A Quasi Experimental Comparison of TikTok and Instagram Reels as Short Video Microlearning to Improve Cognitive Economics Learning Outcomes

Ni'matul Istiqomah[a], Siti Mastura Baharudin[a], Myzan Binti Noor[b], Nurul Najiha[c], Ermita Yusida[d]

[a]Department of Educational Technology, School of Educational Studies, Universiti Sains Malaysia, Malaysia
[b]Department of Information, Computer and Communications Technology, Universiti Kuala Lumpur, Malaysia
[c]Department of Development of Economics, Faculty of Economic and Business, Universitas Negeri Malang, Indonesia
[d]Department of Economics, Faculty of ISEG Lisbon School of Economics and Management, University of Lisbon, Portugal

Abstract

Purpose – This study assessed and compared the effectiveness of TikTok-based short videos and Instagram Reels as microlearning media to improve cognitive learning outcomes in economics on the APBN and APBD material for Grade XI social science students at SMA Panjura Malang.

Methods/Design/Approach – The study used a quasi-experimental method with a pretest-posttest nonequivalent multiple group design. The sample was selected purposively: experimental class 1 used TikTok (n = 25) and experimental class 2 used Instagram Reels (n = 21). The instrument was a 20-item valid (r calculated > r table at the 5% level) and reliable (Cronbach's Alpha = 0.910) multiple-choice test. Data analysis included the Kolmogorov-Smirnov normality test, Levene's homogeneity test, the independent sample t-test, and N-gain calculation.

Findings – The pretest means were relatively comparable (TikTok = 63.40; Reels = 59.05). After treatment, the posttest means increased with a clear difference (TikTok = 90.20; Reels = 80.95). The t-test showed a significant difference (t = 4.812; df = 44; p < 0.001) with a mean difference of 9.248 and a 95% confidence interval of 5.374 to 13.121. The average N-gain values were 73.53% for TikTok (moderately effective) and 51.93% for Reels (less effective).

Originality/Value – This study provides quasi-experimental comparative evidence regarding the effectiveness of two popular short-video platforms for economics learning on APBN and APBD material at the secondary school level.

Practical Implications – Economics teachers can prioritize TikTok as a microlearning medium for broad material that requires conceptual understanding, and use Instagram Reels for reinforcement or sharing references with more concise content design given the more limited duration.

Keywords TikTok, Instagram Reels, microlearning, cognitive learning outcomes, economics learning

Paper type Research paper

1.   Introduction

Digital-era education is education to recognize various changes and at the same time requires teachers to implement and facilitate students to overcome learning problems and improve skills in different circumstances that we experience rapidly (Mursid & Yulia, 2019). Education must prepare teachers to use technology and maximize teacher skills because teachers' skills in utilizing technology become part of the solution to prepare a competent millennial generation (Fitriah & Mirianda, 2019). Through the utilization of technology, teachers need creativity and innovation when implementing learning activities such as changing methods of using learning media to build a classroom atmosphere that is not boring and conventional (Iswara et al., 2021). Interesting learning can create an atmosphere that facilitates students to discuss, interact, and talk about learning materials (Rosmawati, 2020).

The development of digital technology changes perspectives in presenting interesting learning. One of them is the use of short videos. In addition to being entertainment media, short videos are also useful as learning media in the context of microlearning. In several studies, it has been mentioned that TikTok can increase learning interaction and active participation. Likewise, Instagram Reels can increase learning motivation and learning satisfaction. Media such as TikTok or Instagram Reels encourage active participation through content creator learning-based learning. Students do not only become passive consumers, but can summarize the information received in a short video. Research conducted mentioned that teachers and students have adopted social media as learning media and the results stated that teachers and students can improve the grammar skills of students of the Economics Department at the University of Ain Temouchent, Algeria. (Laouadji, 2023).

However, in fact, it was found that not all teachers use technology for learning media, there are some teachers who only have skills in utilizing technology to be used as learning media. (Hadi, 2017). According to also argue that some teacher problems in the use of learning media include preparation for making learning media, the use of media such as skills in utilizing learning media, and determining learning media that are suitable to be applied to classroom conditions. (Fatah et al., 2019). In line with the opinion that there are still many teachers who are technologically stuttering due to ignorance of current technological developments, especially the use of learning media. (Shofia & Ahsani, 2021).

Based on field phenomena, the researchers found that the implementation of economics learning at SMA Panjura Malang in Grade XI social science classes has not utilized technology as learning media. Teachers still mostly use the lecture method without utilizing technology as support in learning. The learning media utilized by teachers are only in the form of PowerPoint. The problems in the implementation of economics learning in Grade XI social science classes are 1) teachers do not yet know the latest learning media that can be utilized to overcome the problems faced by students, namely learning outcomes. 2) Teachers lack time to prepare learning media. 3) Teachers provide material explanations through lectures, and have not been accompanied by the application of technology as media, choosing to chat with seatmates, daydream, and there are students who are busy with their mobile phones. 4) Students' attention to the teacher's explanations is perceived to be lacking so learning outcomes tend to be low.

In the observation results, the researchers found that students use the TikTok application and Instagram Reels only as entertainment media. SMA Panjura students use the TikTok application as a medium to develop talents in the field of content creation, while Instagram Reels is used to seek information, materials, and resources. This means that students are already familiar with both learning media. because the TikTok application and Instagram Reels reach the millennial generation that is truly connected to the digital world. (Ramdani et al., 2021). Thus, when using interactive media it will encourage students' enthusiasm and curiosity when participating in learning. In addition, students can study again at home through the TikTok application and Instagram Reels so that it helps students improve learning outcomes.

One effort to improve learning outcomes is by using appropriate learning media. learning outcomes are the results obtained by students in the form of evaluation after learning through behavioral changes such as understanding, perspectives, and skills. (Nurrita, 2018). there are 3 indicators of learning outcomes in the form of conceptual understanding (cognitive), procedural skills (psychomotor), and behavior (affective). (Sutanto, 2016). learning outcomes are influenced by internal factors, namely physical and mental, while external factors are family environment, school environment, and social environment. (Slameto, 2013). learning outcomes can increase when supported by the use of learning media. (Novita et al., 2019).

From the problems above, to improve learning outcomes, it is necessary to implement learning media that can encourage student enthusiasm, enjoy participating in learning, not get bored easily, and provide material explanations that are easy to understand. video-based learning media indicate student enthusiasm and affect student scores on the KKM. (Alfath et al., 2021). This statement is also supported by the opinion which states that by using video-based learning media, students can easily find important information in videos during exam weeks or when rewatching videos that have been watched previously. (Seo et al., 2021). Many learning media applications are offered in the current era, for example the TikTok application and Instagram Reels. the TikTok and Instagram applications are enjoyable and entertaining learning media for students. (Mufidah & Mufidah, 2021). The use of TikTok and Instagram Reels as learning media is intended to support students' interest in learning by using videos that are educational, informative, interesting, and motivating. In the context of economics learning, the use of TikTok and Instagram Reels video media can increase high motivation with a short video format, suitable and relevant to describe economic phenomena such as inflation or markets. In addition, learning using reels and Instagram videos as efficient microlearning such as quizzes. (Datu et al., 2023; Naser et al., 2023).

The application of learning media using the TikTok application and Instagram Reels is because both applications are short-video applications that are popular today and are already familiar to SMA Panjura students. Thus, teachers can use the TikTok application and Instagram Reels to improve student learning outcomes. APBN and APBD have fairly broad material, have many connections with daily life, and based on the material, APBN and APBD become difficult material for students. The purpose of the study is to find out the effectiveness of the TikTok application and Instagram Reels to improve student learning outcomes through the cognitive aspect in economics subjects. This effectiveness test uses a quasi-experimental method with t-test data analysis which aims to determine how the results differ between two different groups, in this case the experimental class group that learns using TikTok and the class that learns using Instagram.

2.   Methods

The research method used a quasi-experimental type of research, in experimental research the number of independent variables (treatment) can be more than 1. Therefore, this study used two different learning media with different classes, and each class used the Pretest-Posttest Nonequivalent Multiple Group Design. Experimental group 1 was given treatment by using TikTok application learning media whose effectiveness would be tested, and experimental class 2 was also given treatment with Instagram Reels learning media. The steps of the research design are as follows:

Table 1. Experimental Design

O1	X1	O2
O3	X2	O4

Description:
O1: Pre-test score of experimental class 1
O2: Post-test score of experimental class 1

O3: Pre-test score of experimental class 2
O4: Post-test score of experimental class 2
X1: Action using the TikTok application
X2: Action using Instagram Reels

Based on the experimental design above, it can be explained that before conducting learning, both experimental class 1 and experimental class 2 would be given a pre-test to measure students' initial ability in understanding the material. This is illustrated by O1 and O2. Next, the study implemented learning using TikTok videos and Instagram Reels by applying the material of the State Revenue and Expenditure Budget (APBN). After learning using TikTok videos and Instagram Reels, the researcher would measure the final ability of learners by applying a posttest in experimental class 1 and experimental class 2. In more detail, the researcher described the flow of quasi-experimental implementation.
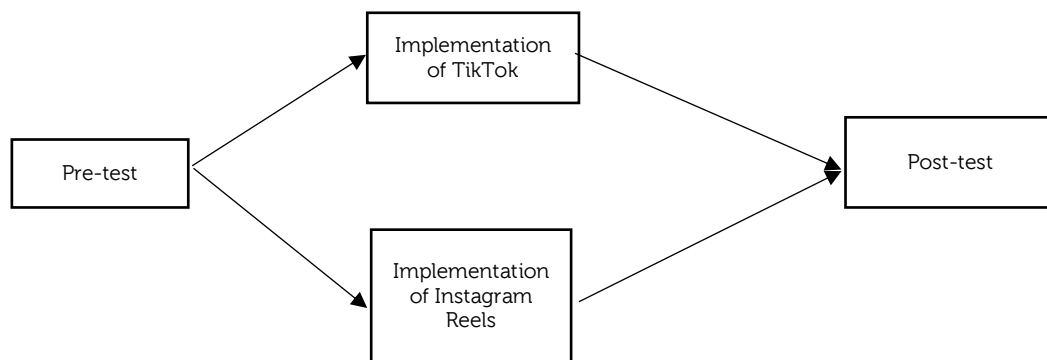

Figure 1. Flow of Quasi-Experimental Research

This study used a population of Grade XI social science students at SMA Panjura Malang in 2022/2023 consisting of 4 classes. The sampling technique used was Purposive Sampling in which XI IPS 1 became experimental class 1 for the TikTok application and XI IPS 2 became experimental class 2 for Instagram Reels. This is because both classes have the same characteristics, namely comparable ability in economics subjects. The research data collection techniques were observation sheets, test questions, and documentation. Learning tools included the syllabus, Lesson Plan (RPP), test questions, observation sheets, and learning video assessment sheets as research instruments. The researcher used pretest-posttest questions in the form of multiple choice consisting of 20 items.

The data validity test in this study was the instrument validity test of the test questions using a trial on the instrument validity in class XI IPS 3. Item testing was assisted by the IBM SPSS Statistic 22 program where the r calculated value > r table at the 5% significance level indicates that the test instrument is valid, meaning it is feasible to be applied in the study. For the reliability test of the test instrument, the researcher used Cronbach's Alpha and was assisted by the IBM SPSS Statistic 22 program with a value of 0.910 > 0.60 indicating that the test instrument is included in the very high reliability category, meaning it is feasible to be applied in the study. The difficulty level of the questions in this study was assisted by Microsoft Excel 2010 which indicated that there were 2 questions included in the easy index, 14 questions included in the medium index, and 4 questions included in the difficult index. The discrimination power test of the questions was assisted by Microsoft Excel 2010 which indicated that there were 3 questions classified as sufficient, 16 questions classified as good, and 1 question classified as very good.

The research data analysis techniques were the normality test and homogeneity test as prerequisite tests, the Independent Sample T-test and N-gain test as hypothesis tests. The researcher used the Kolmogorov-Smirnov normality test assisted by IBM SPSS Statistic 22. The homogeneity test used the Levene Statistic test assisted by IBM SPSS Statistic 22. The calculation of the researcher's data analysis used the Independent Sample T-test and the

N-gain score test was conducted to measure the effectiveness of the TikTok application and Instagram Reels.

3. Results

3.1 Descriptive Analysis

The results of the descriptive analysis of the data from both classes were obtained through inferential statistics assisted by IBM SPSS Statistic 22. Pretest data were used to determine learning outcomes before the treatment was conducted. The following are the results of the descriptive statistical analysis of the pretest for both classes.

Table 2. Results of Descriptive Analysis of the Pretest for Experimental Class 1 and Experimental Class 2

Class	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Kelas_Eksperimen1	25	30	80	63.40	12.309	151.500
Kelas_Eksperimen2	21	30	80	59.05	12.808	164.048

Based on the table above, it indicates that before the treatment was conducted, both experimental class 1 that implemented the TikTok application and experimental class 2 that implemented Instagram Reels had relatively similar scores. This is evidenced by the minimum and maximum scores obtained in both classes being relatively the same. This means that the learning outcomes of students who implemented the TikTok application and those who implemented Instagram Reels were equal/comparable.

Posttest data were useful to determine learning outcomes after the treatment was conducted. The following are the results of the descriptive statistical analysis of the posttest for both classes.

Table 3. Results of Descriptive Analysis of the Posttest for Experimental Class 1 and Experimental Class 2

Class	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Kelas_Eksperimen1	25	80	100	90.20	6.371	40.583
Kelas_Eksperimen2	21	70	90	80.95	6.637	44.048

Based on the table above, it indicates that after the treatment was conducted, experimental class 1 that implemented the TikTok application and experimental class 2 that implemented Instagram Reels had a significant difference. This is evidenced by the minimum and maximum scores obtained in both groups being relatively different. This means that the learning outcomes of students who implemented the TikTok application were higher than those who implemented Instagram Reels.

3.2 Normality Test

In this study, a statistical test, namely the Kolmogorov-Smirnov test, was used because the study had two groups, namely experimental class 1 and experimental class 2, assisted by IBM SPSS Statistic 22. The following are the results of the normality test for both classes.

Table 4. Results of the Pretest Normality Test for Experimental Class 1 and Experimental Class 2

Class	Kolmogorov-Smirnov Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
Kelas_Eksperimen1	.152	25	.141	.925	25	.065
Kelas_Eksperimen2	.149	21	.200*	.913	21	.064

Based on the table above, it indicates that the Significance value is > 0.05. Experimental class 1 has a Sig value of 0.141 > 0.05 and experimental class 2 has a Sig value of 0.200 > 0.05. This means that both classes that implemented the TikTok application and Instagram Reels were normally distributed.

Table 5. Results of the Posttest Normality Test for Experimental Class 1 and Experimental Class 2

Class	Kolmogorov-Smirnov Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
Kelas_Eksperimen1	.153	25	.135	.918	21	.045
Kelas_Eksperimen2	.158	21	.187	.910	21	.054

Based on the table above, it indicates that the Significance value is > 0.05. Experimental class 1 has a Sig value of 0.135 > 0.05 and experimental class 2 has a Sig value of 0.187 > 0.05. This means that both classes that implemented the TikTok application and Instagram Reels were normally distributed.

3.3 Homogeneity Test

In this study, the Levene Statistic test was used with the assistance of IBM SPSS Statistic 22. The following are the results of the homogeneity test for both classes.

Table 6. Results of the Pretest Homogeneity Test for Experimental Class 1 and Experimental Class 2

	Levene Statistic	df1	df2	Sig.
Pretest	.079	1	44	.780

Based on the table above, it indicates that the homogeneity value in the pretest is Sig = 0.780 > 0.05, therefore the variance is homogeneous.

Table 7. Results of the Posttest Homogeneity Test for Experimental Class 1 and Experimental Class 2

	Levene Statistic	df1	df2	Sig.
Posttest	.083	1	44	.774

Based on the table above, it indicates that the homogeneity value in the posttest is Sig = 0.774 > 0.05, therefore the variance is homogeneous.

3.4 Hypothesis Test

Independent Sample T-test

Table 8. Group Statistics

	Class	N	Mean	Std. Deviation	Std. Error Mean
Hasil_Belajar	Kelas Eksperimen1	25	90.20	6.371	1.274
	Kelas Eksperimen2	21	80.95	6.637	1.448

Based on the table above, it indicates that the number of learning outcome data in experimental class 1 was 25 students and experimental class 2 was 21 students. The average score of student learning outcomes in experimental class 1 was 90.20 and for experimental class 2 was 80.95. This means that there is a difference in the average student learning outcomes between experimental class 1 and experimental class 2. To prove whether the difference in scores from both classes is significant or not, it can be proven in the following table.

Table 9. Independent Sample T-test

	Levene's Test F	Levene's Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference (Lower)	95% Confidence Interval of the Difference (Upper)
Hasil_Belajar (Equal variances assumed)	.083	.774	4.812	44	.000	9.248	1.922	5.374	13.121
Hasil_Belajar (Equal variances not assumed)			4.794	41.982	.000	9.248	1.929	5.355	13.140

Based on the table above, it indicates that the Sig. (2-tailed) value is 0.000 < 0.05, meaning H0 is not accepted and H1 is accepted. This indicates that there is a significant difference in results between experimental class 1 and experimental class 2. The mean difference value is 9.248; this value is the difference between the average student learning outcomes in both classes. The difference ranges from 5.374 to 13.121. This means it is proven that the improvement in student learning outcomes given treatment with the TikTok application increased more compared to students given treatment with Instagram Reels in economics subjects.

N-Gain Test

Table 10. Results of the N-Gain Test

	Experimental Class 1 N-Gain Score (%)	Experimental Class 2 N-Gain Score (%)
Mean	73.5302	51.9331
Minimum	40.00	28.57
Maximum	100.00	77.78

Table 11. Category of Interpretation of N-Gain Effectiveness

Percentage (%)	Interpretation
< 40	Not effective
40 - 55	Less effective
56 - 75	Moderately effective
> 75	Effective

Source: (Hake, 1998)

Based on the table above, it indicates that the average N-Gain score in experimental class 1 that implemented the TikTok application was 73.5302 or 73.5%, which is included in the moderately effective category. With a minimum N-Gain score of 40.00% and a maximum of 100.00%. Meanwhile, the average N-Gain score in experimental class 2 that implemented Instagram Reels was 51.9331 or 52.0%, which is included in the less effective category. With a minimum N-Gain score of 28.57% and a maximum of 77.78%.

4. Discussion

4.1 Differences in the Effectiveness of the Tiktok Application in Improving Student Learning Outcomes in Economics Subjects

Learning using the TikTok application is moderately effective in improving learning outcomes on APBN and APBD material. Before the treatment was given, students thought that APBN and APBD material was difficult, but after implementing the TikTok application, students felt that they had a good ability to understand the content of APBN and APBD material because the TikTok application helps students' memory to remember difficult material. This is in line with the research results showing that the various features of the TikTok application are able to provide facilities in the learning process. (Devi, 2022). In addition, shows that the use of the TikTok application is able to increase learning outcomes because the TikTok application facilitates students' access to understanding the material. (A. A. Salsabila et al., 2023). Thus, the increase in learning outcomes can be influenced by various supporting features such as downloading and sufficient duration.

The downloading feature in the TikTok application makes it easier for students to study again by watching learning videos without the internet, and through sufficient duration, students are able to understand the material more easily because the material is packaged clearly and attractively so students do not feel bored while watching videos on the TikTok application. This is in line with the research results stating that the TikTok application is utilized as learning media with the TikTok application duration, namely a maximum of 3 minutes, being able to facilitate student access so that it provides understanding of the material given. (Khasanah, 2022). In addition, also states that the TikTok application presents material in a simple and interesting way, learning is not boring because the TikTok application offers features that are easy to use. (Wijaya & Romadhon, 2022).

The research results show that learning using the TikTok application can stimulate student learning activeness through non-boring activities such as viewing the content of learning videos before students enter the material, thus stimulating students to show an interested attitude in learning. (Ardiana & Ananda, 2022). Therefore, student involvement can produce better learning outcomes in every learning process.

The advantages of the TikTok application help students to improve learning outcomes in economics subjects. This is in line with where the results indicate that learning by utilizing the TikTok application as learning media affects the increase in learning outcomes and succeeds in KKM scores. (Hutamy et al., 2021). Thus, the use of the TikTok application as learning media can improve learning outcomes through adjustment of the alignment of learning material.

In addition, students can understand the material more easily because learning videos using the TikTok application are able to relate the material to daily life. This is in line with the research results stating that learning with the TikTok application can connect the material provided with real situations and encourage students to be enthusiastic, thus increasing learning outcomes significantly. (Safira et al., 2022).

4.2 Differences in the Effectiveness of Instagram Reels in Improving Student Learning Outcomes in Economics Subjects

Learning using Instagram Reels is less effective in improving student learning outcomes in economics subjects. Although it is less effective, learning outcomes still increased. Implementation using Instagram Reels shows ease of access for sharing material because the material is packaged through interesting videos that affect student learning outcomes. This is in line with the research results entitled "Pengaruh Aplikasi Instagram terhadap Hasil Belajar Siswa Kelas V Mata Pelajaran Matematika Materi Volume Bangun Ruang di SDN Bakung Temenggungan Balongbendo Sidoarjo." (Khasana et al., 2020).

The implementation of Instagram Reels makes it easier for students to find references for APBN and APBD material that affect knowledge. This is in line with the research results entitled "Use of Instagram as Learning Media in Senior High School." (Setia & Fajriana, 2022).

The combine feature on Instagram Reels makes it easier for students to understand the material with each other because the learning videos are combined automatically so that good learning communication between students occurs. This is in line with the research results entitled "Strategi Promosi dalam Meningkatkan Brand Awareness Produk Bibir Wardah Cosmetics Melalui Konten Instagram Reels Campus Ambassador di Kalangan Mahasiswa." (A. L. Salsabila & Rizqi, 2022). In addition, entitled "Raising Student Engagement through 'Instagram'." (Jatmiko, 2016). This is also supported by entitled "Pembelajaran Fisika Berbantuan Aplikasi Instagram untuk Meningkatkan Motivasi dan Hasil Belajar Siswa." (Rohim & Yulianti, 2020).

Students expressed that the duration of Instagram Reels is perceived to be insufficient, namely a duration of 1 minute. This duration is less able to convey material in detail and completely, therefore it can have an impact on learning outcomes. In line with (Sari, 2021) entitled "Pemanfaatan Media Pembelajaran dengan Menggunakan Fitur "Reels Instagram" pada Pembelajaran Bahasa dan Sastra Indonesia di Masa Pandemi Covid-19" where from the research results, the weakness of Instagram Reels is the limited duration, therefore some material requires intervals of time in order to minimize the shortcomings of Instagram Reels. In addition, (Wulandari et al., 2022) entitled "Pengembangan Instagram Reels Pembelajaran Pokok Bahasan Persamaan Garis Lurus untuk SMP" also states that the duration of Instagram Reels is very short, namely 1 minute, so it is necessary to pay attention to word choice, color composition, and appearance because it will affect student understanding.

4.3 Differences in the Effectiveness of the TikTok Application and Instagram Reels in Improving Student Learning Outcomes in Economics Subjects

After the research was conducted in experimental class 1 by implementing the TikTok application and experimental class 2 implementing Instagram Reels, it affected the improvement of student learning outcomes. In line with (Widarti et al., 2022) entitled "The Effect of Integrated Instagram and Tiktok Learning Media With PBL Learning Model on Increasing Student Learning Outcomes on The Topic of Qualitative Analysis of Cation" where from the research results, the learning process using the TikTok and Instagram applications can improve cognitive learning outcomes through the PBL model, because students do not get bored quickly and understand quickly because they are not unfamiliar with social media. The increase that occurred in the class that used the TikTok application and the class that used Instagram Reels showed different results, namely the learning outcomes that implemented the TikTok application were higher. Therefore, the implementation of the TikTok application is included in the category of moderately effective to be utilized to improve student learning outcomes. Meanwhile, Instagram Reels obtained lower results compared to the TikTok application, the result is that it is included in the less effective category.

The TikTok application is an application that is liked and more popular for students compared to Instagram Reels, as seen in learning using the TikTok application showing higher enthusiasm, from the introduction of the TikTok application as learning media, group division, video creation, and material explanation. This is in line with the research (Taubah & Hadi, 2020) entitled "Aplikasi Tik Tok sebagai Media Pembelajaran Maharah Kalam" stating that the TikTok application is a leading social media that is liked and attracts the appeal of millennials, most of whom are students.

In implementation using the TikTok application, students expressed that they were freer to be creative compared to using Instagram Reels. In learning using Instagram Reels, students felt that Instagram Reels posts containing material could damage the feed and affect followers of their Instagram accounts. This is in line with the research results (Ruth & Candraningrum, 2020) entitled "Pengaruh Motif Penggunaan Media Baru Tiktok terhadap

Personal Branding Generasi Milenial di Instagram" also stating that Instagram users upload their best photos or videos so that their profiles still look good aesthetically. In addition, (Alamanda, 2022) entitled "Tiktok vs Instagram Reels: Platform untuk Konten Promosi Bisnis Fashion Online" states that Instagram Reels viewers tend to like aesthetic and exclusive content.

The class that used the TikTok application and the class that used Instagram Reels, although the same material and time were applied, the TikTok application showed more student interest through ease of use, especially in downloading access. The downloading of TikTok application videos makes it easier for students to rewatch learning videos without the internet, while Instagram Reels does not have a downloading feature which causes students to download Instagram Reels videos through a downloading website which makes it difficult for students. This condition leads to learning outcomes that implemented the TikTok application increasing more than the class that used Instagram Reels.

This is in line with the research results (Khasanah, 2022) entitled "Penggunaan Media Tiktok dalam Meningkatan Hasil Belajar Bahasa Inggris di SMPN 2 Gempol" showing that the learning process using the TikTok application can be repeated so that student learning outcomes increase. In addition, (Suprihatin, 2022) entitled "Penggunaan Media Tiktok dalam Meningkatan Hasil Belajar IPA di MTsN 4 Gunungkidul" indicates that learning outcomes implementing the TikTok application are interesting through its appropriate duration, and the material is arranged into sub-chapters that can be reviewed again to improve student learning outcomes. From the differences in results that have been obtained, it shows that the TikTok application is more effective to be applied to improve student learning outcomes in economics subjects compared to implementing Instagram Reels.

The results of this study show how effective learning using TikTok videos and Instagram Reels is in Grade XI at SMA Panjura Malang. Research results with different samples can cause different results. This is because the character of the sample used is also different from the sample taken. In addition, the implementation of learning with the addition of other variables such as learning styles or the level of economic literacy will also produce different studies. To obtain appropriate learning outcomes, it is important for teachers to choose learning media and methods that are in accordance with the needs and characteristics of the material and learners.

5.   Conclusion

This quasi-experimental study with a pretest-posttest nonequivalent multiple group design has addressed the research objectives, namely assessing the effectiveness of using TikTok and Instagram Reels as short-video learning media to improve cognitive learning outcomes in economics on APBN and APBD material, as well as comparing the effectiveness of both. The findings show that both media increased learning outcomes, but the class using TikTok achieved a higher improvement compared to the class using Instagram Reels. The difference in post-treatment results was also proven significant based on the independent sample t-test ($p < 0.05$). In line with this, the N-gain test placed TikTok in the moderately effective category, while Instagram Reels was in the less effective category.

Practically, these results indicate that TikTok is more feasible to be prioritized as a microlearning medium for broad economics material that requires conceptual understanding, because the characteristics of video presentation are perceived to better support understanding and allow students to relearn through easier access. Instagram Reels can still be used as a supporting alternative, especially for sharing references and reinforcing material, with the consequence of the need for message summarization strategies and stricter content design given the more limited duration.

The limitations of this study lie in the sample scope being limited to one school and the purposive selection of classes, so that the nonequivalent design potentially leaves the influence of external factors that are not fully controlled. The measurement also focused

on cognitive learning outcomes and on certain materials and learning contexts. Further research is recommended to expand the number and diversity of samples, examine other economics materials, add measurements of the affective and psychomotor domains, and include relevant variables such as learning styles or the level of economic literacy to strengthen the explanation of the mechanism of the influence of short-video media on learning outcomes.

Acknowledgements

Declarations

Author contribution statement

Ni'matul Istiqomah: Conceptualization; Methodology; Investigation; Data curation; Writing - original draft.
Siti Mastura Baharudin: Supervision; Project administration; Resources; Writing - review & editing.
Myzan Binti Noor: Formal analysis; Validation; Visualization; Writing - review & editing.
Nurul Najihah: Software; Data curation; Writing - review & editing.
Ermita Yusida: Funding acquisition; Resources; Writing - review & editing.

Funding statement

Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Ethical Approval and Informed Consent

Ethical approval was obtained from Universitas Negeri Malang (Protocol No. 0 3213230470491012052321571901). Informed consent was obtained from all participants. Data were collected and analysed anonymously.

Declaration of interest statement

No potential conflict of interest was reported by the authors.

Additional information

Correspondence and requests for materials should be addressed to the **Corresponding Author**, Ni'matul Istiqomah, at ✉ n_istiqomah@student.usm.my

ORCID

Ni'matul Istiqomah ⓘ https://orcid.org/0000-0003-2933-981X
Siti Mastura Baharudin ⓘ https://orcid.org/0000-0002-1997-5006
Myzan Binti Noor ⓘ https://orcid.org/0000-0003-3328-5770
Nurul Najihah ⓘ -
Ermita Yusida ⓘ https://orcid.org/0000-0002-5274-5114

References

Alfath, A. M., Sujarwo, & Harun. (2021). The impact of educational practices in learning comics and video media on social science subjects as alternatives in a pandemic period. *Educational Administration: Theory and Practice*, *27*(3), 1125–1132. https://doi.org/10.17762/kuey.v27i3.257

Ardiana, E., & Ananda, A. (2022). The effect of using the TikTok application as a learning media on the activeness and learning outcomes of class XI social sciences students in sociology subjects at SMA N 1 Ampek Angkek. *LANGGAM International Journal of Social Science Education, Art and Culture*, *1*(2), 22–29. https://doi.org/10.24036/langgam.v1i02.13

Datu, S. T., Allo, M. D. G., Shilfani, S., & Pratama, M. P. (2023). The impact of short video content in Instagram Reels in learning English. *Jurnal Studi Guru Dan Pembelajaran*, *6*(3), 374–385.

Devi, A. A. (2022). Pemanfaatan aplikasi TikTok sebagai media pembelajaran. *Epistema*, *3*(1), 10–17. https://doi.org/10.21831/ep.v3i1.40990

Fatah, J. R., Dewa, K. P., & Bengkulu, K. (2019). Problematika guru dalam menggunakan media pembelajaran pada mata pelajaran IPS di Madrasah Ibtidaiyah Darussalam Kota Bengkulu. *Indonesian Journal of Social Science Education (IJSSE)*, *1*(1), 49–55. https://doi.org/10.29300/ijsse.v1i1.1325

Fitriah, D., & Mirianda, M. (2019). *Kesiapan guru dalam menghadapi tantangan pendidikan berbasis teknologi*. 148–153. https://jurnal.univpgri-palembang.ac.id/index.php/Prosidingpps/article/view/2982

Hadi, S. (2017). *Efektivitas penggunaan video sebagai media pembelajaran untuk siswa sekolah dasar*. *1*(15), 96–102. https://core.ac.uk/download/pdf/267023793.pdf

Hake, R. R. (1998). Interactive-engagement versus traditional methods: A six-thousand-student survey of mechanics test data for introductory physics courses. *American Journal of Physics*, *66*(1), 64–74. https://doi.org/10.1119/1.18809

Hutamy, E. T., Alisyahbana, A. N. Q. A., Arisah, N., & Hasan, M. (2021). Efektivitas pemanfaatan TikTok sebagai media pembelajaran dalam meningkatkan hasil belajar peserta didik. *Jurnal Pendidikan Dompet Dhuafa*, *11*(1), 21–26.

Iswara, E., Darhim, D., & Juandi, D. (2021). Students' critical thinking skills in solving on the topic of sequences and series. *Plusminus: Jurnal Pendidikan Matematika*, *1*(3), 385–394. https://doi.org/10.31980/plusminus.v1i3.1317

Jatmiko, P. (2016). *Raising student engagement through "Instagram."* *1*, 455–460. https://jurnal.fkip.uns.ac.id/index.php/ictte/article/view/7643

Khasana, V. A., Setiyawan, H., & Desiningrum, N. (2020). Pengaruh aplikasi Instagram terhadap hasil belajar siswa kelas V mata pelajaran matematika materi volume bangun ruang di SDN Bakung Temenggungan Balongbendo Sidoarjo. *Child Education Journal*, *2*(2), 83–91. https://doi.org/10.33086/cej.v2i2.1590

Khasanah, N. (2022). Penggunaan media TikTok dalam meningkatkan hasil belajar bahasa Inggris di SMPN 2 Gempol. *Wawasan Pendidikan*, *2*(2), 316–325. https://doi.org/10.26877/wp.v2i2.13001

Laouadji, I. (2023). *Investigating the use of Instagram and TikTok Reels as a learning tool to enhance grammar in ESP classes: The case of the third-year economy students at the University of Ain Temouchent* [Doctoral dissertation, University of Ain Temouchent]. https://dspace.univ-temouchent.edu.dz/items/44dae3f7-31af-4a0f-98e1-d2d7a1274c90

Mufidah, A., & Mufidah, R. (2021). *Aplikasi TikTok dan Instagram sebagai salah satu alternatif dalam media pembelajaran IPA*. 60–69. https://prosiding.iainponorogo.ac.id/index.php/pisces/article/view/288

Mursid, R., & Yulia, E. (2019). *Pengembangan pembelajaran dalam teknologi pendidikan di era RI 4.0*. Universitas Negeri Medan.

Naser, K. M., Alamassi, S., Shanaa, Z. A., Abualrish, M., Alghazo, E. M., Zaitoun, E. A., & Shater, A. (2023). *Enhancing postgraduate learning achievement: A microlearning approach with Reels and Shorts*. 1–7.

Novita, L., Sukmanasa, E., & Pratama, M. Y. (2019). Penggunaan media pembelajaran video terhadap hasil belajar siswa SD. *Indonesian Journal of Primary Education*, *3*(2), 64–72. https://doi.org/10.17509/ijpe.v3i2.22103

Nurrita, T. (2018). Pengembangan media pembelajaran untuk meningkatkan hasil belajar siswa. *Jurnal Misykat*, *3*(1), 171–187. https://doi.org/10.33511/misykat.v3n1.171

Ramdani, N. S., Nugraha, H., & Hadiapurwa, A. (2021). Potensi pemanfaatan media sosial TikTok sebagai media pembelajaran dalam pembelajaran daring. *Akademika*, *10*(2), 425–436. https://doi.org/10.34005/akademika.v10i02.1406

Rohim, A. M., & Yulianti, D. (2020). Pembelajaran fisika berbantuan aplikasi Instagram untuk meningkatkan motivasi dan hasil belajar siswa. *Unnes Physics Education Journal*, *9*(2), 149–157. https://doi.org/10.15294/upej.v9i2.41921

Rosmawati, E. (2020). *Inovasi pembelajaran bahasa Indonesia melalui pendekatan proses*. 868–876. https://jurnal.univpgri-palembang.ac.id/index.php/Prosidingpps/article/view/3928

Safira, D., Wiguna, S., & Ridha, Z. (2022). Upaya peningkatan hasil belajar siswa melalui aplikasi TikTok sebagai media pembelajaran pada mata pelajaran Aqidah Akhlaq di kelas VII MTs Al Hidayah Gebang. *Invention: Journal Research and Education Studies*, *3*(3), 27–37. https://doi.org/10.51178/invention.v3i3.1018

Salsabila, A. A., Cahyani, K., Rustini, T., & Wahyuningsih, Y. (2023). Pengaruh penggunaan TikTok terhadap peningkatan hasil belajar keragaman budaya Indonesia. *Jurnal Pendidikan Dan Konseling (JPDK)*, *5*(1), 3415–3421. https://doi.org/10.31004/jpdk.v5i1.11544

Salsabila, A. L., & Rizqi, M. (2022). Strategi promosi dalam meningkatkan brand awareness produk bibir Wardah Cosmetics melalui konten Instagram Reels campus ambassador di kalangan mahasiswa. *COMSERVA: Jurnal Penelitian Dan Pengabdian Masyarakat*, *1*(11), 970–982. https://doi.org/10.36418/comserva.v1i11.145

Seo, K., Dodson, S., Harandi, N. M., Roberson, N., Fels, S., & Roll, I. (2021). Active learning with online video: The impact of learning context on engagement. *Computers & Education*, *165*, 104132. https://doi.org/10.1016/j.compedu.2021.104132

Setia, M. N. I. H., & Fajriana, M. (2022). Use of Instagram as learning media in senior high school. *CURRICULA: Journal of Curriculum Development*, *1*(1), 23–31. https://doi.org/10.17509/curricula.v1i1.47897

Shofia, N. A., & Ahsani, E. L. F. (2021). Pengaruh penguasaan IT guru terhadap kualitas pembelajaran di masa pandemi. *Forum Paedagogik*, *12*(2), 201–215.

Slameto. (2013). *Belajar dan faktor-faktor yang mempengaruhi hasil belajar*. Rineka Cipta.

Sutanto, A. (2016). *Teori belajar dan pembelajaran di sekolah dasar*. Kencana Prenada Media Group.

Wijaya, A. I., & Romadhon, D. R. (2022). *Penggunaan TikTok sebagai media pembelajaran fisika*. 22–31. https://repository.uinjkt.ac.id/dspace/bitstream/123456789/69171/1/Prosiding%20Semnas%202022%20Eva.pdf