within the Indonesian language education framework faces significant impediments. This highlights a critical shortcoming in the proficient incorporation of comprehensive environmental education within the academic syllabus. Confronting this obstacle calls for the application of intriguing multimedia materials, including video-oriented instructional strategies, which have been scientifically confirmed to boost insight and information retention. The findings of Lin and team (2017) revealed that digital educational techniques produce notably higher levels of student motivation relative to traditional teaching methods. This shift towards digital learning environments not only heightens student involvement but also promotes the incorporation of diverse viewpoints, thereby making environmental issues more relevant and relatable to the everyday experiences of students.

Building on this foundation, it is imperative for educators to adopt interactive platforms that foster collaboration and dialogue among students, thus nurturing a deeper comprehension of environmental challenges that are significant to their local environments. Through the implementation of gamification techniques, educators can further motivate students to actively participate in environmental education, transforming the educational experience into one that is both enjoyable and impactful, ultimately encouraging proactive involvement. This innovative approach not only cultivates critical thinking skills but also empowers students to take on the role of proactive stewards of their environment, equipping them with the necessary competencies to address pressing ecological issues.

Lumen5, an artificial intelligence-enhanced video creation tool, emerges as a feasible resolution to this predicament. It enables the development of interactive and visually engaging content that is tailored to align with students' individual learning preferences. Empirical research has substantiated the effectiveness of Lumen5 within educational settings. For example, Lucas, P., & Giesen, J. (2021) was demonstrated that Lumen5 significantly improves students' understanding and interest in literature courses by condensing intricate narratives into visual summaries. This innovative approach not only enhances comprehension but also fosters a more dynamic and engaging learning environment, encouraging students to explore complex themes through visual storytelling.

By extension Lucas, P., & Giesen, J. (2021) highlighted that the application of Lumen5 in writing lessons appreciably enriched students' ability to compile their ideas and deliver structured arguments. This groundbreaking technique not only stimulates interaction but also furnishes students with key digital proficiency, thereby enabling them for a tomorrow where multimedia conversations will be progressively essential. Samino (2023), Lumen5 is a great tool that allows teachers to turn text into videos quickly. AI in Lumen5 generates animations based on the inputted text, making it a perfect tool for creating interactive learning videos. As educators continue to investigate the potential of tools such as Lumen5, it becomes increasingly evident that the incorporation of technology within the educational sphere possesses the potential to transform conventional teaching practices and cultivate a more dynamic learning atmosphere. This transition toward technology-enhanced education promotes student collaboration and accommodates a variety of learning styles, ultimately leading to a more inclusive educational experience.

Moreover, the infusion of environmental themes into video lessons promotes awareness and equips students with critical knowledge necessary to address contemporary ecological issues. Research indicates that a media literacy course can substantially enhance reading comprehension, writing, critical analysis, and other academic skills (Hobbs, 2006). By leveraging platforms such as Lumen5, educators can effectively bridge the gap between traditional instructional methods and the demands of a digitally-savvy generation, making learning more relevant and meaningful.

This research endeavours to create an innovative media resource for the acquisition of the Indonesian language through the utilization of Lumen5, specifically concentrating on environmental themes for learners in the 10th grade. By rectifying the deficiencies inherent in traditional instructional methodologies and leveraging cutting-edge digital technologies, this study aims to augment educational effectiveness, cultivate environmental awareness,

and enhance critical digital literacy competencies. The aims of this research are delineated as follows: (1) to design and implement Lumen5-based video learning media specifically tailored for 10th-grade Indonesian language instruction with a focus on environmental themes; (2) to enhance students' comprehension and analytical capabilities in the exploration of environmental issues. To elevate students' engagement and motivation in the learning process through interactive and visually stimulating video formats; (3) to foster environmental consciousness among high school students via captivating educational content; and (4) to advance students' digital literacy skills as an integral component of their comprehensive educational development.

METHOD

This investigation embraces a Research and Development (R&D) framework using the ADDIE model (Analysis, Design, Development, Implementation, Evaluation), recognized as a structured methodology commonly found in instructional design (Park, 2022). Each component of the ADDIE framework is pivotal in guaranteeing the formulation of effective and engaging educational media.

Firstly, the analysis component is dedicated to discerning the particular needs of learners and articulating explicit learning objectives, which constitute the bedrock for the ensuing stages. Secondly, the design component operationalizes these objectives into an organized blueprint, delineating the content, pedagogical strategies, and evaluative methods that will be utilized to facilitate optimal learning results (Haviz, 2016). Subsequently, the development component encompasses the actual fabrication of the educational materials and resources, ensuring their alignment with the predetermined design blueprint while integrating interactive components to bolster learner engagement. Following this, the implementation component occurs, wherein the educational materials are presented to the intended audience, and instructors or facilitators offer guidance and support to assure a seamless educational experience. The last phase is evaluation. This component is of paramount importance, as it appraises the efficacy of the instructional design and learning outcomes, facilitating ongoing enhancement predicated on feedback from both learners and instructors.

This cyclical process not only augments the quality of educational programs but also cultivates a culture of reflective practice among educators, ultimately resulting in improved student performance and satisfaction. Continuous feedback mechanisms are integral to this process, enabling educators to modify and refine their methodologies, thus ensuring that the educational experience remains pertinent and impactful over time.

This dedication to perpetual evaluation and adaptation empowers educators to remain responsive to the dynamic needs of their students, fostering an environment conducive to learning and encouraging innovation in instructional methods. Such an environment is advantageous not only for students but also facilitates the professional development of educators, as they engage in collaborative dialogues and exchange best practices to enhance their teaching methodologies in Indonesian Language content; this collaborative paradigm nurtures a sense of community among educators, allowing them to leverage a multitude of perspectives and experiences that enrich the educational process. Rahmandhani & Utami

(2022), ADDIE model is more effective in designing mobile learning media applications because it focuses more on the contents of the material and the appropriateness of the application.

RESULTS

The advancement and execution of video learning resources utilizing the Lumen5 platform, concentrating on Indonesian language instruction with a focus on environmental themes, yielded noteworthy outcomes. The investigation culminated in the production of five instructional videos that addressed pivotal environmental challenges, such as forest fires, flooding, waste management, landslides, and the promotion of hygiene within educational settings. These visual materials were meticulously crafted to augment students' engagement, comprehension, and consciousness regarding environmental issues.

Analysis phase

The analysis phase constitutes a critical underpinning of the developmental continuum. Within this phase, a thorough needs assessment is undertaken to delineate the deficiencies and necessities inherent in the prevailing pedagogical practices of the Indonesian language, with a particular focus on 10th-grade learners. Methodologies for data acquisition, including surveys and interviews with both educators and students, are utilized to garner insights regarding their preferences, challenges, and expectations. The resultant data is instrumental in delineating the specific attributes and content that the Lumen5-based video learning media ought to encompass, thereby ensuring congruence with curricular objectives and the specific requirements of the target demographic. Application of the ADDIE model in designing digital teaching materials (Martatiyana et al., 2023). This comprehensive scrutiny not only elucidates the design of efficacious educational resources but also cultivates a collaborative milieu wherein all stakeholders can participate in the enhancement of language acquisition and student engagement.

Figure 1. The Analysis phase in the Current Indonesian Language Teaching Practices at 10th grades PPG of SMK Muhammadiyah Pringsewu

By amalgamating feedback from both pedagogues and learners, the developmental process attains a more dynamic character, ultimately culminating in an approach that is more finely attuned to augmenting overall language proficiency and invigorating students in their

educational pursuits. This synergistic methodology not only empowers educators and learners but also stimulates the integration of innovative instructional strategies that are capable of accommodating a spectrum of learning modalities, thereby rendering education more inclusive and efficacious. The incorporation of technology into this collaborative paradigm further enriches the educational experience, offering interactive instruments that facilitate personalized learning and instantaneous feedback. Such innovations not only optimize the learning trajectory but also foster active engagement, ensuring that students remain invested and involved in their educational achievements.

Design phase

The design phase emphasizes the strategic planning and structural organization of media content. Within this stage, researchers meticulously develop comprehensive storyboards and scripts for each video presentation. These storyboards delineate the arrangement of visuals, textual elements, and auditory components that will be incorporated, thereby ensuring a coherent and fluid narrative. The scripts are crafted with a focus on environmental themes, including but not limited to forest fires, waste management, and institutional cleanliness, with the objective of heightening students' awareness of these pertinent issues while simultaneously advancing their linguistic capabilities. This phase incorporates principles of multimedia instructional design, such as coherence, signaling, and personalization, aimed at augmenting the engagement and efficacy of the videos for educational purposes. Gössling, B., & Daniel, D. (2018) stated Analysis was constitutes a fundamental process across various academic disciplines, facilitating the examination and interpretation of data to derive significant conclusions.

This methodological approach not only assists in the identification of trends and patterns but also informs subsequent decision-making and strategic formulation across fields, thereby reinforcing the significance of data-driven methodologies in addressing intricate challenges. This attention to analytical strategies helps students nurture their critical thinking skills, thus permitting them to judge information wisely and put their insights into practice in real-world applications. By promoting a comprehensive understanding of analytical techniques, educators furnish students with the requisite tools to adeptly navigate an increasingly data-oriented environment, thus preparing them for prospective careers that necessitate robust analytical proficiencies. This interdisciplinary methodology not only enhances critical thinking abilities but also fosters creativity, equipping students to approach complex problems from a multifaceted vantage point. Consequently, the integration of data analysis into educational frameworks is becoming increasingly imperative, ensuring that students are not merely consumers of data but also adept at interpreting and employing information proficiently.

This transition towards a more analytical educational paradigm advocates for collaboration across diverse disciplines, enabling students to establish connections between various fields and apply their competencies in innovative manners. To operate Lumen5 videos, the steps that need to be taken are:

1. The teacher should first prepare an expository text. An expository text consists of three parts: a thesis in the first paragraph, arguments in the second paragraph, and a conclusion or reaffirmation in the final paragraph.
2. Once the text is completed, the teacher can create an account by opening a search engine such as Google Chrome or Mozilla Firefox, typing in "Lumen5 video," and clicking on the "Sign Up" button located at the top right corner, as shown in the following image.

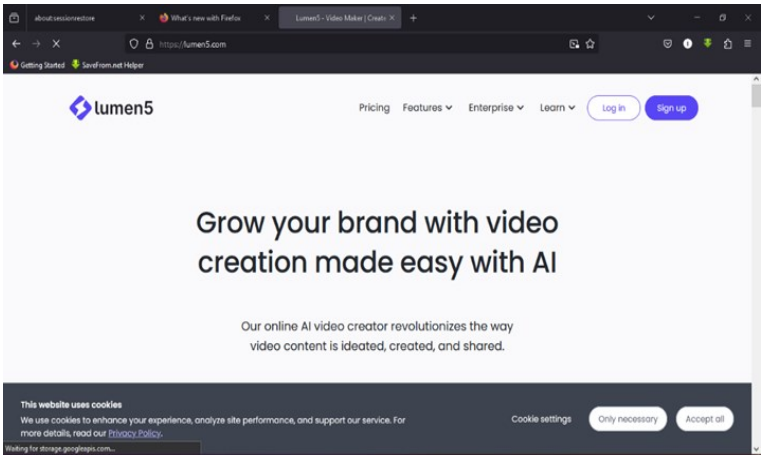
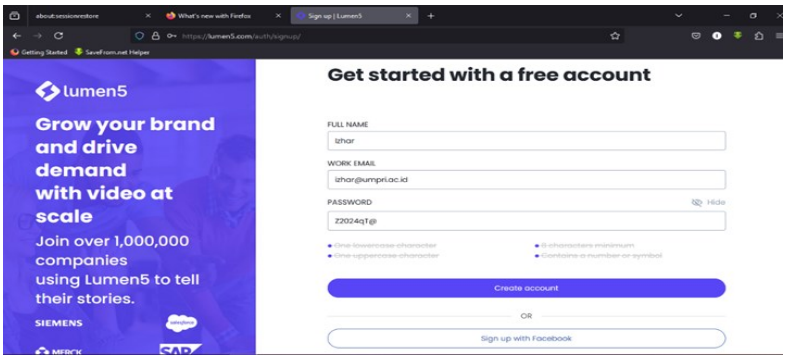


Figure 2. The step to sign up Lumen5 videos

3. After that, the teacher can fill in their personal information by entering their name, email address, and creating a password, then proceed to create an account as shown in the following image.



Figures 3. Create Personal Information

4. Once the account has been successfully created, the dashboard will appear on the monitor screen, as shown in the following image, indicating that the Lumen5 video platform is ready to be operated.

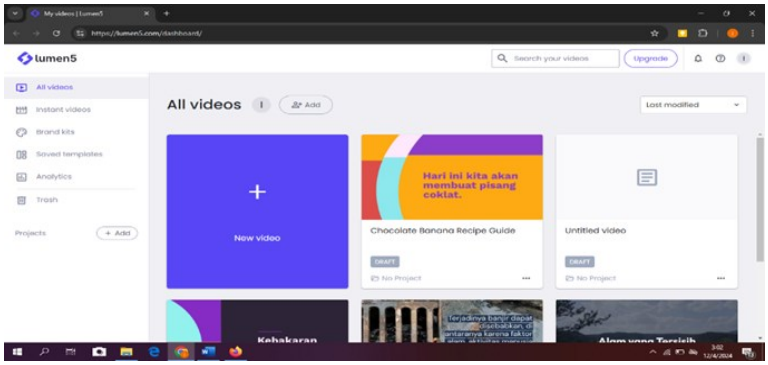


Figure 4. the Lumen5 video platform is ready to be operated

5. To start, the teacher can click on "New Video" (the blue button) and choose one of the many video templates provided, as shown in the following image.

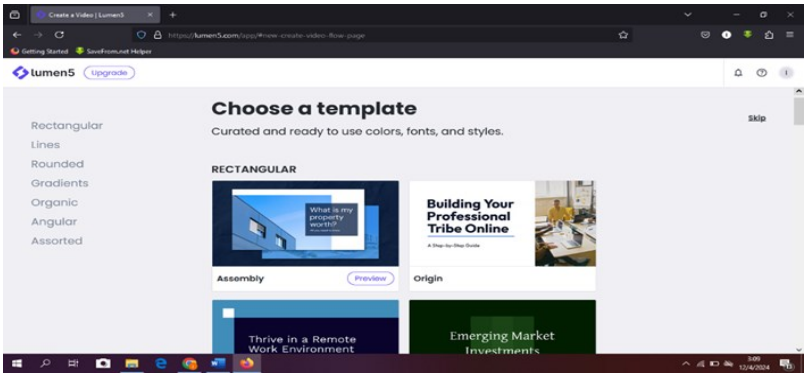


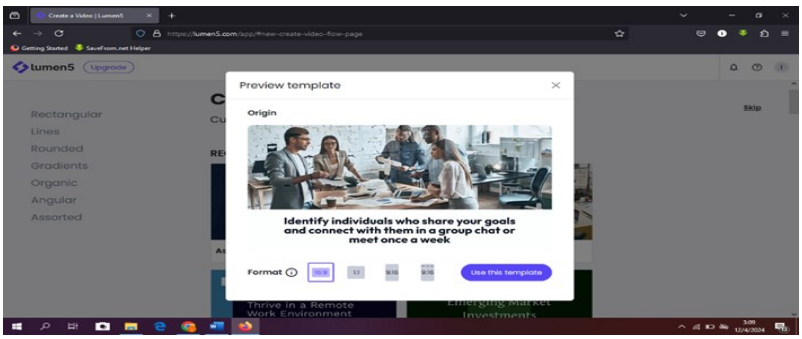
Figure 5. Choose the templete Lumen5

Development phase

The development phase encompasses the creation of videos utilizing the Lumen5 platform. This particular platform is selected due to its capacity to transform scripts into visually compelling videos while requiring minimal technical proficiency. The team of researchers utilized Lumen5's with 5 videos talk about “Environment” capabilities, such as automatic visuals, animations, and sound improvements, to produce engaging and top-notch content. Expert validation is performed during this stage to ensure that the videos adhere to educational standards, possess contextual relevance, and align with the specified learning outcomes. After the videos are finished, they undergo a thorough examination process that includes insights from both teachers and specialists to further polish the material and improve its effectiveness in conveying the desired messages.

This teamwork-driven strategy not just improves the standard of the videos but also nurtures a sense of responsibility among contributors, ensuring that the ultimate outcome is both interesting and enlightening for students. This thorough review process ultimately yields a well-crafted educational resource that effectively captivates the attention of learners and promotes a deeper comprehension of the subject matter concerning the environment. The final outcome is an interactive educational experience that inspires students to

participate with the knowledge, cultivating their analytical skills and retention of information.



Figures 6. Choose the Templets of Lumen5

At this stage, the teacher can click on "Use the Template" at the bottom right corner, which is highlighted in blue, as shown in the following image.

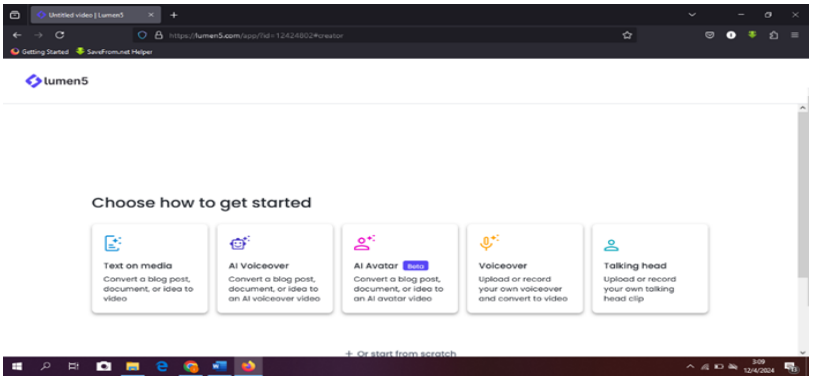


Figure 7. Display of The Media

The teacher can choose one of the following displays to insert the expository text that has been created. If the teacher wants to insert the text sentence by sentence or paragraph by paragraph, they can click the box labeled "Text on Media."

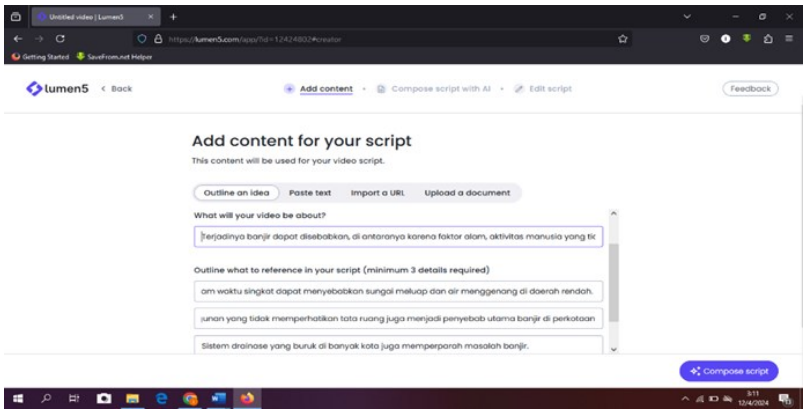


Figure 8. Add Content of Script

The educator is able to systematically incorporate the prepared expository text, either sentence by sentence or paragraph by paragraph, into the designated field, as depicted in the subsequent image. Subsequently, one must select "Compose Script" located at the bottom right corner, which is distinctly highlighted in blue.

Following this action, the display generated by the Lumen5 platform will exhibit the entered text. Fundamentally, the processed text is interpreted and tailored specifically for the platform's requirements. This is necessitated by the fact that the amalgamation of text or paragraphs with visual elements, such as images or video clips, must be non-overlapping; consequently, the three extensive paragraphs we provided will be condensed into individual sentences by the Lumen5 video, and adjusted to align with the number of video segments corresponding to each line of text. The presentation is as follows.

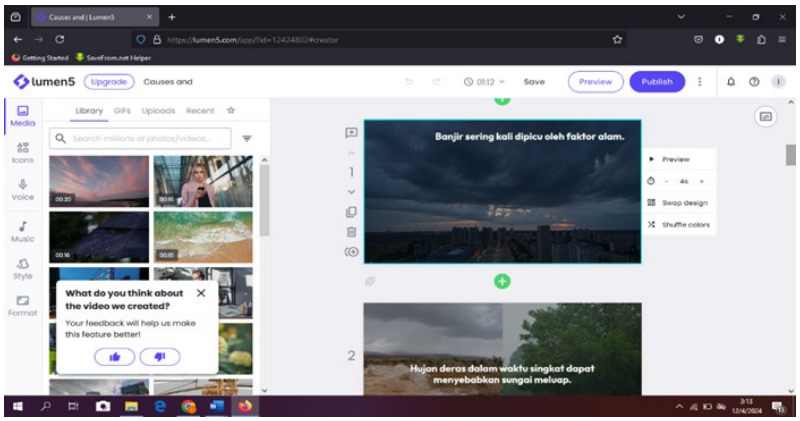


Figure 9. Covert Video Lumen5

If necessary, the teacher can edit the sentences offered by the platform. The teacher can click "Convert Video" at the bottom right corner, highlighted in blue, to convert the text into a video with text. The following display shows the video sequence based on the number of lines of text the teacher has entered and interpreted by the platform. Before publishing, the teacher can click "Review" to preview the video that is ready. As shown in the following image.

The development phase entails producing videos using the Lumen5 platform. The choice of Lumen5 is based on its capability to produce high-quality videos efficiently, as highlighted by Seo et al. (2020) in their study on the effectiveness of AI-based video creation tools in education. During this phase, the researchers employed expert judgment from an ICT media expert, to validate the content's quality and relevance. This validation process ensures that the videos meet educational standards and effectively engage the target audience. The media trials were carried out on a group of students representing the target population. The methodology was proceed in three stages: individual trials, small group trials, and field trials. Each stage included feedback collection through questionnaires and focus group discussions to identify areas for improvement.

Implementation phase

The implementation phase encompasses the deployment of videos created using Lumen5 within the educational environment. The videos are presented to learners as integral

components of their educational activities, with their efficacy being assessed in real-time contexts (Ashirbekov, et al. (2020). Instructors embed these videos within their educational strategies, granting learners opportunities to connect with the subject matter and engage in relevant dialogues or projects. This phase guarantees that the videos are not merely operational but also applicable for utilization in authentic instructional scenarios. Feedback obtained from both students and educators during this phase is indispensable, as it aids in pinpointing areas necessitating enhancement and evaluating the overall influence of video integration on student learning outcomes.

Figure 10. Implementation of the Research

This iterative process empowers educators to refine their methodologies and improve the caliber of video content, ultimately cultivating a more immersive and effective learning atmosphere. By persistently assessing the efficacy of video integration, educators can modify their strategies to accommodate diverse learning requirements and preferences, thereby ensuring that all students reap the benefits of multimedia resources within the classroom.

Evaluation phase

The evaluation phase is dedicated to the systematic appraisal of the comprehensive impact of the learning media employed. Formative and summative evaluations are put into practice in a systematic manner to evaluate the success of the videos in boosting students' grasp, participation, and digital literacy (Mertasari, 2022). Through the use of surveys and group dialogues, we systematically gather feedback from both educators and learners to better our videos. The evaluation process guarantees that the final product adheres to high standards of quality and successfully fulfils its educational objectives.

The following table is the result of evaluation from the implementation of video-based learning through Lumen5.

Table 1. Comprehension Improvement (Pre-test vs. Post-test Scores)

Measure	Pre-test	Post-test	Improvement
Average Score (%)	65%	95%	30%

Table 2. Student Engagement and Interest

Survey Questions	Percentage (%)
Increased engagement with video learning	80%
Found video format more interesting than text	60%
Video format increased motivation to learn	70%

Table 3. Digital Literacy Development

Measure	Percentage (%)
Students engaging with interactive features	85%
Students showing increased digital literacy	75%

The results derived from the trial implementation demonstrated a significant enhancement in students' comprehension of environmental themes. The students exhibited a 30% increase in understanding when juxtaposed with conventional text-based pedagogical approaches. This research illustrated that video-based learning through Lumen5 considerably augments the comprehension of environmental education within the context of Indonesian language instruction. Moreover, students conveyed a heightened interest and motivation in exploring environmental topics "Environment" by using Lumen5, thereby underscoring the efficacy of digital media in captivating the younger demographic, particularly Generation Z. With respect to digital literacy, the students exhibited advancements in their capacity to interact with the content utilizing the interactive features offered by Lumen5, which are essential in cultivating digital competencies within Indonesian language education.

By methodically implementing these five phases, the ADDIE model offers a resilient framework for the development of Lumen5-based video learning media, thereby ensuring that the resultant product is both innovative and efficacious for the instruction of the Indonesian language. Evaluation and amendments will be executed based on trial outcomes, employing the formative evaluation model established by Tessmer (2018). This procedure encompassed both quantitative and qualitative analyses of the data collected, with a focus on usability, learning effectiveness, and media appeal. The insights derived from this thorough evaluation informed subsequent iterations of the video content, facilitating continuous enhancement and adaptation to satisfy the diverse requirements of learners within the context of the Indonesian language.

DISCUSSION

The findings of this investigation elucidate the critical significance of incorporating technological advancements within the educational framework, especially in the domain of language acquisition. The effective utilization of Lumen5 as an instructional resource for Indonesian language pedagogy represents a noteworthy advancement in addressing the educational requirements of contemporary learners. The observable enhancement in student engagement and comprehension of ecological matters through video content is particularly commendable, corroborating prior research conducted by Permatasari et al. (2024) and

Chandra et al. (2023), which established that the integration of digital media within educational contexts can substantially elevate student motivation and interest.

The principal distinction between the current research and preceding publications resides in the distinct application of the Lumen5 platform, which leverages artificial intelligence to generate interactive and visually stimulating content. In contrast to conventional video formats, Lumen5 facilitates the incorporation of quizzes, clickable links, and various interactive components, thereby promoting a more profound engagement with the educational material. This finding aligns well with the insights presented by Seo and colleagues (2020), who likewise emphasized the success of AI-based video resources in the field of education.

Additionally, Leiker, D., & Cukurova, M. (2023) offered findings indicating that digital learning devices substantially elevate students' desire to learn and their academic results by using interactive components and gamification strategies. This conclusion aligns with the present study, as the incorporation of Lumen5's interactive capabilities likely played a pivotal role in the observed augmentation of student engagement and understanding. Additionally, Noetel et al. (2021) accentuated those principles of multimedia design, including coherence and signaling, enhance educational outcomes by alleviating cognitive load, which corresponds with the systematically structured video content developed within this research.

While antecedent studies have illustrated the advantages of video-based learning in ecological education, the unique application of Lumen5 in this study is characterized by its emphasis on the Indonesian language curriculum, utilizing pertinent local environmental issues to render the learning experience more relevant and relatable for students. The integration of localized environmental themes such as forest fires and school cleanliness imparts contextual significance that has not been thoroughly explored in prior investigations. In conclusion, the outcomes help to build an increasing collection of proof that backs the function of digital media in improving the educational journey. This study not only demonstrates the efficacy of video-based learning within the Indonesian language educational framework but also accentuates the potential of incorporating interactive, AI-enhanced platforms to meet the demands of modern learners. These outcomes suggest that video learning, particularly via platforms such as Lumen5, could serve as a pivotal solution for modernizing language education and enhancing environmental awareness among students.

CONCLUSION

This investigation effectively established and executed Lumen5-based video instructional media tailored for Indonesian language pedagogy, emphasizing ecological themes. The research elucidated that interactive and visually captivating videos can substantially augment students' understanding of environmental matters, evidenced by a remarkable 30% enhancement in comprehension relative to conventional text-centric approaches. Additionally, the study underscored a surge in student participation and digital literacy, addressing the educational requisites of Generation Z.

The results contribute to the discipline by illustrating how AI-driven instruments like Lumen5 can amalgamate multimedia components, including quizzes and interactive features, to cultivate a more profound learning experience. In contrast to traditional methodologies, this pioneering strategy offers a replicable framework for the integration of technology into language education, consonant with modern educational objectives and the Merdeka Curriculum. Moreover, the contextual significance of local environmental challenges, such as deforestation and waste management, enriches the curriculum and fosters environmental consciousness among learners.

The implementation of this model indicates broader ramifications for educational methodologies. It facilitates the incorporation of technology to rejuvenate curricula and enhance digital literacy, which are vital competencies in the contemporary digital landscape. In light of the findings, it is advisable for educators to incorporate AI-enhanced platforms such as Lumen5 into their routine instructional methodologies to bolster student engagement and comprehension, while leveraging local themes to render learning more pertinent. Educational institutions should prioritize professional development initiatives for instructors to proficiently utilize digital media and embed digital literacy as an integral component of the curriculum, thereby equipping students for impending challenges. Policymakers are urged to endorse the integration of innovative educational media that aligns with the Merdeka Curriculum by allocating sufficient funding and resources for educational institutions to deploy advanced digital tools. Subsequent research should concentrate on assessing the long-term effects of Lumen5-based instructional media, exploring its relevance across various subjects, and examining its scalability in diverse educational contexts, including under-resourced or rural educational environments.

ACKNOWLEDGEMENT

The researchers would like to express their deepest gratitude to the Faculty of Teacher Training and Education (FKIP), Universitas Muhammadiyah Pringsewu (UMPRI), for their invaluable support and funding through the UMPRI Teacher Professional Education (PPG) Revitalization Grant Program 2025. This generous assistance has significantly contributed to the successful completion of this research. Thank you for fostering an environment that promotes innovation and excellence in education with the contract numbers is 0490/II.3.AU/D/40/2024

REFERENCES

Ashirbekov, A., Srymbetov, T., Dikhanbayeva, D., & Rojas-Solórzano, L. (2020). Lumen degradation effect on fluorescent-to-LED switching: techno-economic viability for a lecture room. Clean Technologies and Environmental Policy. https://doi.org/10.1007/S10098-020-01921-Z

Chandra, M., Dhanendra, N., Renato, R., Fredyan, R., & Pranoto, H. (2023). Developing Interactive Learning Media Design for Futuristic Learning Activities. 2023 15th International Congress on Advanced Applied Informatics Winter (IIAI-AAI-Winter), 135-138. https://doi.org/10.1109/iiai-aai-winter61682.2023.00033.

Creswell, J. W., & Creswell, J. D. (2024). Research design: Qualitative, quantitative, and mixed methods approaches (6th ed.). SAGE Publications.

Gössling, B., & Daniel, D. (2018). Video analysis in Design-Based Research – Findings of a project on self-organised learning at a vocational school. https://doi.org/10.15460/EDER.2.2.1270

Digital Innovations in Education. (2022). Advances in Higher Education and Professional Development Book Series. https://doi.org/10.4018/978-1-6684-4083-4.ch011

Fauzi, I. (2023). Challenges of English teachers in the digital era. Proceeding of UHAMKA International Conference on ELT and CALL (UICELL). Jakarta, 14-15 December 2023, pp. 11—20.

Haviz, M. (2016). Research and development; penelitian di bidang kependidikan yang inovatif, produktif dan bermakna. Ta'dib. https://doi.org/10.31958/JT.V16I1.235

Hobbs, R. (2006). Reading the Media: Media Literacy in High School English. . https://doi.org/10.5860/choice.44-6360.

Leiker, D., & Cukurova, M. (2023). Generative AI for Learning: Investigating the Potential of Learning Videos with Synthetic Virtual Instructors. https://doi.org/10.1007/978-3-031-36336-8_81

Lestari, S., & Setiyawan, R. (2020). Technology Era, Global English, CLIL: Influence and its Impact on English Teaching for Young Learners in Indonesia. https://doi.org/10.1088/1755-1315/469/1/012094

Lin, M., Chen, H., & Liu, K. (2017). A Study of the Effects of Digital Learning on Learning Motivation and Learning Outcome. Eurasia journal of mathematics, science and technology education, 13, 3553-3564. https://doi.org/10.12973/EURASIA.2017.00744A.

Lucas, P., & Giesen, J. (2021). Lumen: A software for the interactive visualization of probabilistic models together with data. The Journal of Open Source Software. https://doi.org/10.21105/JOSS.03395

Luo, Y. (2024). Enhancing educational interfaces: Integrating user-centric design principles for effective and inclusive learning environments. Applied and Computational Engineering. https://doi.org/10.54254/2755-2721/64/20241427.

Martatiyana, D. R., Usman, H., & Lestari, H. D. (2023). Application of the addie model in designing digital teaching materials. (2023). Jurnal Pendidikan Dan Pengajaran Guru Sekolah Dasar. https://doi.org/10.55215/jppguseda.v6i1.7525

Mertasari, N. M. S. (2022). Summative Evaluation of ICT-Based Learning Media. Journal of Education Research and Evaluation. https://doi.org/10.23887/jere.v6i4.54695

Noetel, M., Griffith, S., Delaney, O., Harris, N., Sanders, T., Parker, P., Del Pozo Cruz, B., & Lonsdale, C. (2021). Multimedia Design for Learning: An Overview of Reviews With Meta-Meta-Analysis. Review of Educational Research, 92, 413 - 454. https://doi.org/10.3102/00346543211052329.

Park, H. R. (2022). A Study on Class Satisfaction with ADDIE Model. Keolcheo Keonbeojeonseu. https://doi.org/10.22143/hss21.13.2.117

Permatasari, R., Suarman, S., & Gimin, G. (2024). Examining The Impact of Using Learning Media On Students' Learning Motivation and Learning Outcomes.

International Journal of Educational Best Practices. https://doi.org/10.31258/ijebp.v8n1.p88-102.

Rahmandhani, H., & Utami, E. (2022). Comparative Analysis of ADDIE and ASSURE Models in Designing Learning Media Applications. Jurnal Educative: Journal of Educational Studies. https://doi.org/10.30983/educative.v7i2.6005.

Selfa-Sastre, M., Pifarré, M., Cujba, A., Cutillas, L., & Falguera, E. (2022). The Role of Digital Technologies to Promote Collaborative Creativity in Language Education. Frontiers in Psychology. https://doi.org/10.3389/fpsyg.2022.828981

Samino, S. (2023). 10 Aplikasi Kecerdasan Buatan (AI) Gratis yang Mempermudah Guru dalam Membuat Media Pembelajaran. https://guruinovatif.id/artikel/10-aplikasi-kecerdasan-buatan-ai-gratis-yang-mempermudah-guru-dalam-membuat-media-pembelajaran

Seo, K., Fels, S., Yoon, D., Roll, I., Dodson, S., & Fong, M. (2020). Artificial Intelligence for Video-based Learning at Scale. Proceedings of the Seventh ACM Conference on Learning @ Scale. https://doi.org/10.1145/3386527.3405937.

Tessmer, M. (2018). Planning and conducting formative evaluations: Improving the quality of education and training (2nd ed.). Routledge.

Yang, Y. (2024). Innovative Strategies for Language Education in the Context of Media Convergence - From Traditional to Digital Media. Applied Mathematics and Nonlinear Sciences. https://doi.org/10.2478/amns-2024-2379.