INTEGRATING TIKTOK INTO ECONOMICS CLASSROOMS: ENHANCING STUDENT LEARNING OUTCOMES THROUGH SOCIAL MEDIA

Ni`Matul Istiqomah

Faculty of Economics and Business, Universitas Negeri Malang, Indonesia (nimatul.istiqomah.fe@um.ac.id)

Nurul Najihah

Faculty of Economics and Business, Universitas Negeri Malang, Indonesia (nurul.najihah.1904316@students.um.ac.id)

Siti Mastura Baharudin

School of Educational Studies, Universiti Sains Malaysia (sitimastura@usm.my)

ABSTRACT

Presenting effective learning is one of the things that teachers need to pay attention to. One of the factors that is a success in the learning process is by using the right learning media. Currently, high school students are very close to technology and social media. The purpose of this study was to determine the effectiveness of the application of social media-based learning media, namely TikTok Videos, on the economic learning outcomes of high school students compared to direct tutoring. This study uses a quasi-experimental approach to determine the differences in learning outcomes in the experimental class taught using TikTok media and the control class with the direct tutoring method. The population in this study were 4 classes of class XI IPS students of Panjura Malang High School. The sample in this study was 2 classes, namely the experimental class and the control class. The learning outcomes showed that there was a difference in the average learning outcomes of students in the experimental class and the control class. Based on these results, it shows that students are more interested in learning with technology-based media and social media, this is because currently teenagers are very close to technology and social media in their daily lives so that their high learning motivation will improve students' economic learning outcomes

Keywords: tiktok video, learning outcomes, learning media

INTRODUCTION

Industrial revolution provided impact on various sector one of them is Education sector. (Vesperi, Gagnidze, and Sobolieva 2024)(Brown 2024) One of them marked with existence utilization digital technology as one of the internal media presentation classroom learning. (Fitria et al. 2024)(Widdah and Yunus 2025) Expectations from integration this technology is for serve more interactive learning. 21st century education does not only focus on how to teach teachers,(Almazroa and Alotaibi 2023) but digital based forgive facility Study based on technology so that give room no limited in continuity of the learning process.

One of problem in learning is a conventional learning process look at advance without use method or innovative learning media in the learning process. (Anandita, Negoro, and Rahmawati 2025)(Yansyah, Marian, and Utami 2025) This conventional system has an impact on less effective learning. effective and can reduce activity study students. (Jarilkapovich 2025)(Fan et al. 2025) Nowadays students are closer to technology so that for increases activity Study student it would be very good if learning integrated with technology in the learning process.(Habibulloh, Sholeh, and Idawati 2024)

Use various source interactive learning will can help reduce problem in the learning process that is conventional learning. (Tseng, Chiang, and Hsu 2008) Paradigm utilization source study gives students have more freedom in choose and determine alone source appropriate learning with interest students. (Windschitl, Thompson, and Braaten 2008) Use source Study innovative No only give room interaction student with the teacher, will but make students are more creative in learning. Therefore, the role of teachers in use source Innovative learning is very necessary. Problems next is no all teachers take advantage of various source Study based on technology. This is due to because limitations knowledge in access various digital technology.

Nearby daily life student with this technology triggers height use of social media among young people students. Based on the data, Indonesia is one of the countries with sufficient media users big. (Kencana and Meisyanti 2020) Most social media users originate from circles teenagers. Triggers height use of social media because of convenience access technology such as smartphones and internet networks which are increasingly affordable make student can with easy access various social media platforms anytime and anywhere. In addition, social media play a role important as means interaction social that enables student for communicate and maintain connection with friends same age they. Environmental factors also have a big influence, when Lots Friend using social media in a way active, students feel pushed for follow and to remain accepted in circle friendship. In addition, social media become receptacle for student for express self, show creativity, and get confession from other people through the content they share. Interesting and varied content on social media, starting from entertainment until information educational, also become Power pull that makes student feel at home linger on the platform.

Apart from having benefit and impact for life social students, social media also provides benefit for learning. Through various social media platforms, students and teachers can each other communicate more easily and quickly, so that the learning process becomes more interactive and dynamic. Social media also provides access to a variety of source learning, such as video tutorials, articles, and discussions enriching group outlook students outside of the material given in class. In addition, social media can facilitate collaboration between student in do task or project together, even though they are in different places. With existence features like group learning and discussion forum, students can share ideas, ask questions, and

get bait come back in a way directly. In addition, social media can also increase motivation study student Because presentation more interesting and relevant material with their daily life. (Kirsi and Pohjolainen 2010) Teachers can also utilize social media for upload material learning, announcements, or give guidance more flexibly. With thus, social media not only become tool entertainment, but also become an effective and efficient learning media, which helps create atmosphere more open and creative learning. (Friedman and Friedman 2013)

TikTok is one of the social media that is popular among high school students. (Yang 2020) TikTok, initially known as an entertainment platform with short videos, now start utilized as an effective and interesting learning media for students and teachers. With a creative and easy short video format understood, TikTok allows delivery material learning in a way concise and visual so it's easier digested by students. Many teachers and educators make content education in the form of explanation concepts, study tips, or experiment simple as can be followed student with a fun way. In addition, TikTok also facilitates interaction between teachers and students through column comments, so that the question process answer can in progress informally and quickly. Use music, visual effects, and current trends popular on TikTok also makes material learning is more interesting and relevant with the world of children young, so can increase motivation and interest Study students. With Thus, TikTok is not only become an entertainment platform only, but also can functioning as a learning medium innovative that supports the education process in the digital era. (Sajonia 2024)

Panjura High School is one of the high schools in the city of Malang where the teachers are still Not yet Maximizing social media as a learning media that can be used increase motivation and results study economy students. The purpose of this study is for now effectiveness application of TikTok media and direct tutoring for increase results study economy students in the realm cognitive.

LITERATURE REVIEW

Digital Learning Theory

Distance learning is currently a new paradigm in the world of education in Indonesia, (Alam, Faizah, and Budi 2024) especially when the world is experiencing the Covid-19 pandemic. The world of education faces new challenges in implementing learning.(Salmi 2002) However, technology answers these new challenges through the latest technology-based revolution. (Shalaby 2024) In general, distance learning is a learning solution that cannot be reached by space due to distance. Distance learning is defined as a learning method where all learning instructions will occur when teachers and students are physically separated by distance. (Morell 1990) Distance learning also has flexibility for instructors and students. Distance learning is one of the fundamental theories of digital learning. The framework for the emergence of distance learning and this theory is the transactional distance theory. The emergence of this digital learning theory cannot be separated from the rapid development of technology, information, and communication. Internet networks and digital devices greatly support the implementation of digital learning. Digital learning has become the core of the 21st century educational revolution, going beyond the mere use of technology in the classroom to a holistic framework that explains how individuals learn effectively in an environment rich in digital technology. (Higgins 2014) The emergence of digital learning theory cannot be separated from the paradigm shift from traditional pedagogy to a more adaptive and personalized model, driven by rapid advances in information and communication technology (ICT).

Fundamentally, this theory argues that technology is not only a tool, but also an agent that shapes and changes cognitive processes and social interactions in learning.

One of the important foundations in digital learning theory is Connectivism.(Goldie 2016) (Alam 2023) Connectivism argues that learning in the digital era is a process of forming networks and connections. Knowledge is no longer confined to the individual's brain, but is spread across information networks, both managed by humans and non-humans (e.g., databases, online platforms). Therefore, the ability to navigate, filter, evaluate, and create connections between information becomes a core skill. In the digital context, students learn through interactions with various online resources, collaborating in virtual communities, and managing the constant flow of information, building their personal "learning ecology." This theory emphasizes the importance of learner autonomy, adaptability, and an understanding of how knowledge continues to develop in networks.

In addition, the Cognitive Theory of Multimedia Learning provides a strong foundation for instructional design in digital environments. (Sorden 2005) (Mayer and Moreno 1996) Effective learning occurs when material is presented in a multimedia format (a combination of text and images, or audio and images) that is designed to suit the way the human brain processes information in multiple channels (visual and auditory). Principles such as the multimedia principle (words and images are better than words alone), the modality principle (audio explanations are better than on-screen text for images), and the proximity principle (placing relevant words and images close together) are crucial. In the context of digital learning, the application of theory ensures that content presented through videos, interactive simulations, or e-books is designed to reduce cognitive load and maximize information processing by learners. Furthermore, digital learning theory also accommodates the principles of Social Constructivism that are relevant in the context of online collaboration. With digital platforms, students can participate in online discussions, virtual collaborative projects, and construct knowledge together through technology-mediated social interactions. Tools such as discussion forums, wikis, and shared documents enable learners to collectively construct understanding, reflect on ideas, and provide feedback to each other, enriching the learning experience.

Implicitly, digital learning theory also promotes the principles of personalization and adaptability. (Jarilkapovich 2025) Technology enables learning systems to adapt to the pace, learning style, and level of understanding of each student.(El-Sabagh 2021) Through adaptive learning systems and artificial intelligence (AI), learning content and activities can be adjusted in real-time based on student performance, providing targeted support and appropriate challenges. This is in line with the view that each learner is unique and learning experiences should be tailored to optimize individual potential. Thus, digital learning theory does not refer to a single theory, but rather a synthesis and adaptation of various pedagogical theories that are strengthened by the capabilities of digital technology. The essence lies in harnessing the full potential of technology to create learning experiences that are more personalized, interactive, collaborative, and relevant to the demands of 21st century skills. The main challenge lies in how educators can effectively integrate these principles to design learning environments that empower students in the evolving digital age.(Chansa Chanda et al. 2024)

Learning Outcomes

Learning outcomes is indicator main effectiveness of the learning process, reflecting change competencies, knowledge, and skills acquired participant educate after to go through a series activity educational. (Ribeiro et al. 2023) This concept is not only limited to score exam or mark end, but covers change cognitive (understanding, analysis, synthesis), affective (attitudes, values, interests), and psychomotor (skills, practical) which is integrated. In the realm of cognitive, Bloom's Taxonomy (good revision original and Anderson and Krathwohl's revision) offers framework Work very relevant hierarchy for classify and measure results study. Bloom's Taxonomy version original identify six cognitive domain levels, starting from from the most basic to the most complex: Knowledge (remembering facts), Understanding (interpreting, information), Application (using knowledge in situation new), Analysis (breaking down information become parts), Synthesis (combining parts become overall new), and Evaluation (making evaluation based on criteria). (Huitt 2011) Version revision change nomenclature to be a verb and a little modify sequence: Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating. (Pickard 1870)

Implementation Bloom's Taxonomy in design learning allow educator for set objective specific and measurable learning, starting from from mastery draft base until ability think level high. (Attia 2021) Various theory learning support idea that results optimal learning is achieved through interaction complex between characteristics individual participant educate (for example, motivation, learning style, ability beginning), quality of learning process (method) teaching, materials, teacher-student interaction), and the environment learning (means) infrastructure, class climate). Research shows that factors like involvement active participant educate, bait constructive feedback, and use relevant technology in a way significant correlated positive with improvement results study in various levels Bloom's Taxonomy. (Al Maani and Shanti 2023) Therefore, efforts improvement results Study need consider approach holistic targeting third realm the in a way simultaneously, with Bloom's Taxonomy as guide for ensure development competence cognitive participant comprehensive and sustainable education.

Social media Tiktok

TikTok, as a dominating social media platform global digital landscape, has shown diverse benefit significant beyond just entertainment. (Chalipah et al. 2024) (Anon 2024) One of the benefit the main thing is his role as vehicle expression self and motivation digital creativity. (Cai et al. 2020) Personal algorithms and intuitive short video formats allow user from various background behind for be creative without limits, explore identity, and show off talent they through dance, art, or narrative. (Kátai, Osztián, and Iclanzan 2024) This is not only increasing skills production content, but also build trust self and push innovation.

In addition, TikTok has proven effective in to form and strengthen community, especially among generation young. (Vainola 2024) (Burns-Stanning 2020) User can be connected with individuals who have interest similar through hashtags and trends, creating the space where they are feel accepted and supported. These communities often expand into various niches, ranging from from hobby specific until movement social, facilitating interactions and collaborations that go beyond limitation geographical.

Furthermore, TikTok also works as source information and education that is increasingly relevant. (Yélamos-Guerra and García-Gámez 2022) Many creators take advantage of this platform to spread knowledge in an easy format digestible and engaging, like short edutainment about science, history,

or tips practical every day. This opens access to information for possible audience no look for through channel traditional, making learning is more inclusive and engaging. In addition, for businesses and individuals, TikTok provides a powerful marketing and promotional platform with range wide, allowing they for connected direct with target audience through authentic and engaging content. (Pius Jack and Ebenezer Fcicn 2024) (Chaffey 2006) With thus, TikTok is not only just application entertainment, but ecosystem dynamic that empowers user in various aspect digital and social life. (Azni 2024)

Lecture Method

Lecture method, as one of the technique instructional oldest and most common used, involving delivery information in a way oral by educators to a group participant educate. (Liu, Wang, and Izadpanah 2023) In essence, this method relies on communication one direction from teacher to student, with objective main transfer knowledge, concepts, or fact in a way efficient to larger audience. (Mwasalwiba 2010) In general historical, lecture considered effective for convey a number of big information in time short and introductory material new to participant educate in a way structured. This is very useful when source other power is limited or when educator need serve description comprehensive general about a topic. Lectures can also function as inspiration a start that awakens interest participant educate to material lesson.

However, modern literature and research education in a way consistent highlight limitations significant from method lectures, especially If used in a way exclusive. (Tronchoni, Izquierdo, and Anguera 2022) Disadvantages main lies at the bottom level participation active participant educate, which tends to passive as recipient information. This can hinder development skills think critically, solving problems, and collaboration. In addition, the lack of bait come back direct from participant educate make it difficult educator for measure understanding in real-time, so that potential misconception No detected. Retention rate information also tends to be lower in method lecture compared to with a more interactive method, because participant educate not enough involved under construction knowledge they itself. Therefore, even though method lecture still own place in pedagogy (for example, for introduction topic or to summarize bullet points important), its effectiveness is most optimal when combined with other learning strategies that are more participatory and student - centered, such as discussion, study case, or activity practice, for ensure deep understanding and meaningful engagement.

METHOD, DATA, AND ANALYSIS

Method

This research method uses quasi-experimental approach with more than 1 (one) independent variable. This study uses two methods different teaching with different and differentiated classes in the experimental class and the control class. In each class there will be get treatment different. In the experimental class will be taught with using TikTok video media while in the control class it will teach with use method lecture. Result data Study taken with apply pre-test and post-test. Here is design quasi-experimental research.

Data

Data in This research was obtained from pre-test and post-test scores of grade XI students at Panjura High School, Malang, who will applied to the experimental class and control class. The population

in this study was class XI SMA Panjura Malang and took two classes for the research sample. For the control class and the experimental class. The sampling technique sample in This research is purposive sampling.

Table 1. Research Design

01	X1	O2
О3	X2	O4

Information:

O1 : Pre-test value of experimental class
O2 : Post- test score of experimental class

O3 : Pre-test value of control class
O4 : Post Test Score of control class
X1 : Actions using TikTok video media
X1 : Action of using method lecture

Analysis

Analysis Descriptive: Analysis descriptive used for presenting and describing research data that includes amount of data, value maximum, minimum value, and average value. Normality Test Normality test done for now is the research data normally distributed or no. Normal data is condition absolute before do parametric statistical analysis (independent sample t-test). Homogeneity Test like Homogeneity Test aiming For know whether a variance of two or more data is homogeneous or no. Homogeneous data is one of conditions that are not absolute in the independent sample t-test. In this study, the homogeneous test used For know whether variance of post-test data for the experimental class (TikTok video) and post-test data for the control class (method lecture) is of a nature homogeneous or no. Independent sample t-test is used for know what is up there is the difference in the average of two samples that are not paired. Independent sample t-test in This research is whether There is difference results Study with using TikTok Video media with method lecture.

RESULT AND DISCUSSION

Results

Analysis Results Descriptive

Analysis results descriptive data of experimental class and control class were analyzed with SPSS. Descriptive data served in the following table 2

Based on results analysis descriptive the known that in the experimental class and control class before treatment was carried out showing that the average result Study namely 64.00 in the experimental class and 62.80 in the control class. While at the time given treatment in the form of learning with using TikTok video media average results Study increase of 92.00 in the experimental class, and the average result study in the control class rose to namely of 76.60. From the results analysis descriptive the known that the average result learning in experimental class is better than the control class taught with use method friendly.

Table 2. Analysis Descriptive

		Min	Max	Mean	St Deviation
Pre-test Experimental Class	5	30.00	80.00	64.00	11.90238
Experimental Class Post Test	5	80.00	100.00	92.00	6.12372
Pre Test Control Class	5	40.00	75.00	62.80	10.21437
Pre Test Control Class	5	50.00	85.00	76.60	6.87992
Valid N (listwise)	5				

Normality Test

Based on the table above known that mark The significance of the experimental class pre-test was 0.141 > 0.05 and the post-test experimental class is 0.200 > 0.05 which indicates that the data in the experimental class normally distributed. In the control class it is known results of 0.135 > 0.05 in the pre-test of the control class and 0.187 > 0.05 in the post-test of the control class, which means that the data is normally distributed.

Table 3. Normality Test

Class				Shapi			
		Statistics		Sig.	Statistics		Sig.
Learning	Pre Test Experiment	.152	5	.141	.925	5	.065
outcomes	Post Test	.149	5	.200	.913	5	.064
Student	Experiment	.177		.200	.515		.004
	Pre Test Control	.153	5	.135	.918	5	.045
	Post-test Control	.158	5	.187	.910	5	.054

Homogeneity Test

Homogeneity test can be seen in the following table 4. Based on the results of the homogeneity test above can know that the level of significance of 0.668>0.05 which means that the variance of post-test data in the experimental class and post-test data in the control class is the same or homogeneous.

Table 4. Homogeneity Test

		Levene Statistics	df1	df2	Sig.
Learning outcomes Student	Based on Mean	.187	1	8	.668
	Based on Median	.235	1	8	.630
	Based on Median and with Adjusted df	.235	1	7,088	.630
	Based on trimmed mean	.187	1	8	.667

Independent Sample T-test

In the analysis previously known that the homogeneity test has stated homogeneous, therefore the condition independent sample t-test testing can done. From the data analysis using with the help of SPSS, the independent sample t-test can be carried out known as following.

Levene's Test for t-test for Equality of Means Equality of Variances 95% Confidence Interval of the Mean Std. Error ig. (2-Difference f Difference Difference ig. tailed) Lower Upper Learning Equal 14,000 outcomes variances 1,849 10,282 17,718 187 ,570 8 000 668 Student assumed Equal variances 14,000 1.849 10,281 17,719 .570 7,455 000 not assumed

Table 5. Independent Sample T-test

Based on the output above Sig. value (2-tailed) is 0.000<0.05 then can concluded that There is average difference in results Study student between learning using TikTok Video learning media with method lecture.

Discussion

Learning using TikTok video media Enough effective For increase results Study students on Budget State Revenue and Expenditure material (APBN). Learning outcomes at SMA Panjura Malang show that the use of TikTok video media has proven to be more effective compared to method lecture conventional. This effectiveness is seen from improvement understanding student to APBN material, participation active during the learning process, and improvement mark evaluation Study after using the media. One of them reason main difference results this learning lies in the characteristics generation student currently, which includes in generation Z, namely very familiar generation with technology and social media. (Levickaite 2010) Generation very close now with technology and use social media. Impact positive from use technology and social media is how student can utilizing social media as source flexible learning. (Tarihoran et al. 2022) Students at SMA Panjura Malang show trend learning that is visual, fast, and interactive. They are more interested in content that is short, interesting visually, and easily accessible, as offered by the TikTok platform. (Abidin et al. 2020)

Different with method a lecture that tends to One direction and need concentration tall in term for a long time, TikTok video media was able serve material learning in a more dynamic and engaging

format.(Taha 2021)In addition, TikTok videos facilitate learning contextual with example real, and allow repetition material in a way independent by students whenever they are need it. Character Panjura High School students who tend to active, fast bored with method monotonous, and more comfortable Study through digital media makes This approach is very relevant. Therefore, the integration of social media like TikTok in learning is step strategic for increase quality results learning in today's digital era.(Fadhillah et al. 2024)

In addition to providing improvement results learning, the use of TikTok video media is also significant influence motivation and engagement student in the learning process. At SMA Panjura Malang, students tend show high interest to the material presented in short video format packaged in a way creative. TikTok videos provide variation in presentation content from animation, illustration, to music background that makes learning feel fun and not monotonous. Different with method lectures that rely on communication one direction from teachers, TikTok videos facilitate more interactive and reflective learning, because student can access repeat material anytime suitable need they.

Character study students at Panjura High School Malang reflect characteristics typical style audiovisual and kinesthetic learning, which is easier absorb information through images, sounds, and movements. Many of they are also used to it with microlearning concept learning in duration short However congested content. TikTok, with its short video duration limit, is suitable for convey the core material in a way summary however interesting. In addition, this media opens room for student for become creator content learning alone, which means they not only accept material, but also active process and deliver return in creative form. This activity is no direct increase understanding concepts and capabilities think critical student. (Hutsalo et al. 2024)

Difference results Study between TikTok video media and methods lectures can also be caused by changes paradigm in the world of education. Students now it is no longer enough only become listener passive, but rather need facilitated to be involved active in the learning process. TikTok is able to bridge this need by utilizing technology that is close to students' daily lives. With consider character and needs Adaptive students of Panjura High School in Malang to technology and visual learning, the use of TikTok video media has great potential for applied more broadly as a learning strategy innovative in the digital era.

CONCLUSION

Based on results learning at Panjura High School, Malang, can concluded that more effective use of TikTok video media compared to method lecture in increase results Study students. This effectiveness is not only shown through improvement values and understanding material, but also through improvement motivation learning and engagement active student in the learning process. Character Students at Panjura High School tend to be visual, active, and close with the digital world, media like TikTok is more suitable with style Study they. TikTok is able to serve material learning in a way short, interesting and easy accessed, so that answer challenge learning in the modern era that requires approach creative and innovative.

LIMITATION AND SUGGESTIONS

Results in This study shows that TikTok video media is more effective compared to method lecture in increase results Study students at Panjura High School Malang, there are weaknesses and limitations that is limited to one school and subjects certain that is students of class XI of Panjura High School, Malang so that results This research has not been done yet can generalized to other schools and characters other students in the environment Study them. Suggestions that can be given on the results This research is for teachers and students is able integrate technology and social media for source Study alternative to increase motivation and learning outcomes.

REFERENCES

- Abidin, Zaenal, Achmad Nizar Hidayanto, Dedi I. Inan, Amira Luthfia Fitriani, Atikah Zahrah Halim, M. Farhan Mardadi, and Rizkah Shalihah. 2020. Social Computing and Social Media. Participation, User Experience, Consumer Experience, and Applications of Social Computing. Vol. 12195 LNCS.
- Alam, Ghasa Faraasyatul, Nurul Faizah, and Bambang Budi. 2024. "Journal of Integrated Sciences Indonesia' S Future: A New Educational Paradigm To Meet The Challenges Of." 4(4):116–38.
- Alam, Md Afroz. 2023. "Connectivism Learning Theory and Connectivist Approach in Teaching and Learning: A Review of Literature." *Bhartiyam International Journal Of Education & Research A Quarterly Peer Reviewed International Journal of Research & Education* 12(Ii):2277–1255.
- Almazroa, Hiya, and Wadha Alotaibi. 2023. "Teaching 21st Century Skills: Understanding the Depth and Width of the Challenges to Shape Proactive Teacher Education Programmes." *Sustainability* (Switzerland) 15(9).
- Anandita, Aulia Silvina, Ridho Adi Negoro, and Lusy Rahmawati. 2025. "Universitas Papua Transforming Physics Learning Media in Indonesian Senior High Schools: A Decade of Systematic Innovation Review (2014 2024) Transformasi Media Pembelajaran Fisika Di SMA Indonesia: Kajian." 8(1):234–45.
- Anon. 2024. "TikTok as Television Navigating Algorithmic Entertainment in the Platform Era."
- Attia, A. S. 2021. "Bloom's Taxonomy as a Tool to Optimize Course Learning Outcomes and Assessments in Architecture Programs." *Journal of Applied Science and Engineering* 24(3):315–22.
- Azni, Ulfa Sevia. 2024. "The TikTok Application: A Virtual Portal for Manifesting the Collective Aspirations of the Masses." *Journal of Sumatera Sociological Indicators* 3(01):260–78.
- Brown, Phillip. 2024. "Education, Opportunity and the Future of Work in the Fourth Industrial Revolution." *British Journal of Sociology of Education* 45(4):475–93.
- Burns-Stanning, Kelly. 2020. "Identity in Communities and Networks TikTok Social Networking Site Empowering Youth Civic Engagement." *NetworkConference*. *NetStudies* 1–11.
- Cai, Wenjing, Svetlana Khapova, Bart Bossink, Evgenia Lysova, and Jing Yuan. 2020. "Optimizing Employee Creativity in the Digital Era: Uncovering the Interactional Effects of Abilities, Motivations, and Opportunities." *International Journal of Environmental Research and Public Health* 17(3).
- Chaffey, Dave. 2006. "Total E-Mail Marketing: Maximizing Your Results from Integrated e-Marketing, Second Edition." *Total E-Mail Marketing: Maximizing Your Results from Integrated E-Marketing, Second Edition* 1–275.
- Chalipah, Desti, Hurin Dzatil Ishmah, Isti Masitoh, Luthfiyyah Azzahrah, Saphira Nava Edrea, and Nurhaliza Chardi Subing. 2024. "The Essence of Tiktok Social Media Content: Opportunities and Challenges in Popularizing Local Cultural Identity." 1(1):29–37.
- Chansa Chanda, Thelma, Zohaib Hassan Sain, Daniel L. Mpolomoka, Wisdom Matthew Akpan, Chanda Chansa Thelma, and Mainde Davy. 2024. "Curriculum Design for the Digital Age: Strategies for Effective Technology Integration in Higher Education." *International Journal of Research* (*IJR*) *International Journal of Research* 11(07):185–201.
- El-Sabagh, Hassan A. 2021. "Adaptive E-Learning Environment Based on Learning Styles and Its Impact on Development Students' Engagement." *International Journal of Educational Technology in Higher Education* 18(1).
- Fadhillah, Nurul, Elsya Alfitri Sirega, Umi Hasana, Pitri Lestari, and Fadhlur Rahman. 2024. "Society 5.

- 0 in Education: Interactive Learning through Digital Media Integration on Teaching Speaking." 01(Dx):392–402.
- Fan, Guangrui, Dandan Liu, Rui Zhang, and Lihu Pan. 2025. "The Impact of AI-Assisted Pair Programming on Student Motivation, Programming Anxiety, Collaborative Learning, and Programming Performance: A Comparative Study with Traditional Pair Programming and Individual Approaches." *International Journal of STEM Education* 12(1).
- Fitria, Dwi, Al Husaeni, Dwi Novia, Al Husaeni, Asep Bayu, Dani Nandiyanto, and Mauhibur Rokhman. 2024. "Asean Journal of Science and Engineering, Vol 4, No 2 (2024)." 4(2):62045.
- Friedman, Linda Weiser, and Hershey H. Friedman. 2013. "Using Social Media Technologies to Enhance Online Learning." *Journal of Educators Online* 10(1).
- Goldie, John Gerard Scott. 2016. "Connectivism: A Knowledge Learning Theory for the Digital Age?" *Medical Teacher* 38(10):1064–69.
- Habibulloh, Muh, Muh Ibnu Sholeh, and Khoirotul Idawati. 2024. "Exploring Technological Innovations and Approaches in Modern Education." 1(1):56–76.
- Higgins, Steve. 2014. "Critical Thinking for 21st-Century Education: A Cyber-Tooth Curriculum?" *Prospects* 44(4):559–74.
- Huitt, W. 2011. "Bloom et Al.'s Taxonomy of the Cognitive Domain." Educational Psychology Interactive.
- Hutsalo, Liudmyla, Iryna Skliar, Andrii Abrosimov, Nataliia Kharchenko, and Oleksandra Ordanovska. 2024. "Strategies for Developing Critical Thinking and Problem-Based Learning in the Modern Educational Environment." *Multidisciplinary Science Journal* 6.
- Jarilkapovich, Matjanov Aman. 2025. "Program Technology for Choosing an Effective Educational Methodology Based on Modern Pedagogical Research in The Educational System." 06:30–33.
- Kátai, Zoltán, Pálma Rozália Osztián, and David Iclanzan. 2024. "Enacting Algorithms: Evolution of the Algorythmics Storytelling." *Education and Information Technologies* 19197–228.
- Kencana, Woro Harkandi, and Meisyanti Meisyanti. 2020. "The Implementation of Mass Media Digital Platform in Indonesia." *Komunikator* 12(2).
- Kirsi, Silius, and Seppo Pohjolainen. 2010. "Students' Motivations for Social Media Enhanced Studying and Learning Students' Motivations for Social Media Enhanced Studying and Learning Kirsi Silius * Thumas Miilumäki Jukka Huhtamäki Teemo Tebest Joonas Meriläinen Seppo Pohjolainen." (March).
- Levickaite, Rasa. 2010. "Y, x, z Kartos: Pasaulio Be Sienu Idejos Formavimas Naudojantis Socialiniais Tinklais (Lietuvos Atvejis)." *Limes* 3(2):170–83.
- Liu, Feifei, Xiaoli Wang, and Siros Izadpanah. 2023. "The Comparison of the Efficiency of the Lecture Method and Flipped Classroom Instruction Method on EFL Students' Academic Passion and Responsibility." SAGE Open 13(2):1–15.
- Al Maani, Duaa, and Zaher Shanti. 2023. "Technology-Enhanced Learning in Light of Bloom's Taxonomy: A Student-Experience Study of the History of Architecture Course." *Sustainability (Switzerland)* 15(3).
- Mayer, Richard E., and Roxana Moreno. 1996. "A Cognitive Theory of Multimedia Learning: Implications for Design Principles." 1–10.
- Morell, Allen N. 1990. "Distance Learning." SAE Technical Papers 152:82–88.
- Mwasalwiba, Ernest Samwel. 2010. "Entrepreneurship Education: A Review of Its Objectives, Teaching

- Methods, and Impact Indicators." *Education and Training* 52(1):20–47.
- Pickard, Mary J. 1870. "Ratification Des Articles Additionnels à La Convention de Genève." *Bulletin International Des Societes de Secours Aux Militaires Blesses* 1(4):159.
- Pius Jack, By K., and E. Ebenezer Fcicn. 2024. "Social Media Platform and Business Promotion: The Prospect And Strategies." *International Journal Of Current Innovations In Education* 7(1):2646–7380.
- Ribeiro, Luísa Mota, Francisca Miranda, Carmo Themudo, Helena Gonçalves, Robert G. Bringle, Pedro Rosário, and Pilar Aramburuzabala. 2023. "Educating for the Sustainable Development Goals through Service-Learning: University Students' Perspectives about the Competences Developed." Frontiers in Education 8(August):1–14.
- Sajonia, Kethelle I. 2024. "#EduWOW: TikTok App as an Educational Creative Platform." *Educational Administration: Theory and Practice* (April).
- Salmi, Jamil. 2002. "Facing the Challenges of the Twenty-First Century." *Perspectives: Policy and Practice in Higher Education* 6(1):8–12.
- Shalaby, Ahmed. 2024. "New Model for Digital Sustainable Growth: Insights from Human Biology and Surgical Approach a Retrospective Analysis of 15 Years of Constant Socio-Economic Innovations at the Human Information Technology Lab, Finland." *Digital Economy and Sustainable Development* 2(1):1–20.
- Sorden, Stephen D. 2005. "A Cognitive Approach to Instructional Design for Multimedia Learning." *Informing Science* 8:263–79.
- Taha, Abdallah. 2021. "The Wave of Change in The Methods of Education Brought by Social Media: A Case Study of TikTok's Potential for Educational Content Creators MASTERTHESIS to Obtain the Erasmus Mundus Joint Master Degree in Digital Communication Leadership (DCLead) Of." 1–95.
- Tarihoran, Nafan, Eva Fachriyah, Tressyalina, and Iin Ratna Sumirat. 2022. "The Impact of Social Media on the Use of Code Mixing by Generation Z." *International Journal of Interactive Mobile Technologies* 16(7):54–69.
- Tronchoni, Héctor, Conrad Izquierdo, and M. Teresa Anguera. 2022. "A Systematic Review on Lecturing in Contemporary University Teaching." *Frontiers in Psychology* 13(November).
- Tseng, Kuo Hung, Feng Kuang Chiang, and Wen Hua Hsu. 2008. "Interactive Processes and Learning Attitudes in a Web-Based Problem-Based Learning (PBL) Platform." *Computers in Human Behavior* 24(3):940–55.
- Vainola, Roman. 2024. "Evaluating the Effectiveness of Social Media as a Means of Strengthening Family Values Among Young People." 2:24–38.
- Vesperi, Walter, Ineza Gagnidze, and Tetiana Sobolieva. 2024. "Industrial Revolutions and Human Capital for the New Normal: A Cross-Country Analysis of the University System." *International Journal of Organizational Analysis* 2402–17.
- Widdah, Minnah El, and Abdullah Yunus. 2025. "Principal Strategies in Improving Information and Communication Technology Competence in Teachers." 04(02):335–47.
- Windschitl, Mark, Jessica Thompson, and Melissa Braaten. 2008. "Beyond the Scientific Method: Model-Based Inquiry as a New Paradigm of Preference for School Science Investigations." *Science Education* 92(5):941–67.
- Yang, Huining. 2020. "Secondary-School Students' Perspectives of Utilizing Tik Tok for English Learning

- in and beyond the EFL Classroom." (Etss):162-83.
- Yansyah, Medi, Fungky Marian, and Ratna Tri Utami. 2025. "Teacher Performance and Learning Media Innovation: A Literature Review." 5(1):1–13.
- Yélamos-Guerra, María Salomé, and María García-Gámez. 2022. "The Use of TikTok in Higher Education as a Motivating Source for Students." *Porta Linguarum* 2022(38):83–98.