

# The Effectiveness of Micro Learning Design on Storytelling Skills

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## Abstract

*Storytelling is an important skill in the world of education that can increase engagement, understanding, and conveying information in a more engaging way. This study aims to test the influence of micro-learning methods on students' storytelling skills by involving 500 respondents from Sultan Agung Islamic University (Semarang), University of Muhammadiyah Malang (Malang), STIBA-EIC (Jakarta), PGRI University of West Sumatra (Padang), Mataran State Islamic University (Lombok). Respondents were randomly selected from students in the city (30-40 students in each city), with an age range ranging from 19 to 22 years old. The domicile of the respondents came from the city and the surrounding area. The total number of respondents is 500. Of the 500 respondents, 100 respondents (20%) came from students majoring in foreign language colleges, 100 respondents (20%) came from the English language education department, and 300 respondents (60%) came from the Indonesian language and literature education department. The respondents were divided into two groups: experiments that used micro-learning and controls that used traditional methods. The learning design includes the introduction of learning objectives, understanding of storytelling elements, example video analysis, storytelling exercises, as well as recording and feedback. The results of statistical analysis using the Mann-Whitney test showed a significant difference between the two groups, with a significance value of 0.000 ( $p < 0.05$ ), which indicates that the micro-learning method has a positive and significant influence on improving students' storytelling skills compared to the traditional method. This indicates that we can reject the null hypothesis ( $H_0$ ) which states that there is no significant difference between the two groups, and accept the alternative hypothesis ( $H_1$ ) which states that there is a significant difference. These findings indicate that this approach is not only relevant for language teaching, but can also be adapted to various other forms of learning. With its flexible structure and customizable content, micro-learning can be applied in a variety of disciplines, such as science, mathematics, and art, by utilizing a variety of visual and narrative media.*

**Keywords:** *Micro-learning; Storytelling; Speaking skills; Video-based learning; Speaking method.*

## Introduction

Storytelling is the art of conveying messages or information through stories that are designed to attract attention, build emotions, and create a connection with the audience. According to Fog et al. (2005), storytelling is a strategic tool that can increase emotional engagement and help organizations communicate their values to the audience. Spaulding (2011) highlights storytelling as the art of conveying truth through narrative, which connects knowledge with emotions to create holistic learning. He emphasized that stories are effective in conveying moral values, wisdom, and life lessons, making them an important tool in education and therapy. Snowden (1999) added that storytelling, although an old skill, is very relevant in modern contexts, especially in organizations. Stories serve to manage knowledge, simplify the complexity of information and strengthen culture. so as to help organizations adapt and build a sense of togetherness. Thus, storytelling is not only a tool of entertainment, but also an important element in education, strategic communication, and social and organizational transformation.

Robin (2006) in his article The Educational Uses of Digital Storytelling outlines the theory of the use of digital storytelling as an innovative educational tool. Digital storytelling combines traditional narratives with digital technology to create compelling stories through a combination of text, images, audio, video, and other multimedia effects. Robin explained that digital storytelling has three main elements: personal narrative, historical exploration, and information or instruction. All three can be used to support a variety of learning objectives. Personal narratives allow individuals to relate their own experiences or views, aiding emotional learning and building a personal connection with the material. Historical exploration is used to uncover historical events or figures in an interesting and interactive way, so that students can understand the historical context better. Meanwhile, the information or instruction element is designed to convey

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complex concepts or steps through visualization and multimedia, making it an effective tool for more understandable learning.

Speaking is an essential skill in effective communication and can develop over time. To communicate well, one must have speaking skills that include an understanding of the structure of language as well as the ability to adapt to language in a variety of social and cultural contexts. Hymes (1974) in his important work "Ways of Speaking" discussed in *Linguistic Anthropology: A Reader* by Alessandro Duranti, introduces the concept of "communicative competence" which is considered crucial to understanding how to speak in social interactions. Hymes emphasizes that speaking skills involve in-depth knowledge of social norms and communication situations, as well as the ability to adapt the use of language according to specific contexts.

Various educational contexts have noticed the use of stories as a learning tool in recent years. Shahid & Khan (2022) emphasizes the use of digital stories in the classroom as a way to enhance learning and encourage active student participation. Moin & Moin (2020) emphasized that storytelling, an ancient art, is now an effective tool in contemporary communication, including in marketing. Study by Brockington et al. (2021) found that stories can lower stress and pain in hospitalized children while increasing oxytocin levels and positive emotions. In addition, it has been proven that the development of story-based media is also effective in improving students' storytelling skills. This is shown by Turwati et al. (2022) in the context of learning in primary schools, and by Tiara & Handayani (2023) through the creation of digital story-based hand puppet media. Based on these findings, stories are not only a useful method but also have a great influence on the teaching-learning process.

Digital storytelling has evolved into a tool that not only enriches storytelling skills but also helps build a range of essential abilities in contemporary education. Dochshanov & Tramonti (2022) stated that the incorporation of digital stories and educational games is essential to improve students' STEM skills. These games offer a motivating, interactive approach. In addition, research conducted by Dewi et al. (2023) found that the use of digital stories in United Kingdom as a Foreign Language (EFL) classes can improve students' speaking skills by using a multi-literacy pedagogy approach. According to Esmetanova & Baranovska (2023) Stories not only improve children's language skills but also improve important literacy and communication skills. Gutor et al. (2023) shows that digital stories have been used successfully in Japan to improve students' media literacy and communication skills. Moreover Huang & Loranc (2023) demonstrate that digital storytelling in EFL's tele-collaborative projects can enhance cross-cultural communication skills and enhance students' global learning experiences. Overall, these studies state that digital storytelling is a very versatile learning method and greatly helps students acquire skills in various fields.

There are many psychological and pedagogical aspects that affect students' speaking skills, especially in the context of stories. Kell et al. (2013) found that students' lack of creativity and imagination contributed to poor narrative skills. Students who lack imagination often struggle to create interesting and engaging stories, which hinders them from communicating well. These shortcomings not only interfere with their academic achievement, such as presentations and discussions in class, but also interfere with the way they interact in professional and social environments where building and delivering a strong story is an important skill.

In addition, Westby & Culatta (2016) stated that students' narrative skills are greatly influenced by the limitations of emotional expression. Those who have difficulty expressing their emotions tend to create stories that are not vivid and inconclusive, which can reduce the quality of their communication. The technology-based learning approach proposed by Kohnke (2023) offers an innovative solution to this problem. Kohnke suggests the use of micro-learning, which involves the use of media such as flashcards, videos, podcasts, and infographics to gradually improve narrative skills. Students can get an intensive but short learning experience with this method. This can improve their creativity, emotional expression, and overall speaking skills. With this method, students not only have the opportunity to improve their stories but also have the opportunity to actively participate in the development of their abilities in real-world situations. These two factors are crucial to their success in the academic and professional world.

The micro-learning approach, which delivers material in small, focused units, can be helpful in teaching speaking. This method has been shown to improve learning, especially when used in conjunction with a story approach. With micro-learning, information can be delivered in a concise and structured manner, improving learner absorption and retention. Stories in this context not only make the material easier to understand and remember, but also increase learners' engagement with the material. Effective storytelling techniques in micro-learning modules allow learners to engage deeply even if learning is short. Micro-learning has become an invaluable tool in a variety of education and training contexts because this approach offers creative solutions to deliver complex material in a more engaging and efficient way (Dolasinski & Reynolds, 2023; Gherman et al., 2022; Hasan & Makrufi, 2021; Uddin, 2024).

In speaking learning, the use of digital storytelling and micro-learning shows great potential to improve communication skills in diverse environments. Zhussupova & Shadiev (2023) examined how digital narratives can help academic speaking skills in multicultural and multilingual classrooms, showing that digital narratives not only help deliver material but also improve speaking skills effectively. Zamata-Aguirre et al. (2023) show that micro-learning can improve the learning process by presenting small amounts of content that are easy to digest. This is an ideal approach to gradually improve speaking skills. Mak et al. (2021) emphasized that more research is needed on micro-learning as a training method, especially as it relates to care facilities. They also show that this method can be used to teach speaking skills in a variety of settings. The combination of these two approaches offers new ways that can enhance the learning experience and increase the effectiveness of teaching speaking skills.

According to recent research, micro-learning can improve student engagement and academic achievement in a variety of educational contexts. Ghazi et al. (2013) showed that micro-learning, i.e. the provision of information in the form of small batches, can significantly affect academic achievement at the higher education level. This is because it makes information easier to understand and store. Fidan (2023) showed that the use of micro-learning in the flipped classroom model can improve the performance, motivation, and engagement of prospective teachers, showing that this method, through a more dynamic approach, can improve learning outcomes. Research conducted by X. Yang (2018) looked at the use of smartphone-based micro-learning to study data structures, which shows the flexibility and convenience offered by this method. According to Drakidou (2018), micro-learning is an effective alternative to lifelong eLearning, offering an effective method of continuous learning. In addition, Sung et al. (2023) found that using interactive media in micro-learning can increase student participation, which makes learning more engaging and effective. This combination of results reinforces the idea that micro-learning is a customizable and beneficial method in a variety of educational settings. This allows for more focused learning and responsive to student needs.

A new study shows that micro-learning is effective in improving students' motivation and their learning outcomes, especially when combined with stories. Micro-learning, by dividing the material into smaller, more digestible parts, maintaining focus, and increasing student engagement, according to Salleh et al. (2022a), has the ability to encourage students' interest in learning. According to research by Hyvärinen et al. (2023), stories can be used in micro-learning modules to enhance the online learning experience and improve engagement and learning outcomes by creating more engaging contexts. According to Lee et al. (2021), stories play an important role in improving engagement and learning outcomes in micro-learning environments; A good story improves understanding and makes it easier to absorb information. The results show that the incorporation of micro-learning and stories is an effective method to increase student motivation and improve the quality of their learning, making it an invaluable method in modern education.

Based on the analysis of the literature above, by combining micro-learning and storytelling in the context of speaking, this research introduces novelty and offers innovative approaches that have not been studied as a whole. This research improves information retention and allows for better adaptation to different learning styles of students by using micro-learning to present material in small, focused units. Storytelling reinforces this combination by adding a narrative dimension, which increases student engagement and comprehension. This approach offers a new way to create more interactive learning modules.

In teaching speaking skills, the incorporation of micro-learning and storytelling offers significant benefits. This approach improves learning outcomes through the presentation of structured and narrative material,

which allows students to better absorb information, and increases retention. In addition, the integration of stories in micro-learning makes the material more engaging and relevant, so students can learn better. Additionally, this approach can be applied to a variety of learning styles, making it more inclusive and effective. The research offers new solutions to the problem of teaching speaking, such as keeping students' attention and delivering complex material in a more understandable way.

## RESEARCH METHODS

This study will evaluate how effective the two learning methods are in improving students' storytelling skills in Indonesia Language and Literature Education using quantitative methods to test effectiveness. The test uses statistical tests with the help of SPSS to define the data obtained. Dalam pengembangan micro learning peneliti menggunakan the 4D model Reigeluth and An (2020). In the define stage, this research begins by reviewing the literature to establish research objectives, find problems in story teaching, and understand student needs based on previous research. Learning materials, research methodologies, and assessment instruments are designed for both micro-learning and conventional approaches at the design stage. Learning materials and modules are also developed and tested to ensure that they are effective during the development stage. Ultimately, the diffusion stage includes conducting research, collecting and analyzing data, and disseminating the results through reports and publications. This process ensures that research is conducted systematically, focusing on the needs of students, and that the findings can be used in education.

### *Respondents*

The respondents of this study came from five cities in Indonesia, namely Semarang, Malang, Jakarta, Padang and Lombok. The selection of these cities is based on population density and the representation of large islands from the west, center, and east of Indonesia. In addition to population density, these cities are cities that are centers of education and rich in tourist destinations. This aims to cover various perspectives from students in different regions with varying social and economic characteristics. Respondents were randomly selected from students in the city (30-40 students in each city), with an age range ranging from 19 to 22 years old. The domicile of the respondents came from the city and the surrounding area. The total number of respondents is 500. Of the 500 respondents, 100 respondents (20%) came from students majoring in foreign language colleges, 100 respondents (20%) came from the English language education department, and 300 respondents (60%) came from the Indonesian language and literature education department. Judging from the social media used, the average respondent uses more than one social media. The research was conducted at Sultan Agung Islamic University (Semarang), University of Muhammadiyah Malang (Malang), STIBA-EIC (Jakarta), PGRI University of West Sumatra (Padang), Mataran State Islamic University (Lombok).

## Research Design

In a study that tested the effectiveness of microlearning to improve storytelling skills, the Posttest Only Two-Group Design experiment was used to compare two groups that were given different treatments: the experimental group that received microlearning and the control group that did not receive the treatment. The experimental group will be given microlearning materials, such as videos or interactive modules that focus on storytelling techniques, while the control group will not receive the same treatment. After the treatment, both groups will take a posttest to measure their storytelling skills, with an assessment that includes important elements of storytelling.

Group	Process	Formula
Experimental Group (R1)	$\begin{array}{c} \text{Randomization} \rightarrow \\ \text{Treatment (X)} \rightarrow \text{Posttest} \\ (\text{O2}) \end{array}$	$\begin{array}{c} \text{R1:X} \rightarrow \text{O2R1:} \quad \text{X} \rightarrow \\ \text{O2R1:X} \rightarrow \text{O2} \end{array}$
Control Group (R2)	$\begin{array}{c} \text{Randomization} \rightarrow \text{No} \\ \text{Treatment (X0)} \rightarrow \text{Posttest} \\ (\text{O2}) \end{array}$	$\begin{array}{c} \text{R2:X0} \rightarrow \text{O2R2:} \quad \text{X0} \rightarrow \\ \text{O2R2:X0} \rightarrow \text{O2} \end{array}$

*Explanation*

R1: A randomly selected experimental group.

X: Treatment or intervention given to the experimental group.

O2: Posttest performed after treatment.

R2: A randomly selected control group.

X0: No treatment in the control group.

O2: Posttest conducted after the control group was not given treatment.

To analyze the data obtained, if the data meet the assumptions of normality and homogeneity of variance, then the t-test statistical test is used to compare the mean posttest scores between the experimental group and the control group. This t-test will show if there is a significant difference between the two groups. However, if the data is not normally distributed or is not homogeneous, then the Mann-Whitney U test, which is a non-parametric test, will be used as an alternative. The Mann-Whitney U test does not require assumptions of normality or homogeneity, and will measure whether there is a significant difference in the distribution of values between the experimental and control groups.

In a study that tested the effectiveness of microlearning to improve storytelling skills, a research hypothesis was formulated to test the difference between the experimental group that received microlearning and the control group that did not receive treatment. The null hypothesis ( $H_0$ ) states that there is no significant difference between the mean storytelling ability of the two groups, namely  $H_0: \mu_1 = \mu_2$ , where  $\mu_1$  is the average posttest score of the experimental group and  $\mu_2$  is the average posttest score of the control group. The alternative hypothesis ( $H_1$ ) states that there is a significant difference, namely  $H_1: \mu_1 \neq \mu_2$ , which indicates that the experimental group that received microlearning had a higher posttest score than the control group. Statistical tests, such as the t-test (for data that meet the assumptions of normality and homogeneity) or Mann-Whitney U (for abnormal or heterogeneous data), are used to test for these differences. If the p-value is less than the significance level (e.g.,  $p < 0.05$ ), the null hypothesis is rejected, suggesting that microlearning has a significant effect on the improvement of storytelling skills.

*Instruments*

This research instrument consists of pretest and posttest which aims to evaluate the progress of students in storytelling knowledge. The pretest and posttest each include 20 questions designed to measure students' basic understanding of communication and storytelling concepts after study in story telling with micro learning and without micro learning, with the type of questions in the form of multiple choice. These questions evaluate knowledge of communication theory, narrative elements, and effective communication techniques.

**RESULTS AND DISCUSSION***Result**Validation of Knowledge Instruments*

The validity of Pearson Product Moment instruments can be tested using SPSS to see how far the items in the instrument relate to the total score. With SPSS, we can calculate Pearson's correlation coefficient



between the score of each item and the total score. The result will indicate whether the item is valid, i.e. if the correlation coefficient is close to.



Figure 1 Instrument Validity

In correlation analysis, Pearson's results showed that there were various significant relationships between the variables tested. Of the total 25 variables that were corroborated, there were several consistent and significant correlations at the  $p$  level  $< 0.05$ . For example, variables x2 to x6 show a high correlation ( $r = 0.764$  to  $1.000$ ) with other variables, indicating a strong and significant relationship between these variables. This correlation is mainly seen in variables that have a very low significance value ( $p < 0.01$ ), such as in the relationship between x2 and x3, as well as x4 and x5, which signifies a very significant relationship.

However, there are some variables with low or insignificant correlation, such as the x15 variable which shows a negative or insignificant correlation with many other variables. This indicates that x15 may not be strongly correlated with other variables in this dataset. Overall, to select 20 questions from the total, focusing on variables with high correlation and significance as listed in the data will increase the validity and reliability of the analysis results. These variables will provide more consistent and relevant information for further analysis or question selection.

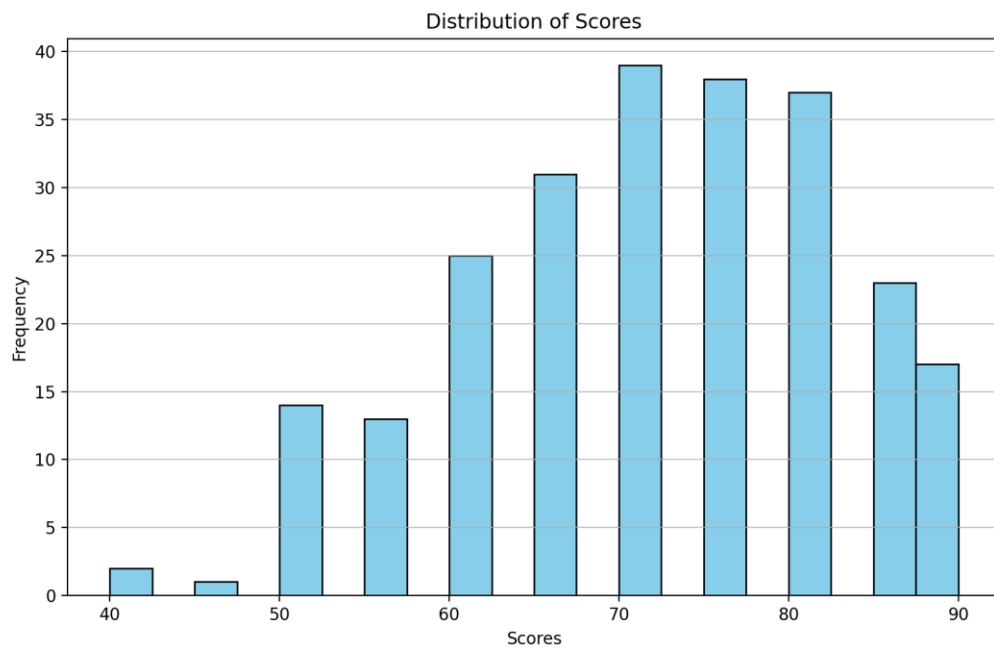


Figure 2 Distribution Data Control Group

Table 1 Statistic Control Group

Statistic	Scores
Count	250
Mean	71.52.00
Std (Standard Deviation)	11.30
Min	40
25% (1st Quartile)	65
50% (Median)	70
75% (3rd Quartile)	80
Max	90

This dataset contains the results of scores from the control class in a study that examines the influence of micro learning on storytelling skills. There were 250 participants in this control class, with an average score (mean) of 80.7. The standard deviation (std) recorded at 10.58 showed a moderate variation in the scores obtained, with the lowest score reaching 60 and the highest score reaching 100. In the first quartile (25%), 25% of participants scored below 75, while in the second quartile (50%), or median, the median score was 80, meaning half of the participants scored below 80 and the other half above it. In the third quartile (75%), 75% of participants had a score below 90. These results showed that the majority of the control class participants performed quite well, with most scores ranging from 75 to 90, indicating a relatively even and good distribution in the context of this study.

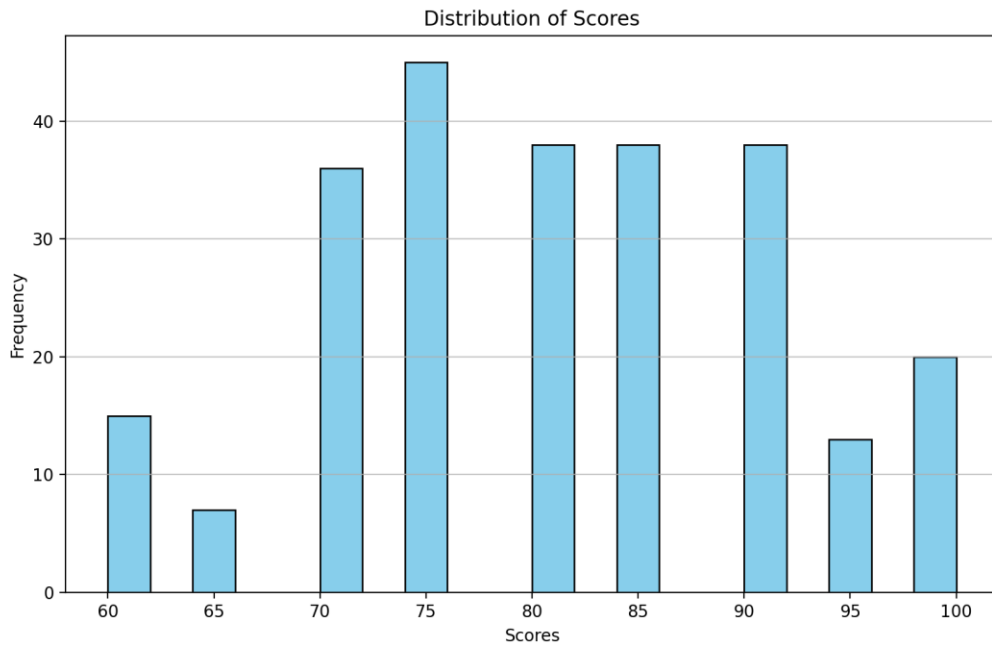


Figure 3 Distribution Data Experiment Group

Table 2 Statistic Experiment Group

Statistic	Scores
Count	250
Mean	80.07.00
Std (Standard Deviation)	10.58
Min	60
25% (1st Quartile)	75
50% (Median)	80
75% (3rd Quartile)	90
Max	100

The results shown in this statistic come from an experimental group in a study on the influence of micro learning on storytelling skills. With a total of 250 participants, the average score obtained was 80.7, indicating that most of the participants had good performance in storytelling activities after using the micro learning method. A standard deviation of 10.58 indicates a moderate variation in results, with the lowest score at 60 and the highest score reaching 100. In the first quartile (25%), 25% of participants scored below 75, while the median (50%) was at 80, meaning half of the participants scored below 80 and the other half scored above that value. The third quartile (75%) showed that 75% of participants achieved a score below 90.

## Discussion

### *Learning Design*

Micro-learning has become a highly relevant approach in modern education, thanks to its ability to present material in small, easily digestible segments. Jomah et al. (2016) argue that micro-learning supports rapid and flexible knowledge acquisition, very much in line with the learning needs of today's students who are



in a fast-paced environment. This method offers flexibility in targeting students' specific needs, making it an effective strategy in improving retention and comprehension of the material.

Furthermore, Park & Kim (2018) explain how micro-learning can be integrated into e-learning systems to improve student engagement. By designing micro-learning content that is concise and accessible, they show that this approach can create a more personalized learning experience and suit individual preferences. This research emphasizes the importance of micro-learning in creating an engaging and adaptive learning environment, which is especially important for students who need flexible and responsive access to learning materials.

Dessi et al. (2019) utilized leverage learning analytics and cognitive computing to manage big data in micro-learning video collections. The integration of this technology allows for content customization based on individual learning patterns, increasing the relevance and effectiveness of learning materials. In addition, Huo & Shen (2015) showed mobile micro-learning applications in United Kingdom language learning, which reinforced how short sessions can improve listening and speaking skills. Overall, these studies demonstrate that micro-learning is an adaptive and effective method to meet the needs of modern education.

From the literature study that the author focuses on learning story telling for students, it focuses on the need for the construction of learning models. Results The researcher has found an overview of structured storytelling learning steps to be tested. This flowchart begins with the definition of learning objectives, which emphasizes on improving speaking skills through the introduction of storytelling. The next step is to watch an example video that helps students understand the key elements of storytelling. After watching, students are invited to practice storytelling. This was done through an experimental phase, where they could choose between continuing the practice or directly revising the story based on learning from the video. This revision step also includes getting feedback, which is important for continuous improvement.

Learners are then faced with the decision of whether they feel confident enough to share stories with their peers or need more practice. This process leads to the appearance of the story, which is a direct test of the storytelling skills that have been developed. This learning step was tested to see its effectiveness in improving speaking skills through the storytelling method, which is considered an effective tool in education due to its ability to increase engagement and understanding. The learning steps are illustrated in the flow chart below.

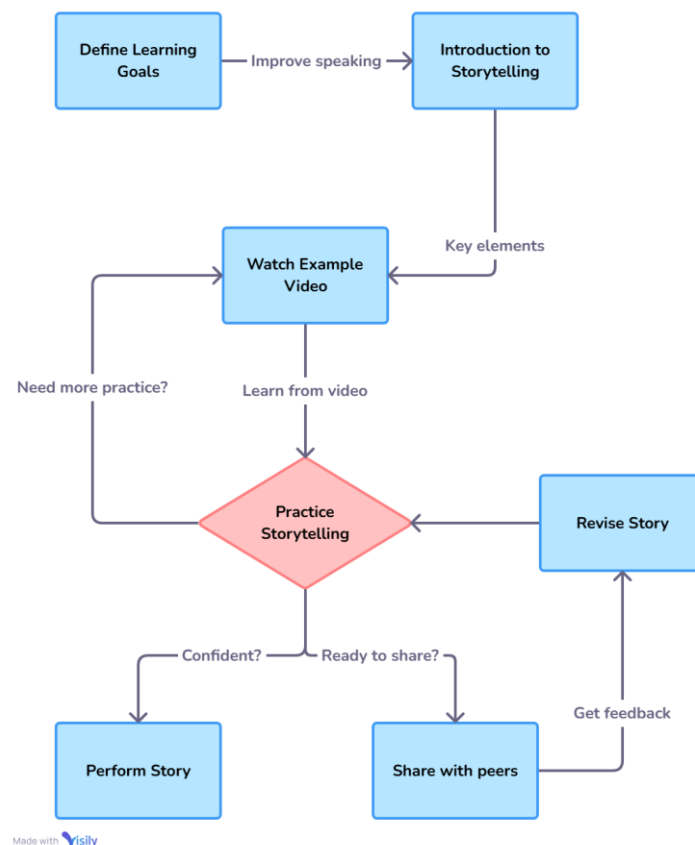


Figure 4 Design Micro Learning for Story Telling

Storytelling-focused micro-learning with videos is designed to gradually improve students' speaking skills. This process begins with the first step, which is to determine the learning objectives. At this stage, students and teachers determine the main focus of learning, which is to improve speaking skills through storytelling techniques. With the goals agreed with students, learning becomes more directed and students understand what they want to achieve.

The second step is the introduction of storytelling elements. In this phase, students are introduced to important components in storytelling, such as storyline, character development, and narrative structure. An understanding of these basic elements is essential for students to craft a good story and capture the audience's attention. These elements provide a framework for students to understand how stories are constructed and told.

In the next stage, students watch example videos that show effective storytelling. This video provides a concrete overview of how to tell a story well, from intonation, expression, to how to structure a story. After that, students were invited to analyze the story elements of the video they watched. In this discussion, students will learn about the storyline, characters, conflicts, and messages conveyed, so that they can understand how these elements work together in effective storytelling.

After understanding the theory and examples, students proceed to the storytelling exercise. They began to structure their own stories using the techniques they had learned. This exercise provides an opportunity for students to apply theory in practice. The next step is to record the presentation, where students record themselves as they deliver the story that has been composed. This recording process allows them to evaluate the way they speak, gestures, and the way the story is told as a whole.

Students will then receive feedback from teachers and classmates regarding their performance in storytelling. This feedback helps students to identify strengths and areas that need improvement in the delivery of their stories. Finally, students are invited to reflect on what they have learned and conduct self-evaluation. This reflection encourages students to understand their learning process and identify next steps that can be taken to continuously improve their speaking skills. With a gradual and micro-based structure, this storytelling learning allows students to learn in a focused and sustainable way. The use of video as a medium provides visual and audio stimuli that help students understand the practice of storytelling more deeply.

### *Effectiveness Test*

The design of the study to test the hypothesis regarding the influence of micro learning on storytelling ability should involve several important steps in statistical analysis to ensure valid and accurate results. The first step is to conduct a normality test, which aims to check whether the collected data is normally distributed or not. Normality tests, such as the Kolmogorov-Smirnov or Shapiro-Wilk tests, will help researchers determine whether the data meet the assumption of normal distribution, which is a prerequisite for some parametric statistical tests, such as the t-test.

If the data are normally distributed, the t-test can be used to test the mean difference between the two groups (e.g., the experimental group using micro learning and the control group using traditional methods). However, if the results of the normality test indicate that the data are not normally distributed, researchers should use non-parametric tests, such as the Mann-Whitney test, which do not require the assumption of normal distribution and can be used to compare ratings between the two groups.

The second step is to perform a variance homogeneity test (e.g., the Levene test) to check if the variance between the two groups is similar or homogeneous. If the results of the homogeneity test show that the variance of the two groups is not significantly different, then the t-test can be continued. However, if the variance is not homogeneous, non-parametric tests such as Mann-Whitney become a more appropriate choice to analyze the differences between the two groups.

Table 3 Tests of Normality

	Kolmogorov-Smirnov <sup>a</sup>		
	Statistic	df	Sig.
Data	.092	500	.000

a. Lilliefors Significance Correction

In research on the influence of micro learning on storytelling skills, normality tests were carried out to check whether the data followed the normal distribution. The Kolmogorov-Smirnov test showed a statistical value of 0.092 with a degree of freedom (df) of 500 and a significance value (Sig.) of 0.000. Since the significance value is less than 0.05, this indicates that the data is not normally distributed.

Thus, because the data do not meet the assumption of normality, the use of parametric statistics such as t-tests cannot be applied. Alternatively, to compare two independent groups (the experimental group and the control group), a more appropriate non-parametric test is the Mann-Whitney test. The Mann-Whitney test was used to test whether there was a significant difference between the two groups that were not normally distributed. This test compared the ratings of the data of the two groups without assuming a normal distribution on the data.

Table 4 Test of Homogeneity of Variances

Test of Homogeneity of Variances			
Data			
Levene Statistic	df1	df2	Sig.
1,403	1	498	,237

To test the feasibility of the data, the Test of Homogeneity of Variances test was carried out to check whether the variance between the experimental group (who received learning through micro learning) and the control group (who received traditional learning) was homogeneous or similar. The test results showed a Levene Statistic value of 1.403 with degrees of freedom (df1) 1 and (df2) 498, and a significance value (Sig.) of 0.237.

Since the significance value is greater than 0.05, this indicates that the variance between the two groups is considered homogeneous or not significantly different. In other words, the distribution of variance between the experimental and control groups is similar. These results support the use of further analysis, although since the data are not normally distributed (based on the results of the normality test), non-parametric statistical methods such as the Mann-Whitney test are still used to compare the two groups in this study

Table 5 Mann Whitney Ranks

Ranks				
	Class	N	Mean Rank	Sum of Ranks
Data	Control	250	201,42	50354,50
	experiment	250	299,58	74895,50
	Total	500		

The results of the rank analysis in the study on the influence of micro learning on storytelling ability showed a comparison between the experimental group and the control group. Based on the data, the number of participants in each group is 250 people. For the control group, the mean rank was 201.42, with a total sum of ranks of 50,354.50. Meanwhile, the experimental group had a higher mean rank, which was 299.58, with a total sum of ranks of 74,895.50.

Table 6 Mann-Whitney Result

Test Statistics <sup>a</sup>	
	Data
Mann-Whitney U	18979,500
Wilcoxon W	50354,500
Z	-7.661
Asymp. Sig. (2-tailed)	,000
a. Grouping Variable: Class	

The results of the Mann-Whitney test in the study on the influence of micro learning on storytelling skills showed significant differences between the experimental group and the control group. The statistical value of Mann-Whitney U obtained is 18,979,500, while the Wilcoxon W statistic is 50,354,500. The calculated Z value was -7.661, which indicates that the experimental group had a lower score compared to the control group. In addition, the significance value (Asymptotic Significance) is 0.000, which is much smaller than the commonly used significance level (0.05). This shows that the difference between the two groups is statistically significant. Thus, the results of this test indicate that the application of the micro learning method has a significant influence on improving storytelling skills in students compared to traditional learning methods.

This difference in the average ranking shows that the experimental group that uses the micro learning method tends to have higher scores than the control group. This gives an early indication that micro learning may have a positive influence on students' storytelling skills, as the experimental group obtained higher ratings in the test. This data also supports the findings of the Mann-Whitney test results which show significant differences between the two groups.

The results of the Mann-Whitney U test showed that there was a significant difference between the experimental group that used micro learning and the control group that used traditional learning. Asymp Value. The obtained Sig. (2-tailed) is 0.000, which is much smaller than the commonly used significance level, which is 0.05. This indicates that we can reject the null hypothesis ( $H_0$ ) which states that there is no significant difference between the two groups, and accept the alternative hypothesis ( $H_1$ ) which states that there is a significant difference. In other words, the results of the storytelling test showed that the group that participated in micro learning had significantly different storytelling skills compared to the group that participated in traditional learning. The Z-value of -7.661 indicates that this difference is very large, thus supporting the conclusion that micro learning treatment has a positive effect on participants' storytelling skills.

Based on the existing literature, the use of micro-learning methods has proven to be effective in improving learning outcomes and student interest. Harman & Alper (2024) showed that online course videos made with micro-learning methods have a positive impact on learning according to the participants' views. This method allows participants to access the material in a short, easy-to-digest format, which increases their understanding and engagement. This research confirms that micro-learning, through online course videos, can significantly improve learning effectiveness by providing easily accessible and relevant content.

Ahmad (2017) demonstrated the effectiveness of video podcasts as a micro-learning tool in a blended learning environment. By integrating video podcasts into a blended learning model, this study shows that this approach can increase learning flexibility and make it easier for students to access the material independently. The results show that video podcasts as a micro-learning tool increase student engagement and help them in the learning process by providing concise and focused content.

The research of Romsis et al. (2023) examines the use of the TikTok application for micro-learning in improving United Kingdom pronunciation among college students. Their findings suggest that mobile apps like TikTok can be an effective platform for micro-learning, particularly in improving language skills. By using a platform that is familiar to students, micro-learning can encourage the use of technology for more integrated and engaging learning. Salleh et al., (2022b, 2023) also underlined that micro-learning is able to increase students' interest in learning by using creative technology that encourages engagement and motivation. This research shows that micro-learning can play a role in increasing students' interest in learning through innovative and adaptive approaches to their needs.

Research that uses YouTube video serialization as a micro-learning method such as this study shows the achievement of effectiveness comparable to the results of other studies in this field. Amakhina et al. (2023) present a video-based approach to improving speaking and listening skills in foreign language learning. This method integrates video in the education system to provide structured and sustainable content, which is similar to the use of serialized YouTube videos to present material in stages. Their findings confirm that video serialization can be effective in improving language skills by providing consistent, focused material.

Ghafari et al. (2023) examined the applications and advantages of micro-learning in language teaching, emphasizing that video as a micro-learning tool offers advantages in terms of affordability and student engagement. Their research supports the effectiveness of using video as a micro-learning medium in teaching languages, which is in line with the YouTube video streaming approach. Serial video, with its modular and structured format, provides flexibility and continuity in the learning process, which contributes to improved learning outcomes.

Fitria (2022) conducted a review of the use of micro-learning in the teaching and learning process, showing that video is a very effective tool in delivering material concisely and concisely. The study concluded that videos, including those presented in a serialized format, can improve student understanding and engagement by providing relevant information in small pieces. (Olivier, 2021) examined micro-learning through video serialization, confirming that this approach effectively defines, utilizes, and teaches the concept of micro-learning. The results of this study suggest that serialized videos, including those available on platforms such as YouTube, can achieve the same level of effectiveness in language learning as found in other studies.

## Conclusions

This study shows that micro-learning design using YouTube video serialization is effective in improving students' speaking skills. These findings indicate that this approach is not only relevant for language teaching, but can also be adapted to various other forms of learning. With its flexible structure and customizable content, micro-learning can be applied in a variety of disciplines, such as science, mathematics, and art, by utilizing a variety of visual and narrative media. This adaptation provides an opportunity for educators to design materials that are engaging and tailored to students' needs, allowing them to learn in a more interactive and contextual way. Therefore, further development of micro-learning learning design is highly recommended to explore its potential in improving learning outcomes in various areas of study.

Based on these findings, it is recommended that higher education institutions integrate micro-learning more broadly into their curricula. The use of video storytelling can be expanded not only in language teaching, but also in other disciplines, such as science and social sciences, where narratives can be used to explain complex concepts. Furthermore, there needs to be the development of technology-based learning platforms that support micro-learning, such as mobile applications or interactive websites, to allow students to access materials anytime and anywhere. Further research is also needed to explore the long-term impact of this approach, including how micro-learning can be adapted to different learning styles and ability levels of students. Thus, the integration of micro-learning not only has the potential to improve learning outcomes, but can also contribute to the development of students' communication competencies and soft skills, which are very important in the ever-changing world of work.

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