APPLICATION OF INSTAGRAM AS A GLOBAL WARMING LEARNING MEDIA TO STUDENTS
(STUDY CASE SMAN 2 KLATEN REGENCY, INDONESIA)

Siti Azizah Susilawati[1*], Firda Nur Fatta[1], Nanda Khoirunisa[2], dan Rita Noviani[3]
[1]Geography Education Study Program, Universitas Muhammadiyah Surakarta, azizah.susilawati@ums.ac.id,
firdanf88@gmail.com
[2]Geophysics Study Program, Universitas Mulawarman, nandakhoirunisa@fmipa.unmul.ac.id
[3]Geography Education Study Program, Universitas Sebelas Maret, ritanoviani@staff.uns.ac.id

ABSTRAK

Abstrak: Pemanasan global merupakan fenomena yang mempengaruhi kehidupan manusia dalam berbagai aspek, termasuk kehidupan sehari-hari siswa. Oleh karena itu, media pembelajaran mengenai pemanasan global menjadi sangat penting. Penelitian ini bertujuan untuk mengetahui efektivitas penggunaan Instagram sebagai media pembelajaran yang inovatif dalam meningkatkan pemahaman siswa terhadap materi pemanasan global, serta menganalisis persepsi siswa terhadap media tersebut. Penelitian dilakukan di SMAN 2 Klaten kelas XI IPS 2 dengan sampel 35 siswa menggunakan desain pre-eksperimental (pra-tes dan pasca-tes). Hasil penelitian menunjukkan bahwa 86% siswa memiliki persepsi positif terhadap akun Instagram @fakta_globalwarming. Selain itu, terdapat peningkatan signifikan pada hasil belajar siswa setelah menggunakan Instagram sebagai media belajar dengan peningkatan rata-rata sebesar 27%. Hasil ini menunjukkan bahwa Instagram efektif digunakan sebagai media pembelajaran. Diharapkan hasil penelitian ini dapat menjadi dasar dalam mengembangkan strategi pembelajaran berbasis digital yang lebih menarik dan relevan di era industri 4.0.

Kata Kunci: Pemanasan global; Media pembelajaran; Instagram; Keefektifan.

Abstract: Global warming is a phenomenon that affects various aspects of human life, including students' daily activities. Therefore, learning media that address global warming are critically important. This study aims to examine the effectiveness of using Instagram as an innovative learning medium to enhance students' understanding of global warming and to analyze students' perceptions of the platform. The research was conducted at SMAN 2 Klaten, class XI IPS 2, with a sample of 35 students using a pre-experimental design (pre-test and post-test). The results show that 86% of students had a positive perception of the Instagram account @fakta_globalwarming. In addition, there was a significant improvement in students' learning outcomes after using Instagram as a learning tool, with an average increase of 27%. These findings indicate that Instagram is an effective learning medium. It is hoped that the results of this study can serve as a foundation for developing more engaging and relevant digital learning strategies in the era of Industry 4.0.

Keywords: Global Warming; Learning Media; Instagram; Effectiveness.

A. INTRODUCTION

Globalization affects all the aspects of life to face industrial revolution 4.0. This phenomenon advances information and technology, which every entity will always connect for an industrial environment (Schlechtendahl et al., 2015). The field of Information and Communication Technology (ICT) at the end of the 20th, gave rise to the mass Internet generation that led to the fourth industrial revolution (Sima et al., 2020). The industrial revolution will bring many impacts, including education. In the world of education, digital technology can be seen as a means that students can learn without space and time. It makes all the learning material can be accessed anywhere and anytime. Everyone must have critical thinking skills, digital literacy skills, knowledge and abilities in information literacy, information, and communication technology following the times to prepare to learn in the 21st century (Frydenberg & Andone, 2011). Technology is the main element in the 4.0 industrial revolution. In terms of instructor instruction, creating carefully proficient understudies has, for the most part, implied prioritizing specialized aptitudes in utilizing advanced devices and framework regarded suitable to instructive settings and distinguishing how these can be used inside specific units of learning (Admiraal et al., 2017).

The influence of the industrial revolution in education demands an appropriate learning model is needed in the modern era. The learning model utilizes information and technology optimally to facilitate teaching and learning activities (Saputera & Tamburian, 2019). The dissemination can reduce the availability of knowledge through technological media in the digital era. Innovation and creation are needed to make it easier for students to access learning materials, so the purpose of the learning itself can be easily achieved (Wagiran, 2007). Digital learning media can be in the form of up-to-date innovation media. One of the innovations that can be done is the dissemination of information through Instagram media. Based on research from www.tirto.id conducted in 2017 regarding that generation "Z", who were born between 1996 and 2010 it is stated that the most popular social media service used is Instagram.

Instagram is a smartphone application in the form of social media that has almost the same functions as Twitter; it's just that both have differences in the use of photos and videos, where Instagram uses photos and videos as a place to share information for its users, (Atmoko, 2012). Instagram is a social media that is very commonly used by young people, especially by students. In addition to using photos, the available information can be videos, live broadcasts, stories, and Instagram tv. According to the latest results from the Statista Research Department 2020, it shows that Indonesia is the largest Instagram user in the Asia Pacific, where Instagram account users are dominated by the age of 18-24 years by 36.3% and those aged 13-17 years have a percentage of 12.6% of the total. A total of 24 million Instagram users in Indonesia reinforces why Instagram deserves to be used as a learning innovation in the digital era. The use of Instagram among students is expected to arouse curiosity about the learning materials delivered through Instagram, especially in this study, Global warming. Ease of access and students' interest in social media Instagram can solve varied teaching and learning activities.

Social media has become an internet-based medium in the modern era that can allow users to present themselves. Furthermore, social media can socialize, collaborate, and exchange information with other users to form a virtual social network (Nasrullah, 2015). Teaching and learning activities are a form of activity

or activity that occurs in human life, especially in the educational environment. Learning is an activity carried out by a person to achieve the goals or competencies that have been formulated; the existence of learning activities makes a person gain better knowledge, skills, and attitudes. Learning activities in having virtues can improve personal abilities (Pribadi, 2009).

The existence of communication activities between teachers as transmitters of information in learning or what we usually call learning materials with students as recipients of learning materials is called learning (Sanjaya, 2012). Existing education runs effectively and efficiently when the existing learning process can be designed into a complete and coherent learning activity (Warsita, 2008). In the industrial revolution era, it is necessary to have creative human resources with high quality, creative skills, understand the diversity of the nation's culture, and have the desire to learn for life (Musfiqon, 2012).

The implementation of innovative learning can combine several suitable learning methods for students, the characteristics of learning materials, and the infrastructure available in learning activities. The use of digital technology as learning support is expected to be an active learning tool that can trigger students' conceptual understanding of the objects studied (Putrawangsa & Hasanah, 2018). Global warming is an important issue that needs to be known by various parties, especially students, through education because global warming is a phenomenon in direct contact with students. Its impact can be felt in multiple aspects of daily life (Riyanto, 2007). In the modern era, this can be done by disseminating information through online media coverage. Online media can facilitate the delivery of information related to natural disasters (Lestari et al., 2018). Instagram is one of the most accessible online media, including students. Students often access Instagram social media, making it easier to receive learning materials shared through Instagram feeds packaged attractively. Students can easily accept a learning material if packaged in an attractive manner.

Based on the aforementioned background, this study aims to explore students' perceptions of using Instagram as a learning medium and to analyze its effectiveness in enhancing students' understanding of global warming. It is hoped that the use of Instagram can serve as an effective and engaging alternative learning medium, aligned with the characteristics of 21st-century learners.

B. METHOD

This research is quasi-experimental research with a quantitative approach method. The research instrument is a questionnaire sheet. The steps for conducting experimental research can be done in the following ways:

1. Conduct inductive studies on the problems to be discussed or resolved;
2. Identify problems, and define issues related to the research to be carried out;
3. Increase references through literature studies sourced from relevant sources to make research hypotheses be carried out;
4. Make a research plan;

The first research design was carried out by determining the control class and the experimental class first. The determination of the class was chosen based on the students' geography subject scores obtained from the daily scores of the geography subjects of class XI IPS SMAN 2 Klaten from the data of the geography subject teacher. After determining the control and experimental classes, then a

pre-test was carried out on the two categories. The next stage is that the two types receive the global warming material; in the control class, learning is carried out using conventional methods, but special treatment or treatment has been previously determined for the experimental type. In the next step, the researcher gave a test as a final assessment. This test also determines whether the treatment or treatment given affects the increase in knowledge about global warming in students. The treatment process is carried out through social media on Instagram, which contains a feed of knowledge of global warming material packaged attractively. The following is an overview of the pre-test and post-test non-equivalent control group research design:

Table 1. Overview of Research Design

Class	Pre-test	Treatment	Post-tests
Control	O1	X1	O2
experiment	O1	X2	O2

Information: O1: Pretest score (before treatment)
O2: Posttest score (after treatment)
X1: the treatment given is in the form of conventional learning
X2: special treatment given

The feeds presenting the latest information displayed in an attractive feed of Instagram that is expected to make student learning activities more enjoyable so that it is easy to achieve learning goals. The picture above is a collection of Instagram feeds uploaded to an Instagram account used as a student learning medium. Instagram feeds contain important information about facts about global warming, how to tackle and mitigate global warming. With the fascinating Instagram feeds, it's hoped students will be more interested in learning about global warming.

C. RESULT & DISCUSSION

The study was fulfilled to know the tall school students' recognition of the utilizes of Instagram as a medium to make strides in global warming information. The eleventh-grade students of SMAN 2 Klaten from social major were chosen here as the study participant. Thirty-five students were asked to fulfill the questionnaire and were selected to share their feelings and ways of using social media to learn about global warming. The gender of the respondents is described below:
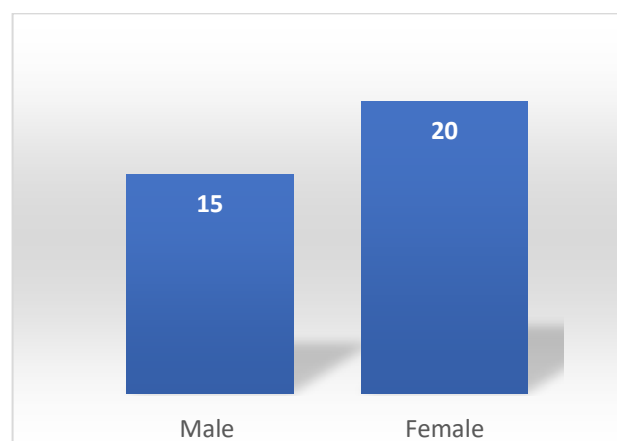
Figure 1. The number of Students based on Gender

Table 2. Paired Samples Statistics Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-test	6.4571	35	.74134	.12531
	Post-test	8.1714	35	.92309	.15603

Table paired samples statistics shows the descriptive value of each variable in the paired sample. The initial test has an average value of 6.4571 from 35 data. The data distribution (std. deviation) obtained is 0.74134 with an error of 0.668. The final test has an average score of 8.1714 from 35 data. The data distribution (std. deviation) obtained is 0.92309 with an error of 0.15603. This shows that the final test on the data is higher than the initial test, but the distribution range of the last test data is also getting wider with a higher standard error.

Table 3. Paired Samples Correlations Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Pre-test & Post-test	35	.441	.008

The paired sample correlations table shows the correlation value, which shows the relationship between the two variables in the paired sample. Based on the output above, it is known that the correlation value is 0.441 with a significance value of 0.008. Wilcoxon (non-parametric because it's not normal on the spiro-wick).

Table 4. Result of Test Statistics

	Post-test and Pre-test
Z	-5.098b
Asymp. Sig. (2-tailed)	.000
a. Wilcoxon Signed Ranks Test	
b. Based on negative ranks.	

Based on the calculation results of the Wilcoxon signed-rank test, the z value obtained is -5.098 with a p-value (Asymp. sig 2 tailed) of 0.000 which means there is a significant difference between the pretest and posttest groups.

**Table 5.** Descriptive Statistics Descriptive Statistics

	N	Mean	Std. Deviation	Min	Max
PreTest	35	6.4571	.74134	5.00	8.00
PosTest	35	8.1714	.92309	6.00	10.00

The descriptive statistics table above shows each data group's mean, standard deviation, and minimum and maximum values (pre-test and post-test). It can be seen that the mean value of the post-test is greater than the pretest, which is 8.1714, while the mean value of the pretest is 6.4571. The increase in post-test scores indicates that the visual and interactive approach offered by Instagram

plays a significant role in capturing students' attention and enhancing their conceptual understanding. Additionally, the flexibility of accessing information outside of class hours enables students to engage in self-directed learning. Other findings have also suggested that social media, particularly Instagram, is effective as a communication tool for environmental issues.

The increase in the average value score of the student's test (through the results of the posttest and pretest) shows a significant increase in numbers; this is means that the use of Instagram as a learning media can increase students' knowledge about global warming. With the rise of students' scores in test results, it can also be seen that students get better results after using Instagram as a learning media; this research proves that the use of Instagram is effective for students. The same study results stated that Instagram is best utilized as a tool to communicate climate change messaging (Hodson et al., 2018). For last few decades have seen a rise in public figures and pop culture items focused on raising awareness on climate change through compelling campaigns, utilizing the propels of innovation (Mavrodieva et al., 2019).

Thus, High school students got to take part in issues related to global warming where choices and activities require a critical way of life changes. Instagram appeared to be more spurred, and they adore taking part and connecting with their peers as Instagram has fuelled their intrigued towards learning (Mansor & Rahim, 2017). Instagram would give continuous extended-lasting learning about what is imperative in day-to-day life and offer assistance to understudies to adapt to changes in their day-by-day lives.
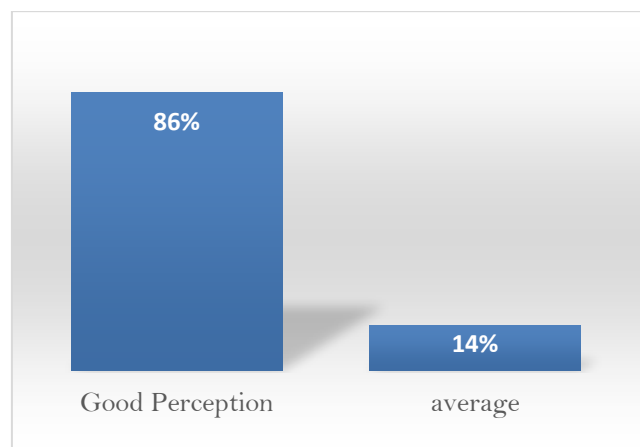
Figure 5. Students Perceptions

Figure 5, described that 86% of students agree that Instagram is an exciting learning media; with Instagram as a learning media, it makes learning activities more fun, varied, not dull, and become something new that students can access anytime and anywhere. (Salomon, 2013) agreed and added that Instagram has gained a person's interest and confidence in expressing ideas virtually and unveiled that the students involved in Instagram interactions seemed to have built their confidence. Moreover, utilizing Instagram as a learning asset may be

a potential that ought to be engaged. Instagram could be a device that can be introduced on a portable phone to back successful and effective learning (Gonulal, 2019).

The results showed that students' perceptions of Instagram as a global warming learning media showed 86% of students gave a good perception. In a similar study, Instagram encouraged students' composing aptitudes in terms of new lexicon and expanded learning motivation. Students will be more motivated to learn (Thaariq, 2020). In contrast, the Wilcoxon test results on global warming learning outcomes using Instagram @fakta_globalwarming is the probability value (Asymp.sig) is 0.00< 0.05 then H0 is rejected, which means that there is a significant difference in the average value of the pretest and posttest. The effectiveness of Instagram @fakta_globalwarming in global warming material in this study is shown by an increase in the middle learning outcome of 27%.

D. CONCLUSSION

Based on the findings of this study, it can be concluded that Instagram is an effective and engaging learning medium for teaching global warming concepts. The majority of students expressed positive perceptions of its use and demonstrated a significant improvement in their learning outcomes, with an average score increase of 27%. The visual and interactive nature of Instagram plays a vital role in capturing students' attention and enhancing their conceptual understanding. Moreover, its accessibility beyond classroom hours supports independent learning and aligns with the characteristics of the digital generation. Instagram not only makes learning more enjoyable and flexible, but also serves as a relevant and modern tool for delivering thematic content, particularly on environmental and climate change issues. Therefore, teachers and educators are encouraged to integrate social media platforms like Instagram into their teaching strategies. To further validate and expand upon these findings, future research is recommended using a full experimental or mixed-method approach. This will allow for a deeper investigation into additional variables such as student motivation, information retention, and the development of environmentally responsible attitudes.

ACKNOWLEDGEMENTS

REFERENCES

Admiraal, W., van Vugt, F., Kranenburg, F., Koster, B., Smit, B., Weijers, S., & Lockhorst, D. (2017). Preparing pre-service teachers to integrate technology into K–12 instruction: evaluation of a technology-infused approach. Technology, Pedagogy and Education, 26(1), 105–120. https://doi.org/10.1080/1475939X.2016.1163283

Atmoko, B. D. (2012). Instagram Handbook. Media Kita.

Frydenberg, M., & Andone, D. (2011). Learning for 21 st Century Skills. International Conference on Information Society, i-Society 2011, 314–318. https://doi.org/10.1109/i-society18435.2011.5978460

Gonulal, T. (2019). The use of instagram as a mobile-assisted language learning tool. Contemporary Educational Technology, 10(3), 309–323. https://doi.org/10.30935/cet.590108

Hodson, J., Dale, A., & Petersen, B. (2018). The Instagram #climatechange hashtag community: Does it impact social capital and community agency? International

Journal of Interdisciplinary Environmental Studies, 12(3–4), 17–35. https://doi.org/10.18848/2329-1621/CGP/v12i03/17-35

Lestari, P., Ramadhaniyanto, B., & Wardyaningrum, D. (2018). Pemberitaan di Media Online untuk Pengurangan Risiko Bencana Gunung Sinabung. Jurnal Kajian Komunikasi, 6(1), 106. https://doi.org/10.24198/jkk.v6i1.15168

Mansor, N., & Rahim, N. A. (2017). Instagram in ESL Classroom. Man In India, 97(20), 107–114.

Mavrodieva, A. V., Rachman, O. K., Harahap, V. B., & Shaw, R. (2019). Role of social media as a soft power tool in raising public awareness and engagement in addressing climate change. Climate, 7(10). https://doi.org/10.3390/cli7100122

Musfiqon. (2012). Panduan Lengkap Metode Penelitian Pendidikan. Prestasi Pustakaraya.

Nasrullah, R. (2015). Media Sosial, Perspektif Komunikatif, Budaya, dan Sosioteknologi. Simbiosa Rekatama Media.

Pribadi, B. A. (2009). Model Desain Sistem Pembelajaran. Dian Rakyat.

Putrawangsa, S., & Hasanah, U. (2018). Integrasi Teknologi Digital Dalam Pembelajaran di Era Industri 4.0. Jurnal Tatsqif, 16(1), 42–54. https://doi.org/10.20414/jtq.v16i1.203

Riyanto. (2007). Strategi Mengatasi Pemanasan Global (Global Warming). Jurnal.Unimus.Ac.Id, 3(September), 119–122.

Salomon, D. (2013). Moving on from Facebook: Using Instagram to connect with undergraduates and engage in teaching and learning. College and Research Libraries News, 74(8), 408–412. https://doi.org/10.5860/crln.74.8.8991

Sanjaya, W. (2012). Media Komunikasi Pembelajaran. Kencana Prenada Media Group.

Saputera, R., & Tamburian, D. (2019). Pemanfaatan Media Sosial Instagram oleh Endorser dalam Membangun Citra Diri. Prologia, 2(2), 473. https://doi.org/10.24912/pr.v2i2.3732

Schlechtendahl, J., Keinert, M., Kretschmer, F., Lechler, A., & Verl, A. (2015). Making existing production systems Industry 4.0-ready: Holistic approach to the integration of existing production systems in Industry 4.0 environments. Production Engineering, 9(1), 143–148. https://doi.org/10.1007/s11740-014-0586-3

Sima, V., Gheorghe, I. G., Subić, J., & Nancu, D. (2020). Influences of the industry 4.0 revolution on the human capital development and consumer behavior: A systematic review. Sustainability (Switzerland), 12(10). https://doi.org/10.3390/SU12104035

Thaariq, Z. Z. A. (2020). The Use of Social Media as Learning Resources to Support the New Normal. Teknodika, 18(2), 80. https://doi.org/10.20961/teknodika.v18i2.42181

Wagiran. (2007). Inovasi Pembelajaran Dalam Penyiapan Tenaga Kerja Masa Depan. JPTK, Vol.16, No.

Warsita, B. (2008). Teknologi Pembelajaran, landasan dan Aplikasinya. Reneka Cipta.