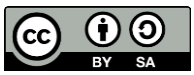
IDEAS

Journal of Language Teaching and Learning, Linguistics and Literature

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

Volume 13, Number 1, June 2025
pp.1311 - 1329



Issued by English study program of IAIN Palopo

Developing Microlearning Video-Based Discovery Learning in English Classroom at Vocational High School

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Received: 2025-03-03 Accepted: 2025-06-20
DOI: 10.24256/ideas. v13i1.6273

Abstract

The characteristic of generation Z and Alpha on the provision of learning materials in an immediate way becomes the obstacle of teachers in utilizing technology in their classrooms. The current study aimed at developing a microlearning video-based discovery learning for teaching English at SMK Pariwisata Nusadua Sidemen. The development was conducted by adopting SAM model. There were three stages; preparation, iterative design, and iterative development. The research subjects were three English teachers and 30 eleventh-grade students at SMK Nusadua Sidemen. The sampling techniques used were purposive and simple random sampling. The data were obtained by conducting an interview, a survey, and document analysis. The research instruments were interviewing guide, questionnaire, and note. The result revealed that the microlearning video-based discovery learning was developed for teaching the expression of asking and giving opinion with good category with the mean score of 4.00 and 4.20. The mean scores were placed between 3.49 and 4.485 revealing that the developed product was good to be implemented in EFL classrooms. This finding implicated the existence of microlearning video-based discovery learning in English classrooms to fulfill the needs of generation Z and Alpha.

Keywords: Discovery learning; Microlearning; Video

Introduction

The needs on providing an appropriate English learning media based on the students' needs and characteristics initiates the current study to develop a learning media by adapting an innovative learning method as proposed in 21st century learning. The development is also supported by the problem occurs at SMK Pariwisata NusaDua Sidemen, Karangasem. The needs of further development on

the English learning media found considering that the English teachers only implement YouTube video. The video is less effective to support students' learning since the students have lack of learning interest on the use of YouTube video. The teachers mention that students often feel boring on the video that they use because of its long duration. Therefore, the current study intends to develop a learning media as the solution to this problem in which the video is developed based on students' characteristics and needs to create fun learning environment to increase their learning interests (Mohammed et al., 2018).

The development not only focuses on the needs of vocational students for English learning materials related to their professional purposes but also considers their characteristics as members of Generation Z and Alpha. Santosa et al., (2020) state that Generation Z and Alpha were born into an era in which technology has been embedded in their daily life. As digital natives, they are regarded as the initial wave experiencing extensive access to digital technologies, including social networking platforms and the vast amount of information available online (Turner, 2015; Warden et al., 2022). Salleh et al., (2017) argue that generation Z and Alpha tend to have technological literacy used for acquiring knowledge both in offline and online learning. What is more, they are inclined toward immediate and visual learning materials (Adhyara et al., 2024;Krasnova et al.,2023). Hence, the characteristics of Generation Z and Alpha are the core of learning media development to enhance the students' learning interest as well.

Microlearning is suggested as one of potential means for teaching the generation Z and Alpha by providing the materials in an immediate way (Adhyara et al., 2024). It is mentioned that the digital natives are habitually seeking for an immediate information for investigating the problems by the utilization of technology advancement (Krasnova et al., 2023). Microlearning is characterized with a concise and targeted learning activities with the maximum duration of 15 minutes (Shail, 2019; Sun et al., 2015). This characteristic meets the needs of generation Z and Alpha in which microlearning can keep up with their learning interest. In addition, microlearning also proposes students-centered approach by allowing students to obtain their learning trajectory and the materials that can be accessed without time and space limitation (Jomah et al.,2016;Reynolds & Dolasinski, 2020).

Furthermore, microlearning can be manifested into many forms of learning media but it is majorly implemented with technological involvement. Microlearning video is a common media that can be adopted or modified as a learning media to deliver the materials for the students(Arsyad, 2017; Yuanta, 2019). This audio-visual or also known as a video has a dynamic visual representation supplemented by auditory elements (Kurniawan et al., 2021). The use of video as a learning media supports the realization of micro-learning. It is a technique which integrates technology by presenting the learning materials with short vivid contents (Yin et al., 2021). The content presented in micro-learning

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

video is commonly developed based on students' needs and preferences towards the learning materials that they learn (Hosseini et al., 2020). It indicates that the learning materials delivered is covered into micro-learning video as the integration of technology in which it can be adapted as learning media (Sari & Bahara, 2022; Nikkhoo et al., 2023).

In order to achieve an optimal process, microlearning can be integrated with an innovative teaching strategy since various methods and strategies exist in ELT which are proposed to conduct 21st learning and appropriate for the digital natives (Paschal & Gougou, 2022). Discovery learning is an innovative pedagogical strategy promoting students in exploring students' engagement to show their ideas and analyse the fact(Ozdem-Yilmaz & Bilican, 2020; Rafiqa et al., 2023). Syam (2020) reveals that discovery learning primarily encouraging students' learning participation by cultivating their self-confidence in acquiring the knowledge (Kusumawardani et al., 2018).

Learning experience and prior knowledge are the foundation of discovery learning in establishing students' ability to connect their previous learning and the current one to construct a new knowledge (Chusni, 2022; Murtiyasa & Karomah, 2020). This approach also provides a series of questions to effectively attain the challenge and obstacles in the learning process (Suriadi, 2023).

Many researches have investigated the efficiency of micro-learning enhancing students' English language proficiency. Hosseini et al., (2020) revealed that flipped classroom with microlearning-based is effective in improving self-efficacy of ELF students. It is also found that the application theories of microlearning supporting the second language (L2) instruction (Khong & Kabilan, 2022). Recently, an experimental study shows that using idioms in songs through a mobile microlearning strategy effectively improving students' grammatical ability (Jubran, 2024). Those studies reveal that microlearning is essential in English learning process. However, further research still needs to be conducted considering that there is still unoptimized microlearning implementation as what has been found by Rizal (et al., 2023).

The latest study indicates that an optimalization needs to be conducted in utilizing microlearning video, therefore the current study is conducted to fill the gap. The current study is conducted to optimize the English learning process at SMK Nusadua Sidemen, Karangasem since the teachers still utilize Youtube video as a learning media which is not optimal enough. Therefore, a development of microlearning video-based discovery learning is conducted considering that discovery learning is an innovative learning method proposed for 21st century learning.

Method

The study was conducted by adapting Successive Approximation Model (SAM) which consisted of repeated iterations. There were three main phases; preparation, iterative design, and iterative development. Preparation was the first stage where the researcher collected the primary data about students' needs. Iterative design was the second stage of designing the prototype of the product by compiling the learning concepts and blueprints. Iterative development was the last stage where the prototype was developed into the product. This stage was commonly used for testing the developed product to find the quality.

The participants of this study were 30 eleventh-grade students which consisting of 18 female students and 12 male students. They were at the age of 16 – 17. The students were selected by using simple random sampling which was conducted by distributing lottery to the population (eleventh-grade students) at SMK Pariwisata NusaDua Sidemen. After selecting 30 students, purposive sampling was conducted to select the English teachers as participants. They were selected by providing several criteria; 1) they were ESP teachers, 2) they taught English in eleventh-grade classrooms at SMK Pariwisata NusaDua Sidemen, 3) they had been familiar with technology utilization in teaching and learning process.

Meanwhile, there were three expert judges invited as the participants in which they were experts in media and content development in education field. The data were collected by conducting interview, survey, document analysis, and expert judgement. The interview was conducted by using interview guide to find out students' needs by interviewing the English teachers. The survey was conducted by distributing close-ended survey with yes or no statement to 30 of eleventh-grade students at SMK Nusadua Sidemen. The document analysis was conducted by collecting and analyzing the literature, curriculum, and lesson plans. The expert judgement was conducted to find out the quality of developed product. The research instruments were interview guide, questionnaire, and expert judgement check-list.

The interview guide was developed by adapting the component of students' needs proposed by Inderawati et al., (2021) covering; students' learning style, learning media, and learning methods. The close-ended questionnaire was developed by adapting the criteria of microlearning and students' needs component (Inderawati et al., 2021; Kumazawa, 2006).. The indicators were; 1) learning styles, 2) teaching methods, 3) message clarity, 4) stand alone, and 5) qualification. The expert judgement checklist was constructed by adopting the criteria of good microlearning video proposed by Altay and Unal (2017) and McAlpine and Weston (1994). The instruments were tested for validity and reliability through expert judgement which found that the instruments had high validity and reliability with the mean score of 4.00.

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The obtained data were analyzed quantitatively and qualitatively. Descriptive quantitative was conducted to analyze the data gained from the survey and expert judgements by comparing the percentages and mean scores. Qualitative Data Analysis (QDA) was adopted to analyze the qualitative data which consisted of three steps; data reduction, data display, and conclusion drawing. Data reduction was conducted to eliminate unwanted data found during the document analysis and interview. The data were concentrated on the students' needs based on the indicators in the instruments. Then, the data were displayed in the form of table and descriptions. Then, the data were tabulated by conducting data triangulation. The last step was conclusion drawing which was conducted when the data had been saturated.

Results

The Eleventh-Grade Students' Needs Towards the Learning Media In English Learning Process At SMK Pariwisata Nusadua Sidemen

The students' needs analysis was an essential way to find out the appropriate learning materials suited with the students' learning characteristics or conditions. The observation showed that there was no learning media developed in teaching English for eleventh grade students at SMK Pariwisata NusaDua Sidemen. It was found out the teachers commonly used video from YouTube to teach their students. In addition, the document analysis indicated that the stakeholders demanded to the teachers to teach English based on the current curriculum which was Merdeka curriculum.

The analysis showed that Merdeka curriculum underlined by students-centered learning approach leading teachers to conduct a learning process encourage students' active participation and become independent learners. In addition, it was found out that teachers who taught eleventh-grade students implemented innovative strategies shown from the lesson plans that they used. Those strategies were; problem-based learning, discovery learning, and project-based learning.

In addition, to find out the students' needs related to the learning video as a learning media, close-ended questionnaire was distributed to the students. The result was presented in Table 1.

Table 1. The Close-Ended Questionnaire

No.	Domains	Indicators	Yes	No
1.	Learning styles	Involving technology	78.2%	21.8%
		Learning with video (audio-visual)	61.9%	39.1%
2.	Teaching methods	Group work	50.7%	49.3%
		Work evaluation	50%	50%
		Problem-solving	50%	50%
		Information investigation	50.1%	49.9%
		Independent space	50%	50%
3.	Message clarity	Meaningful video	88.7%	11.3%
4.	Stand alone	Flexibility (can be accessed both online and offline)	91.7%	8.3%
5.	Qualification	User friendly and high resolution or visualization	96.3%	3.7%
		Average	**58.1%**	**41.9%**

Based on the questionnaire that had been distributed to the students revealing that 58.1% of students had positive responses towards the statement given. There were five indicators such as; learning style, teaching method, message clarity, stand alone, and qualification. It was found that major students positively responded to the involvement of technological means in their learning process. The gave positive responses on the use of video as learning media in which they needed the video which was user friendly, high resolution, and clear visualization. It was also found that students needed a learning process that allowed them to investigate and solve the problem through their own space.

Furthermore, an interview was also conducted to the teachers related to the students' needs. There were two questions asked to the teachers related to the preferred learning styles and learning method. The teachers mentioned that during the learning process, students were more excited when the teachers visualizing the materials, for instances; using pictures or playing video. It was also found that due to the demand of Merdeka curriculum and 21st century learning, teachers tent to adopt innovative teaching methods, one of them was discovery learning. Those results indicated that students needed a learning video as a learning media which underlined by discovery learning.

The document analysis also revealed that there were three topics potentially developed into micro-learning video, those were; suggestion, giving and asking opinion, and formal invitation. However, the teachers mentioned that expressing and asking opinion urgently needed an appropriate learning media considering it was difficult to find out YouTube video which was relevant to the real

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

implementation of expression asking and giving opinion in hospitality. Therefore, this resulted a base for developing microlearning video-based discovery learning which presented the material of asking and giving opinion.

The Development of Microlearning Video Based Discovery Learning for Eleventh-Grade Students at SMK Pariwisata Nusadua Sidemen

The observation indicated that there was a need to develop a learning media in teaching English for eleventh-grade students at SMK Pariwisata Nusadua. The development was conducted by using SAM model. There were three phases in this development such as;

a. Preparation

Students' needs analysis was conducted in this phase through survey, interview, and document analysis. The interview showed that teachers recommended to develop a learning media with visualization and innovative teaching strategy to fulfil the demand of current curriculum which was Merdeka curriculum. The innovative teaching strategy was also suggested to emphasize 21st century learning. In addition, the teachers also mentioned that students were frequently bored when they were presented with YouTube video which had longer duration than 5 minutes. It was supported with the survey result in which most of the students gave positive response to the indicators provided in the questionnaire.

Dominantly, students preferred to have a learning process which involved technology in the form of audio-visual. They also preferred to study in group work with a flexible learning media that were able to access both offline and online. The learning media was also expected to provide meaningful contents with a clear presentation and user friendly. The document analysis indicated that the teachers implemented discovery learning on their lesson plans. In addition, the learning topic about asking and giving opinion was taught by using printed materials and supported with YouTube video. The teachers mentioned that they were struggling to find out the video about asking and giving opinion in tourism or hospitality context. Therefore, it was interpreted that the students needed an audio-visual (video) about asking and giving opinion underlined by discovery learning with a shorter duration (microlearning).

b. ***Iterative Design***

The blueprint was designed as the prototype based on the students' needs analysis result. The design was presented in the following table.

Topic	Phase	Steps
Expression of asking and giving opinion	Pre-Activity	*Presenter:* Hello students. How are you today? I hope all of you are always in good condition. What do you think about my hair? Thank you. What do you think about your lesson today? Good. Are you ready? Let's learn together. *Presenter:* "Now please look these two pictures."
		Stimulation *Presenter:* "Students, what do you think about this first picture? Good opinion. How about the second picture, what do you think about it? Great opinion students."
		Problem Statement *Presenter:* Have you ever given someone opinion? What you said? Good job. How about asking opinion? What will you say? Great students. Okay students, now please make a conversation of asking and giving opinion. You should work in pair."
	Main Activity	**Data Collection** *Presenter:* "Students, before you finish your work, I have a quiz for you. Please click this link that I already provide to you"
		Data Processing *Presenter:* "After you finished the quiz, what did you get? Great. Do you have other information for asking and giving opinion? Good job students. Now please continue your work."
	Post-Activity	**Verification** *Presenter:* "Students, please watch this animation."

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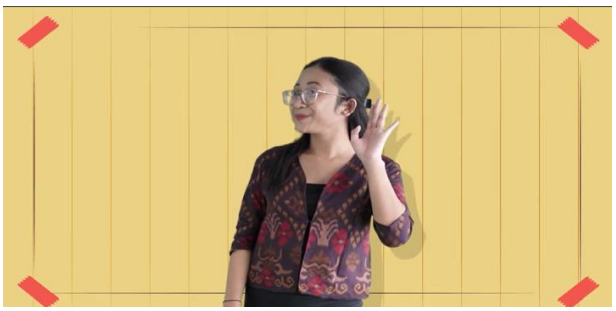
	(Showing animation about asking and giving opinion)

Table 2. The Blueprint of Microlearning Video Based Discovery Learning

Based on table 2, the video was developed based on the steps of discovery learning. The blueprint was developed into microlearning video with the duration of 5 minutes. The development of video was illustrated in the following pictures.

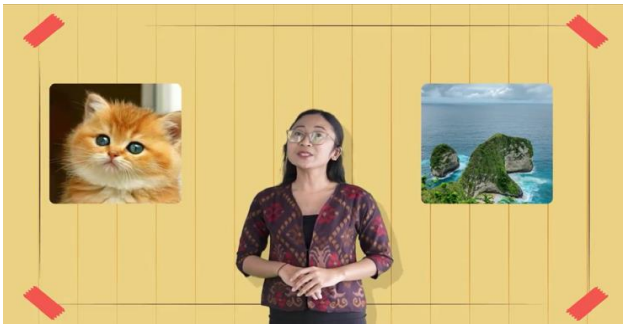
Picture 1. The Opening

The layout was firstly designed for the opening where the presenter warmly welcomed the students. It was designed interactively where the speaker was continued to give students a stimulation as illustrated in Picture 2.



Picture 2. Stimulation

The second slide was designed for stimulating students in order to prepare their readiness. The stimulation was conducted by asking some questions to them, for example; what do you think about my hair?



Picture 3. Problem Statement

The step of problem statement was designed by providing students with two different pictures. The students were asked about their opinion. Then, they were asked to make conversation about asking and giving opinion.

Picture 4. Data Collection

Data collection was designed by leading students to submit the works. The students were asked to answer short quiz before they finished their works through the link or barcode provided by the presenter.

Picture 5. Data Processing

The presenter asked students about the information that they could collect or gather from the quiz. This activity was designed as data processing step to find out whether the students comprehended the materials in the video or not.

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Picture 6. Verification

The students were shown a conversation about asking and giving opinion before they were asked to collect their works through the link and barcode provided by presenter. Verification was the step of verifying about the materials or topics that had been studied by students.

Picture 7. Generalization

As the last step, generalization dealt with conclusion drawing. The presenter asked students to submit their works in the link or barcode provided in the video. They were asked about the conclusion of the materials in the video and they learnt as well.

The designs illustrated on the pictures were categorized into three main activities. Those were opening, main activities, and closing. The opening was also begun by welcoming the students. Meanwhile the main activities were delivered based on the stages of discovery learning method. It was firstly begun by stimulation where the presenter asked questions to students as a brainstorming. Problem statement was the second activity where the students were given two pictures and they were asked to give their opinion about the pictures. It was continued by data collection where the students were asked to make a conversation about asking and giving opinion.

The students were also showed an animation presenting the expression of asking and giving opinion as the activity of data processing. They were given an animation to add their knowledge and understanding about the expression of asking and giving opinion. Then, verification was the next activity where the students submitted their works in the link or barcode provided by the presenter. The closing was related to the last stage of discovery learning method which was generalization where the students were asked to concluded what they had learnt.

c. Iterative Development

This phase was conducted to find out the quality of developed product through expert judgement. The result was presented in table 3.

Table 3. The Result of Expert Judgement

Num.	Indicators	Expert 1	Expert 2	Expert 3
1.	Video as a media for teaching and learning process	4	4	4
2.	Instructional design attributes	4	4	5
3.	Language attributes	4	4	4
4.	Presentation attributes	4	4	4
5.	Subject matter attributes	4	4	4
	Total Score	20	20	21
	Mean Score	4.00	4.00	4.20

The result of expert judgement indicated that the expert 3 gave 4.20 as a mean score, meanwhile both expert 1 and expert 2 gave the mean score of 4.00. Those scores were continuously categorized based on the criteria below.

Mean ≥4.485 = excellent learning video
3.49 ≤ Mean < 4.485 = good learning video
2.5 ≤ Mean < 3.49 = average learning video
1.5 ≤ Mean < 2.5 = fair learning video
Mean < 1.5 = poor learning video

Based on the criteria above, the developed product was categorized as a good learning video since the mean scores were 4.00 and 4.20. Those were higher than 3.49 but lower than 4.485. This result indicated that the microlearning video-based discovery learning was a good learning video that could be utilized for teaching eleventh-grade students at SMK Pariwisata Nusadua Sidemen. However, it was limited since the study not conducted a trial test in the field.

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ISSN 2548-4192 (Online)

Discussion

The current study found out that the eleventh-grade students need a learning media in the form of micro-learning based English video underlined by innovative teaching methods. The finding was relevant to the previous studies which discuss the existence of micro-learning video in English language teaching. The needs of English video is relevant to previous study conducted by Cahyana (2020). It also reveals that video is essential for teaching English in which its audio-visual enhancing students' learning motivation and directly influence their English. The provision of English learning materials in the form of audio-visual helping students to improve their English skills since the students are more interested on audio-visual than reading activity Hairuddin et al., (2022). It is relevant to the current finding which shows that major students preferring to study through video than read a book. Therefore, the development of learning video is needed by eleventh-grade students at SMK Pariwisata NusaDua Sidemen.

The needs of micro-learning video in English classrooms at SMK NusaDua Sideman particularly for eleventh-grade students indicates that they need learning media integrated with technology. This finding strengthens the existence of technology in EFL classrooms particularly in vocational education. Puspitasari et al., (2018) had conducted a study which proved that technology had a significant contribution in vocational education. The material was delivered through the technological means allowing students to access it freely without space and time limitation (Khan, 2020). In addition, the current finding supported the character of 21st century or modern learning in which the utilization of micro-learning video representing technology-oriented learning to motivate students in learning (Krishan & Al-Rsa'I, 2023).

However, the students' needs analysis conducted in the current study resulted the design of micro-learning video underlined by an innovative teaching method discovery learning. This finding supported the implementation of innovative teaching methods in EFL learning. the discovery learning used as the base of micro-learning video strengthened the implementation of discovery learning in EFL classroom considering that discovery-learning was effectively improved students' learning motivation, self-efficacy, and learning outcomes (Alqarni, 2021; Sapan & Mede, 2022). Therefore, the design of developed product in the current study was relevant to the implementation of 21st century learning.

The current study develops English learning materials into a micro-learning-based English video for eleventh-grade students at SMK Pariwisata NusaDua Sidemen by using SAM model. This finding supports the involvement of technology in English language teaching particularly the development of learning materials into a digital form. It is relevant to previous study which is conducted by Santosa et al., (2020). The study also develops android-based English vocabulary learning to the vocabulary mastery of primary students. The current study is a further action towards the needs of materials development in English classrooms as what has

been found by the previous study conducted by Syahdan et al., (2022). It is mentioned that major of English teachers responds positively to the needs of materials development.

Furthermore, the development of video which is completed with the conversation presented in the form of animation strengthening the previous study conducted by Siregar et al., (2021). It reveals that the development of video animation enhancing students' vocabulary mastery. It is also relevant as a manifestation of multimedia learning increasing students' listening skills as what has been found by Irawan (2021). It is due to the audio-visualization developed in the current study. The video is also developed with the maximum duration of 3 – 5 minutes. It is relevant to the characteristic of microlearning which provides the units within a brief timeframe of up to 15 minutes (Shail, 2019; Sun et al., 2015).

The short duration supports the learning process since the students are categorized into generation Z and alpha. This finding is relevant to the previous study which is conducted by Adhyara et al., (2024). It is found that microlearning is suitable for teaching generation Z and Alpha since they are recognized as digital natives whose habits are interested on immediate and visualized based learning. Krasnova et al., (2023) previously also find that microlearning is fully compliant with the habit of generation Z and Alpha by keeping up with an immediate content to enhance their learning interest. Therefore, the provision of learning materials with the duration less than 5 minutes becoming the choice in developing the microlearning video to keep students' focus.

The development of micro-learning based English video by using SAM model consisting of preparation, iterative design, and iterative development is similar to the previous study conducted by Gerbaudo et al., (2021). The study also has a prototype stage as found in the current study at iterative design. The prototype stage is referred to the process of simplifying the product that is furtherly developed on the next stage. In addition, the development of learning materials into micro-learning based English video supports the involvement of technology in conducting students-centered learning (Merta et al., 2023).

The current study also found that the developed video had good quality in assisting teachers to deliver the learning materials. The developed video helps students to study independently. This finding is relevant to the previous study showing that video as a learning media increases students' self-regulated learning (Kurniawan et al., 2021). The developed video adapts the learning topics relevant to the curriculum in which it is designed based on innovative teaching strategies helping teachers to conduct students-centered learning. This finding supports the previous study conducted by Merta et al., (2023) which mention that the involvement of technology is essential in creating students-centered learning through the increase of students' learning motivation.

The combination between animation and audio helps students to be more exciting in learning materials in which it can be the stimulus for students' language

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

skills. Purwaningsih and Hadianti (2022) find out that the combination of various media, such as; picture, audio, or animation is effective to stimulate students' language skills. The developed video has clear resolution related to its presentation which can attract the students and provide them a clear learning material mapping. It helps students to understand the material better since the language use is also appropriate. Therefore, the quality of developed video is categorized into good quality since the mean score given by each judgement shows 4.00 and 4.09 based on the classification given. However, the current study only focuses on obtaining the content quality of the video which becomes the limitation of this study. It demands further research to explore the field trial in the real.

Despite its high quality, the current study is limited to the investigation of its effectiveness. Further implementation is required particularly involving a broader range of vocational students to reinforce its applicability in English classrooms. Nevertheless, the current findings implicate the utilization of microlearning video-based innovative learning method in EFL classrooms where the teachers are able to use it as a learning media with a concise and accessible format.

Conclusion

The conclusion is taken based on the elaborated finding in the previous section. There are several conclusions in this study. The current study has concluded that the students need a learning media in the form of microlearning video-based discovery learning for learning the expression of asking and giving opinion for the hospitality. Another conclusion is drawn since the development is conducted with SAM model where the quality of the developed product is categorized as a good learning media. This conclusion implicates the use of microlearning video combined with innovative teaching strategy in English classroom.

References

Adhyara, P. K., Febriyanti, N. N., & Gloria, N. K. I. M. (2024). Pandangan generazi Z dan Alpha terhadap implementasi meme sebagai media pembelajaran inovatif dalam mewujudkan pendidikan berbasis tren. Proceeding of Seminar Nasional Riset Linguistik Dan Pengajaran Bahasa, September, 232–242.

Alqarni, T. (2021). Comparison of augmented reality and conventional teaching on special needs students' attitudes towards science and their learning outcomes. Journal of Baltic Science Education, 20(4), 558–572. https://doi.org/10.33225/jbse/21.20.558

Altay, L. F., & Unal, D. . (2017). An Investigation of Foreign Language Courses with and without Video Technology. International Journal of Curriculum and Instruction, 9(1), 49–69.

Arsyad, A. (2017). Media Pembelajaran. Rajawali Press.

Cahyana, A. A. C. (2020). the Use of Youtube Video in Teaching English for Foreign

Language At Vocational High School. Jurnal Pendidikan Bahasa Inggris Indonesia, 8(2), 1–11. https://doi.org/10.23887/jpbi.v8i2.3399

Chusni, M. M. (2022). An Evaluation of Implementation of The Discovery Learning Model on Natural Science Learning. Lentera Pendidikan: Jurnal Ilmu Tarbiyah Dan Keguruan, 25(1), 1–15. https://doi.org/10.24252/lp.2022v25n1i1

Gerbaudo, R., Gaspar, R., & Gonçalves Lins, R. (2021). Novel online video model for learning information technology based on micro learning and multimedia micro content. Education and Information Technologies, 26(5), 5637–5665. https://doi.org/10.1007/s10639-021-10537-9

Hairuddin, N. H., Abubakar, M., & Astri, Z. (2022). The Utilization of Video-Based Learning in Teaching English for Non-English Major Students. Seltics, 5(1), 27–33. https://doi.org/10.46918/seltics.v5i1.1156

Hosseini, H. M., Ejtehadi, A., & Hosseini, M. M. (2020). Flipping Microlearning-based EFL Classroom to Enhance Learners' Self-Regulation. Language Teaching Research Quarterly, 20, 43–59. https://doi.org/10.32038/ltrq.2020.20.03

Inderawati, R., Petrus, I., Eryansyah, & Meilinda. (2021). Needs Analysis of Vocational High School Textbook to Local Culture Materials and the 21St Century Competencies. English Review: Journal of English Education, 9(2), 19–26. https://www.journal.uniku.ac.id/index.php/ERJEE/article/view/4349

Irawan, Y. (2021). Developing multimedia-based English listening material for Islamic senior high school. Ta'dib, 24(1), 1-8.

Jomah, O., Masoud, A. K., Kishore, X. P., & Aurelia, S. (2016). Micro learning: A modernized education system. BRAIN: Broad Research in Artificial Intelligence and Neuroscience, 7(1), 103–110.

Jubran, S. M. (2024). An Instructional Model Based on Mobile Microlearning for Teaching English Idioms Through Songs to EFL Learners. Theory and Practice in Language Studies, 14(4), 1105–1111.

Khan, I. A. (2020). Electronic Learning Management System : Relevance , Challenges and Preparedness. Journal of Emerging Technologies and Innovative Research ((JETIR), 7(5), 471–480.

Khong, H. K., & Kabilan, M. K. (2022). A theoretical model of micro-learning for second language instruction. Computer Assisted Language Learning, 35(7), 1483–1506. https://doi.org/10.1080/09588221.2020.1818786

Krasnova, T., Kouznetsova, A., Ovsyannikova, M., & Loginova, A. (2023). Microlearning for generation z in the foreign language classroom. In EDULEARN23 Proceedings (pp. 987-996). IATED.

Krishan, I. Q., & Al-rsa'i, M. S. (2023). The effect of technology-oriented differentiated instruction on motivation to learn science. International Journal of Instruction, 16(1).

Kumazawa, T. (2006). Construct validation of a general English language needs analysis instrument. Shiken: JALT Testing & Evaluation SIG Newsletter, 10(2),

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

2–11.

Kurniawan, D., Yulianti, D., & Riswandi. (2021). Pengembangan Media Pembelajaran Audio Visual Berbasis SAVI untuk Meningkatkan Prestasi Lompat Jauh Gaya Jongkok (Gaya Ortodok) Siswa Sekolah Menengah Pertama. Edukatif : Jurnal Ilmu Pendidikan, 3(4), 2372–2382. https://doi.org/https://doi.org/10.31004/edukatif.v3i4.1119

Kusumawardani, R., Santosa, R., & Roschsantiningsih, D. (2018). Explore the Use of Authentic Materials to Teach Reading for Junior High School. International Journal of Multicultural and Multireligious Understanding, 5(4), 298. https://doi.org/10.18415/ijmmu.v5i4.323

McAlpine, L., & Weston, C. (1994). The attributes of instructional materials. Performance Improvement Quarterly, 7(1), 19–30.

Merta, L. W. S., Ratminingsih, N. M., & Budasi, I. G. (2023). The Integration of Technology in English Language Teaching to Stimulate Students ' Critical Thinking. Language Circle: Journal of Language and Literature, 17(2), 1–9. http://journal.unnes.ac.id/nju/index.php/lc

Mohammed, G. S., Wakil, K., & Nawroly, S. S. (2018). The effectiveness of microlearning to improve students' learning ability. International Journal of Educational Research Review, 3(3), 32-38.

Murtiyasa, B., & Karomah, I. I. Al. (2020). The Impact of Learning Strategy of Problem Solving and Discovery towards Learning Outcomes Reviewed from Students Learning Motivation. Universal Journal of Educational Research, 8(9), 4105–4112. https://doi.org/10.13189/ujer.2020.080936

Masruddin, M., & Abduh, N. K. (2024, May). Indonesian Language Learning for Foreign Speakers Based on Luwu Culture: A Needs Analysis Study. In 4th International Conference on Linguistics and Culture (ICLC-4 2023) (pp. 75-80). Atlantis Press.

Masruddin, Hartina, S., Arifin, M. A., & Langaji, A. (2024). Flipped learning: facilitating student engagement through repeated instruction and direct feedback. Cogent Education, 11(1), 2412500.

Nikkhoo, I., Ahmadi, Z., Akbari, M., Imannezhad, S., Anvari Ardekani, S., & Lashgari, H. (2023). Microlearning for today's students: A rapid review of essentials and considerations. Medical Education Bulletin, 4(1), 673-685.

Ozdem-Yilmaz, Y., & Bilican, K. (2020). Discovery Learning—Jerome Bruner (pp. 177–190). Springer. https://doi.org/10.1007/978-3-030-43620-9_13

Gougou, S. A. M. (2022). Promoting 21st century skills in english language teaching: A pedagogical transformation in ivory coast. Global Journal of Educational Studies.

Purwaningsih, L., & Hadianti, A. (2022). Prototype Design Flipbook Media in Teaching Grammar "Simple Past Tense." Indonesian EFL Journal (IEFLJ), 8(2).

Puspitasari, E. D. T., Surjono, H. D., & Minghat, A. D. (2018). Utilizing web based learning as 21st century learning media for vocational education.

International Journal of Engineering and Technology(UAE), 7(4), 157–160. https://doi.org/10.14419/ijet.v7i4.33.23522

Rafiqa, Sabil, M., & Aswad, M. (2023). How to Implement Discovery Learning in English Language Teaching at Indonesian Higher Education? IDEAS: Journal of Language Teaching and Learning, Linguistics and Literature, 11(1), 36–50. https://doi.org/10.24256/ideas.v11i1.3654

Reynolds, J., & Dolasinski, M. J. (2020). Microlearning: A pilot study. Perspectives in Asian Leisure and Tourism, 5(1), 1–13.

Rizal, R. P., Iskandar, I., & Sulistyaningrum, S. D. (2023). Investigating Critical Thinking Skills and Microlearning Integration in English Learning Material Web-Based of Eighth Graders. SCOPE: Journal of English Language Teaching, 1(2014), 198–207.

Salleh, M. S. M., Mahbob, N. N., & Baharudin, N. S. (2017). Overview of "Generation Z" Behavioural Characteristic and Its Effect Towards Hostel Facility. International Journal of Real Estate Studies, 11(2), 59–67.

Santosa, M. H., Pratama, I. P. S., & Putra, I. N. A. J. (2020). Developing Android-Based English Vocabulary Learning Materials for Primary School Students. JEELS (Journal of English Education and Linguistics Studies), 7(1), 161–185. https://doi.org/10.30762/jeels.v7i1.1467

Sapan, M., & Mede, E. (2022). The Effects of Differentiated Instruction (DI) on Achievement , Motivation , and Autonomy among English Learners. Iranian Journal of Language Teaching Research, 10(July 2021), 127–144.

Sari, F. W., & Bahara, S. R. (2022). The Use Of Youtube Videos in Learning English. Jurnal Bilingual, 12(1), 7–11.

Shail, M. S. (2019). Using Micro-learning on Mobile Applications to Increase Knowledge Retention and Work Performance : A Review of Literature. 11(8). https://doi.org/10.7759/cureus.5307

Siregar, S. A., Irmayani, D., & Munandar, M. H. (2021). Implementation of Web-Based Waterfall Method Case Study Information System Complaints of Violence Women and Children. Jurnal Mantik, 5(1), 86–92.

Sun, G., Cui, T., Guo, W., Beydoun, G., & Xu, D. (2015). Micro Learning Adaptation in MOOC: a Software as a Service and a Personalized Learner Model. Lecture Notes in Computer Science, 9412, 174–184.

Suriadi, N. N. (2023). Implementasi model pembelajaran discovery learning untuk meningkatkan hasil belajar bahasa Indonesia. Indonesian Journal of Educational Development (IJED), 3(4), 484-494.

Svinicki, M. D. (1998). A theoretical foundation for discovery learning. Advances in physiology education, 275(6), S4.

Syahdan, Herlinawati, & Syaifullah. (2022). English teachers' perception toward the need for learning materials development for virtual classroom activities. English Education Journal, 8(2), 1–13.

Syam, U. (2020). Promoting Discovery Learning Method for EFL Students in

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

Reading Comprehension. Exposure Journal, 370(2), 370–382.

Turner, A. (2015). Generation Z: Technology and social interest. The journal of individual Psychology, 71(2), 103-113.

Warden, C. A., Yi-Shun, W., Stanworth, J. O., & Chen, J. F. (2022). Millennials' technology readiness and self-efficacy in online classes. Innovations in Education and Teaching International, 59(2), 226–236. https://doi.org/10.1080/14703297.2020.1798269

Yin, J., Goh, T., Yang, B., & Xiaobin, Y. (2021). Conversation technology with micro-learning: the impact of chatbot-based learning on students' learning motivation and performance. Journal of Educational Computing Research, 59(1), 154–177. https://doi.org/doi:10.1177/0735633120952067

Yuanta, F. (2019). Pengembangan Media Video Pembelajaran Ilmu Pengetahuan Sosial pada Siswa Sekolah Dasar. Trapsila: Jurnal Pendidikan Dasar, 1(2), 91–100. https://doi.org/10.30742/tpd.v1i02.816