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Impact of Social Media Usage in e-learning towards Students' Academic Achievements during Pandemic Covid19

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Abstract

With the advancement of technology, social media positively and negatively influence students' academic achievement, mainly in higher institutions. The increased number of social media accounts shows that teenager mostly spends their time on social media. Thus, this paper will discuss and assess the impact of social media usage in an e-learning environment on student academic achievement in a higher education institution. Social media could be a tool or learning aid for them to improve their academic by joining online group learning, virtual meetings, and video conferencing to communicate with an expert within their field. The published and unpublished work has been dug out through online platforms to know and understand the impact of social media on student academic achievement.

Keywords: Social Media, Student, Academic Achievement, Social Networking Sites (SNS)

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1.0 Introduction

Nowadays, the Internet has significantly impacted the global market by providing necessary information to multitudes. The increased smartphone usage also contributed to an increasingly online social media account. According to Statista Research Department (2021), over 3.6 billion people use social media worldwide, and the number of users will increase by 2025 to 4.41 billion. This data shows that usage of social networking sites have been widely used by users worldwide. Social Networking Sites (SNS) have been used as a tool to market, promote, educate, share, and any other feature that the developers have upgraded from time to time. Social networking sites have been recognized as an essential resource for education today. Social media usage in education increases when this tool has been used to share information and knowledge with others. According to Shaifuddin, Md Rushdi, and Abdullah Sani (2021), the library must provide adequate material resources to fulfill users' information needs in supporting numerous university programs and research accomplishments. Since the library is one of the important institutions in associating teaching and learning undertakings in a university atmosphere, academic libraries should be given enough budget to sustain themselves. Previous studies show that students use social networking sites such as Facebook for fun, making new friends, and so forth. It has been observed that students devote more attention to social media than their studies, and they cannot pass their examinations well if they do not learn (Osharive, 2015). Thus, it is now made manifest the impact social media has on student academic achievement globally. It is therefore of great importance to explore

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some of the trending issues facing students' academic achievement as a result of social media; whether or not these opportunities promote studies is a question that needs to be answered.

Thus, this study attempts to assess the impact of social media on students' achievement. The outcome will also facilitate the Higher Learning Institution (HLI) with empirical findings on educational attainment and evidence of effectiveness ('what works') of different strategies. It can also include explanations of how things work and are understood. This paper purposely assesses the impact of social media within an e-learning environment on student academic achievement, especially during pandemic Covid19. The role of social media will impact student academic achievement will be further discussed in this paper. This study significantly contributed to the body of knowledge, especially in the field of information management.

2.0 Literature Review

2.1 Defining Social Media

Izhar & Torabi (2022) inform that from January 2020, the beginning of Covid-19 has generated a worldwide search for information about Covid-19. People commonly use the Internet to pursue information on the issue. Statista Research Department (2021) states that social media is part of daily internet usage. Social media growth globally because of the increased usage of the smartphone by people around the world. Social media is a phrase being tossed around a lot. It is a website that does not just give you information but interacts with you while giving you information. It is a group of internet-based applications that allows the creation and exchange of user-generated content. It is easy to confuse social media with the news because we often refer to news members as the media. Moreover, that social news site is also a social media site. Social media has a variety of functions that could assist lecturers, engineers, doctors, entrepreneurs, local sellers, and other users to share, promote and advertise information and could be a medium to educate people related to current and present issues.

Social media refers to the means of interaction among people who create, share, exchange, and comment among themselves in different networks. Kaplan & Haenlein (2017) believe that social media is a group of internet-based applications that builds on the ideological foundation and allows the creation and exchange of user–generated content. Besides, social media is a collective term for websites and applications that focus on communication, community-based input, interaction, content sharing, and collaboration (Lutkevich, 2021). Social media has become one of the major channels of chatting through platforms such as Facebook, BB chat, blogger, and wiki. There has been an increase in mobile social media which has created new opportunities for browsing. There is a variety of social media usage, primarily for students who need to adopt new norms in teaching and learning by applying e-learning to their studies.

2.2 Defining e-learning

The purposeful use of networked information and communication technology in teaching and learning is known as e-learning. A variety of different labels also refer to this technique of teaching and learning. Some are online, virtual, distributed, network, and web-based. Online learning, virtual learning, distributed learning, and networked or web-based learning are a few terms used to describe e-learning. Because the letter "e" in e-learning stands for "electronic," it would encompass any educational activities carried out by individuals or groups via networked or freestanding computers and other electronic devices, whether synchronously or asynchronously (Pauline & Antoney, 2018). E-learning can be used as a stand-alone learning tool or as part of a blended learning environment in which it is combined with face-to-face instruction (Warnecke & Pearson, 2011). E-learning pioneer identifies the "e" as thrilling, energetic, eager, emotional, extended, and instructive. Learning through the Internet is referred to as e-learning. It significantly impacts medical education, helps improve learning, and has received positive student feedback. E-learning is a system that is free to use.

The teaching and learning transactions are exposed to unfathomable volumes of information thanks to the internet capacity. This exposure is a massive draw for teachers and students. However, it is not necessarily successful or efficient in terms of engagement. The essential quality of e-learning is that it goes beyond information access and incorporates communicative and interactive elements. Good e-learning aims to provide a dynamic and intellectually challenging learning environment that combines diversity and cohesion. This interactivity is a one-way content transmission mechanism in which the learner is isolated and has much autonomy (Tata, 2013). E-learning can also refer to a system for formal education or a network in which information is disseminated to a large audience using electronic resources. Computers and the Internet are the essential components that keep such systems running (Babu,2018).

2.3 E-Learning during pandemic Covid19

In the spring term of 2020, educational institutions in most nations temporarily suspended in-class instruction. They began remote teaching due to the potential of COVID-19 infection. While many countries have agreed to stop schooling until the end of the academic year, others, including Germany, France, and Greece, have decided to gradually restore school activities beginning in May 2020. To prevent the learning loss caused by school closures, the transfer to e-learning has become unavoidable. COVID-19, on the other hand, is expected to produce learning gaps among students by altering their learning, including the development of their cognitive and non-cognitive skills, directly or indirectly (Di Pietro et al., 2020).

UNICEF (United Nations International Children's Emergency Fund) placed a particular emphasis on planning concerning e-learning strategies, assignments, and home study practices, and the presentation of learning content on broadband channels to ensure the continuity of education, which was disrupted due to a lack of student participation or the temporary closure of schools throughout the pandemic period (Bender, 2020). Around 1.6 billion students in 190 countries have been compelled to stop attending classes and switch

to other learning methods. Due to the temporary shutdown of schools, practically every country has made measures to guarantee that learning continues. As a result, several governments have expressed a strong interest in using information and communication technology (ICT). They have encouraged teachers to deliver instruction in online settings.

Governments have used various methods to impart education, including traditional distant learning media like radio, television, printed materials, and the Internet. However, they have been restricted in some instances by inadequate network infrastructure. Although differences by school level and geographical region, online (particularly in Asia, Europe, Latin America/Caribbean, and Oceania) and TV broadcasting have been the most frequent distance education strategies. (United Nations, 2020). Since TV/radio broadcasting, which is not online but electronic, was also employed widely in K-12 settings during the pandemic, the term e-learning (rather than online learning) was adopted throughout the study. Because the Internet was the most widely used technology during the epidemic, "One laptop per child" projects have significantly brought about a digital transition worldwide (Dogan et al., 2016). As a result, interpersonal engagement in education has become more vital than ever in the aftermath of the epidemic. Appropriate instructional design and planning are linked to a successful online teaching experience and increased student results. In the information society, active and collaborative learning must be designed.

2.4 Previous Study of Social Media Usage on Student Academic Achievement

Learning is not a destination but a lifelong process. Many researchers have tried to gauge the impact of auxiliary learning methods that support orthodox classroom learning, such as home learning, peer group learning, and of course, the crux of modern communication, social media learning. Social media is defined as a means that employs mobile and web-based technology to create highly interactive platforms via which individuals and the community share, co-create, discuss, and modify user-generated content (Kietzmann, Hermkens, McCarthy, & Silvestre, 2011). Social media in itself, aside from the communication and interaction benefits it brings, offers an informal means of learning; thus, the age-long question that stares at researchers is, "what is the effect of this social media on the academic achievement of students?"

Based on a study by Kolan, Dzandza, & Bernard (2018) that was carried out among university students in Legon, Ghana, social media usage proved to have negatively affected the academic achievement of students who were excessively addicted to it. However, the student who was average social media users proved to have had their academic achievement altered for the positive due to social media usage. This is attributed to the learning aid, and the educational exposure social media renders to them while maintaining proper time management. On the other hand, time robbery instigated backwardness in the academic achievement of students who were excessively addicted to it.

The same study took a step to highlight the impact of social media not just on students' academic achievement but on improving the quality of education and academics generally. The researchers highlighted the role of social media in advancing out-side-classroom learning, such as online group learning, virtual meetings, video conferencing, and many more. Without a doubt, these aspects have reflected the positive side of social media on academics; however, it is still for debate on the impact of social media on students' academic achievement.

2.5 Current Scenario of Social Media Usage in E-Learning During Pandemic COVID-19

According to Martin in World Economic Forum (n.d), the COVID-19 has caused schools worldwide to close. Over 1.2 billion youngsters are out of school worldwide. As a result, education has undergone significant transformations with the rise of e-learning, where instruction is done remotely and via digital platforms. According to research, online learning increases information retention. It takes less time, implying that the alterations created by the coronavirus are here to stay. With the abrupt shift away from the classroom in many parts of the world, some wonder if online learning adoption would continue post-pandemic and how such a shift might affect the global education industry. Even before COVID-19, education technology was seeing rapid expansion and adoption, with worldwide edtech investments reaching US\$18.66 billion in 2019 and the whole industry for online education expected to reach \$350 billion by 2025.

Since COVID-19, there has been a considerable increase in utilization of language apps, virtual tutoring, video conferencing tools, and online learning software. Many online learning platforms, notably BYJU'S, a Bangalore-based educational technology and online tutoring corporation started in 2011, are now the world's most highly valued tech companies and offer free access to their services in response to overwhelming demand. BYJU has experienced a 200 percent rise in the number of new students using its Think and Learn app since introducing free live sessions, according to Mrinal Mohit, the company's Chief Operating Officer. Other businesses are expanding their capacities to create a one-stop shop for teachers and students. For example, Lark, a Singapore-based collaboration suite that began as an internal tool for ByteDance to meet its exponential growth, began offering teachers and students unlimited video conferencing time, auto-translation capabilities, real-time co-editing of project work, and intelligent calendar scheduling, among other features. Lark increased its global server infrastructure and technical capabilities to assure dependable connectivity in a hurry and during a catastrophe.

According to DingTalk CEO Chen Hang, "To accommodate large-scale remote work, the platform leveraged Alibaba Cloud to build more than 100,000 new cloud servers in just two hours, setting a new record for rapid capacity expansion." Many universities have previously completed successful conversions. For example, using "DingTalk ZJU," Zhejiang University could get more than 5,000 courses online in just two weeks. Imperial College London began giving a course on the science of coronavirus, which has become Coursera's most enrolled class since its establishment in 2020. This show that pandemic Covid19 has changed the teaching and learning environment worldwide.

2.6 New Norm of E-Learning in Malaysia During Pandemic Covid 19

The Malaysian Ministry of Education has introduced initiatives to make online learning an integral component of higher education and lifelong learning in line with educational developments (Malaysian Education Blueprint 2015–2025 (Higher Education): E-16). Malaysia is planning to implement online learning through the implementation of this blueprint. Through 10 Shift in Malaysian Education Blueprint 2015–2025 to continue the excellence of the higher education system, the Globalized Online Learning has been highlighted as enabler No. 9. All universities in Malaysia need to transform from traditional education of teaching and learning to an online learning system. However, the pandemic Covid19 crisis has pushed the online learning system to be quickly implemented by higher education institutions in Malaysia.

Today, the new teaching and learning norm has transformed Malaysia's education environment. Not only because of Malaysia's Education Blueprint but also because the spark of pandemic Covid19 required all universities to change their standard education system to online learning systems. In the past, the education system in Malaysia still used the traditional method in which the trainer conducted a F2F class with the student. The traditional method of teaching and learning has been replaced with online and virtual learning during pandemic Covid19 (Karuppannan & Mohammed, 2020). In the early stages, Malaysia faces various problems that are the same as other countries. Several challenges have been identified in teaching and learning during pandemic Covid19, such as internet problems, technical problems, learning references/material worries towards implementing online classes, and other miscellaneous problems (Ismail et al., 2020). However, the Malaysian government tries to overcome the problem such as providing good infrastructure for the Internet through the initiative called Jalinan Digital Malaysia (JENDELA). Besides that, there are also various initiatives for the student to ensure their online learning experience is smooth such as internet plans and smartphones for the B40 family or any family that requires those devices. This kind of initiative surely assists university students in experiencing online learning with appropriate devices. The student could use this initiative to use social media for teaching and learning of study.

2.7 Impact of Social Media Usage towards Students' Academic Achievement

Many social, economic, and environmental factors have added to the pressure on university students in the past ten years; the drop-out rate for students is still a major national problem (Bowen, 2008). However, with more and more students being preoccupied with social media networks and technological and social lives, how will this affect their studies? It is estimated that even among students who graduate high school, one out of three does not possess the knowledge and skills that would lead him or her to the next level, such as college or an advanced trade school (Bowen, 2008). The top academic areas that many school professionals are concerned about are English (ELA) and advanced literacy (Williams, 2008). The current generations of teens live in a fast-paced technological world with many different types of communication happening all at the same time.

Social media has intertwined itself in and around our culture. However, the tremendous amount of time it chops off from individuals, especially students, is appalling, thus leading to concerns that it inspired laxity and initiated subtle time-robbery in students, which dull academic excellence. Hence, it affects students' achievement. Mensah and Nizam (2016) concluded that social media platforms have a significant impact on student's academic achievement in Malaysian tertiary institutions. Nevertheless, among the six variables in their study, time appropriateness and health addiction have a more substantial significant influence on students' academic achievement. This is because time management plays an essential role in determining the success and failure of an individual. This has been supported by Asemah and Okpanachi (2013) that state students who spend more on social media are likely to have poor academic achievement because instead of reading the book, they spend more time communicating and chatting with their friends. The negative impact of social media will affect the academic achievement of the student until they could fail in their study.

However, social media could also positively influence the students' academic achievement in a higher education institution. Talaue et al. (2018) found that students who spend more time on social media are able to share and generate ideas and concepts related to their studies. This has also been supported by Amin et al. (2016) state that usage of social media among students could help exchange and generate the ideas that students are an asset to any country and play a pivotal role in social development. Besides that, social network websites also could attract students' attention and could divert them from non-educational and appropriate chatting (Kuppuswamy and Shankar, 2010). Social media is seen as a tool to enrich the teaching and learning system because it provides the opportunity for students and lecturers to connect with the new environment and could encourage a flexible learning mode. This kind of engagement is beneficial to both students and lecturers, especially in a situation like the pandemic Covid19 crisis. This is because they will comfortably embrace the transformation from a traditional education system to an online learning environment. The positive impact of social media could create intelligent students with the skill and knowledge to use the advancement of technology for their future careers.

3.0 Research Methodology

The literature survey has been used in exploring and investigating the impact of social media usage in e-learning during pandemic Covid19. A literature survey is the best approach to understanding the trends, especially in publications within their field of study. The development of literature could oversee when using this strategy searching because the researcher will dig out and investigate more in depth based on the study. Literature surveys refer to the documentation of comprehensive work, either published or unpublished, from the secondary data sources based on the researcher's particular interest in the research (Sekaran, 2003). Based on Sekaran, secondary data sources refer to the information that has been gathered by someone other than the researcher based on their study.

Various published and unpublished works from the previous scholar have been captured in explaining the usage of social media towards improving students' academic achievement. A variety kind of secondary data sources could be used in exploring the information, such as online journals, newspapers, magazines, periodicals, and any other sources which will assist the researcher

regarding the topic of study. In this research, the researcher understands the significance of social media usage in improving student academic achievement, especially in adapting to the new norm because of pandemic Covid19. Mostly, the researcher gained information from the online journal, which is available in Emerald Insight, ScienceDirect, and Google Scholar. These sources play an essential role in assisting the researcher in exploring the topic related to social media usage.

4.0 Conclusion

In a nutshell, social media usage has arisen since the increase of smartphones and technological advancements. Social media has been a platform or tool for students to communicate and share information with their lecturers, friends, and family members. However, there are several negative impacts of social media on students' academic achievements, such as addiction to social media usage and lack of time management. Even though there are some negative impacts, the positive impact could be seen when the students know how to spend their daily routine rather than spend most of their time on social media. The literature survey also found that the pandemic Covid19 shows the increased usage of social media, especially among students. The students use social media to communicate with the lecturers and their friends, especially to do the assignment. Besides that, the lecturers also use social media to virtually meet with the students by using various applications to ensure students understand their studies. Pandemic Covid19 could become the X factor for students and lecturers to use social media for their studies. Further research can be conducted in the future to see the trends of social media usage in e-learning towards students' academic achievements after Pandemic Covid19 is over.

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References

Asemah, S., Okpanachi, R. (2013). Influence of social media on the academic performance of the undergraduate students of Kogi State University, Anyigba, Nigeria, Research on Humanities and Social Sciences, 3(12), pp. 90-96

Amin, Z., Mansoor, A., Hussain, S. R., & Hashmat, F. (2016). Impact of social media of student's academic performance. International Journal of Business and Management Invention, 5(4), 22-29.

Bowen, G. A. (2008). Naturalistic inquiry and the saturation concept: a research note. Qualitative Research, 8(1), 137-152. https://doi.org/10.1177/1468794107085301

Babu, D.G.S.; Sridevi, D.K. (2018). Importance of E-learning in Higher Education: A study. Int. J. Res. Cult. Soc. 2018, 2, 84–88.

Bender, L. (2020). Key messages and actions for COVID-19 prevention and control in schools (UNI220408). Retrieved from https://www.who.int/docs/default-source/coronaviruse/key-messages-and-actions-for-covid-19-prevention-and-controlin-schools-march-2020.pdf.

C, O. R., Angelina, O., & Dondo, E. (2015). Influence Of School Environment On Academic Achievement Of Students In Secondary Schools In Zone "A" Senatorial District Of Benue State, Nigeria. Retrieved from http://www.recentscientific.com de

Di Pietro, G., Biagi, F., Costa, P., Karpinski, Z., & Mazza, J. (2020). The likely impact of COVID-19 on education: Reflections based on the existing literature and recent international datasets. Luxembourg: European Union (EUR 30275 EN). Retrieved from https://publications.jrc.ec.europa.eu/repository/bitstream/JRC121071/jrc121071.pdf.

Dogan, D., Çınar, M., & Sefero_glu, S. (2016). "One Laptop per Child" projects and FATIH project: A comparative examination. SDU International Journal of Educational Studies, 3(1), 1e26. Retrieved from https://dergipark.org.tr/tr/pub/sduijes/ issue/20865/223878.

Ismail, N., Mazlina, N., Wafa, S. W. W. S. S., Syed, W., Wafa, S., & Thompson, J. (2020). Online learning challenges during pandemic COVID-19 in Malaysian higher learning institution. Universal Journal of Educational Research, 8(12), 7151-7159.

Izhar TAT, Torabi T. Online searching trend on Covid-19 using Google trend: infodemiological study in Malaysia. Int J Inf Technol. 2022;14(2):675-680. doi: 10.1007/s41870-021-00825-5. Epub 2022 Jan 29. PMID: 35128305; PMCID: PMC8799427.

Kaplan, A. M., & Haenlein, M. (2017). Social media: back to the roots and back to the future. https://doi.org/10.1108/13287261211232126

Kietzmann, J. H., Hermkens, K., McCarthy, I. P., & Silvestre, B. S. (2011). Social media? Get serious! Understanding the functional building blocks of social media. Business Horizons, 54(3), 241–251. https://doi.org/10.1016/j.bushor.2011.01.005

Kirkpatrick, J., & Kirkpatrick, W. K. (2009). A Kirkpatrick White Paper. Retrieved from http://www.kirkpatrickpartners.com/Portals/0/Resources/White Papers/Kirkpatrick Four Levels white paper 2012.pdf

Karuppannan, S., & Mohammed, L. A. (2020). Predictive Factors Associated with Online Learning during Covid-19 Pandemic in Malaysia: A conceptual Framework. International Journal of Management and Human Science (IJMHS), 4(4), 19-29.

Kuppuswamy, S., & Narayan, P. (2010). The impact of Social Networking Websites on the Education of Youth. Internal journal of virtual Communities and Social Networking (IJVCSN), 2(1) 67-79.

Lutkevich, B. (2021). Social Media. Techtarget. Retrieved September 2021, from: https://whatis.techtarget.com/definition/social-media

Mathiyazhagan, T. (2006). Survey- Research Method, (September), 34-82. Retrieved from http://www.socialresearchmethods.net/kb/survey.php

Oweikeye, J., & Amasuomo, M. (2013). Academic Performance Of Students Admitted With Different Entry Certificates To The Nigerian Certificate In Education Programme At The Federal College Of Education (Technical), Omoku. https://doi.org/10.3926/jotse.107

Saunders, M., Lewis, P., Thornhill, A., Lewis, S., & Thornhill, . (2008). Research methods for business students fi fth edition. Retrieved from www.pearsoned.co.uk

Shaifuddin, Norshila; Md Rushdi, Siti Rasyidah; Abdullah Sani, Mad Khir Johari (2020). Outside revenue generation for academic libraries in emerging markets: a view from Klang valley in Malaysia. Library Management, ahead-of-print(ahead-of-print), –. doi:10.1108/lm-04-2020-0059

Uma Sekaran (2003). Research Method for business: A skill building approach. United State of America: John Wiley & Sons, Inc.

United Nations. (2020). Policy brief: Education during COVID-19 and beyond. Retrieved from https://unsdg.un.org/sites/default/files/202008/sg_policy_brief_covid19_and_education_august_2020.pdf.

Warnecke, E., Pearson, S. (2011). Medical students' perceptions of using e-learning to enhance the acquisition of consulting skills (SE Med Ed), Australas. Mark. J. 4 (6) (2011) 300–307.

Williams, B., Onsman, A., & Brown, T. (2010). Exploratory factor analysis: A five-step guide for novices. Journal of Emergency Primary Health Care, 8(3), 1–13. https://doi.org/10.33151/ajp.8.3.93

Winter, J. C. F., Dodou, D., & Wieringa, P. A. (2009). Exploratory factor analysis with small sample sizes. Multivariate Behavioral Research, 44(2), 147–181. https://doi.org/10.1080/00273170902794206

Williams, D. M. (2008). Exercise, affect, and adherence: An integrated model and a case for self-paced exercise. Journal of Sport and Exercise Psychology. Human Kinetics Publishers Inc. https://doi.org/10.1123/jsep.30.5.471

Statista (2021). Number of social network users worldwide from 2017 to 2025. Retrieved September 2021, from: https://www.statista.com/statistics/278414/number-of-worldwide-social-network-users/

Tata, Vidyullatha. (2013). E-Learning a Boon for the 21st century Learners.

Talaue, G. M., AlSaad, A., AlRushaidan, N., AlHugail, A., & AlFahhad, S. (2018). The impact of social media on academic performance of selected college students. International Journal of Advanced Information Technology, 8(4/5), 27-35.