

# Student Academic Performance, Educational Factors and Collaborative Learning in Social Media: A New Conceptual Realisms

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## Abstract

**Purpose:** The paper aims to examine the relationship between educational factors and academic performance with the mediating effect of collaborative learning in media social. The educational factors include perceived usefulness, perceived ease of use and interaction with the peer. Therefore, to comprehend the contributing factors in detail, a research framework is proposed to indicate the significant underlying factors relative to improving student academic performance.

**Design/methodology/approach:** This study employs the descriptive research design and, precisely, the cross-sectional approach. A structured self-administered questionnaire consisting of 53 items adapted from the previous study will be used to collect the data. Respondents will be students who study at a selected university in Klang Valley. The purposive sampling technique will be used for this study. IBM SPSS 24 will use to analyze the obtained and valid data.

**Findings:** The expected findings of this study were to specify the most significant factors contributing to academic performance. Moreover, this study will reveal the importance of collaborative learning in social media among university students.

**Practical implications:** The result is anticipated to benefit a few groups such as students, lecturers, instructors, government and education institutions in planning effective learning methods. The respective institution will be recommended to reinforce learning using social media since it is expected to become one of the significant tools for learning and teaching.

**Originality/value:** This study contributes to the factors that influence academic performance among students by proposing collaborative learning in social media as a mediator.

**Keywords:** Academic Performance, perceived usefulness, perceived ease of use, interaction with a peer, collaborative learning, social media, Malaysia.

## Introduction

As the century progresses, the speedy growth of emerging mobile technology helped introduce social media as a new category that provides an excellent platform for collaboration, interaction

and building relationships among people around the world (Hasnain et al., 2015). Social media is an online platform where people can connect to each other for commercial or business purposes. Besides sharing knowledge on the platform, people also use social media to find long-lost relatives, add more friends to lists and meet back old friends (Ahmad Jahed Mushtaq & Abdelmajid Benraghda, 2018). Nowadays, social media have become one of the important tools for learning and teaching among students and teachers. Based on Raut and Patil (2016), not only working people but most of the student and education society also use social media in their daily lives. Social media have changed the teaching method of the teacher and the learning method of the students. The teachers and students can use any online platform such as Facebook, Twitter, Blog or Youtube to communicate with each other (Ibrahim Youssef Alyoussef, 2020). These platforms also have opened an opportunity for resource sharing and collaborative learning that can be used by everyone around the world (Tiruwa et al., 2018). This can be supported where social media have become an e-learning platform for knowledge sharing and engagement in effective collaborative learning. Most institutions and faculty perform their activities through social media. They use Facebook, Blogs and Youtube as a tool to run their activities. (Al-Rahmi, et al., 2017). Promoting collaborative learning is one of the issues in internet technology where it plays an important role in student life academic. Based on the previous study, most students will use social media as a platform to communicate or share ideas and knowledge with their lecturer (Sudha and Kavitha, 2016). Next, the communication between peers also changes with the presence of social media and instant messaging services (Lenhart et al., 2015). The youth will use a device such as a smartphone or a tablet to communicate with each other. This is because social media offer an easy-to-use service that is comfortable to be used by anyone (Thulin 2017). The user can easily sign up for an online presence by registering on an online platform such as Facebook or creating their own content in just a few minutes (Ahmad Jahed Mushtaq & Abdelmajid Benraghda, 2018). Next, social media also will be tools for the student to help their study experience to be more interesting and make it easier to share knowledge among themselves (Tiruwa et al., 2018). Based on Hasnain et al. (2015), technology has grown successfully in line with excellent internet usage that make social media important in daily life. A student that uses social media properly will benefit from their study, and it can be used to improve their academic performances. Education is very important to shape the young generation with knowledge, competencies, and skills that will enable their survival in a highly competitive global economic environment. It will be difficult for the student to pursue higher education without it. Moreover, academic performance refers to evaluation test results that match student IQ (Martin Sanz et al., 2017). It is one of the famous components among educational institutions in helping the student to achieve their ambitions. In Malaysia, the issue of poor academic performance is a hot topic, especially among academicians (Rambely & Shahabuddin, 2011). There are six main factors that hinder the learning process among the student, including unsatisfactory academic performance, social and interpersonal disorders, family problems, financial crises, mixed goals and health problems (Hasan et al., 2017).

Next, this issue became more worst when the world was hit by the Covid 19 Pandemic. All institutions, including primary, secondary, and tertiary institutions, need to be close to prevent the spread of the virus among the student (Bayham & Fenichel, 2020). To ensure learning and teaching continues to operate, the government has changed the mode of study from face-to-face learning to virtual learning. Changing study mode negatively affects the preparations of primary, secondary and tertiary students (Farrington, 2020). The student refuses to have an online learning class due to limited interaction between teachers and peers and increased interaction

with technology. Besides that, the teacher also faced problems in delivering knowledge and lower student interaction because they prefer traditional learning and restrictions in the ability to rectify this situation. Social media can define a collection of internet-based applications based on a combination of ideological and technological underpinnings of Web 2.0 that allow the user to share information. They can share the learning materials throughout the website, PDF or make a video. This process will be easier and more effective for the student to get the information (Yousaf et al., 2019). Although social media show many benefits, it is less used in education. This is because the student might misuse it for other games or chatting with friends where it is not connected to the educational purpose (Mardiana, 2016). Dunn (2011) also mentioned that using social media during classes cannot give full attention to the tasks given. It can distract the student from opening other platforms such as Facebook, Twitter or Stumbleupon when teachers are teaching in the class. This might reduce student academic performance.

Besides that, there is a perception that social media cannot be a learning tool for the student in their study. According to Grover (2014), a few challenges are using social media as educational tools, including addiction, waste of time, vulgarity, cyberbullying, mechanical, distraction and misuse of personal information. This can be supported by Raut and Patil (2016) where the researchers highlighted that most students that addicted to social media would like to share their personal information with strangers. Besides that, the student said using social media for long hours might also lead to health issues. Students can also make many friends while using social media, but it seems harmful to them. This is because the friendships' quality and sincerity are not always genuine. Moreover, collaborative learning refers to an activity where a group of students works together to solve a problem in an interactive environment. The student in the group can interact with each other to solve questions or problems. They can also continue their communication after class (Bean & Melzer, 2021). Although collaborative learning shows a positive effect, there are disadvantages when using collaborative learning (Shea, 1995). Most of the students prefer to work alone rather than in a group. Then, there is an issue where the student be irresponsible when they fail to share or assign their group assignments. To overcome this problem, changing the teaching lifestyle is very important to help the student achieve good academic performance while adapting to technology. This study seems to be a new issue in society since most of the previous studies only focused on social media as a platform to communicate with each other, but this study can help academia in their learning process to be better by including collaborative learning using social media as a tool in order to increase student academic performance. Then, there are also no findings that can be found since it was first conducted in the Klang Valley area. This study can help the student know the importance of technologies in the learning process. Moreover, this is a new issue that can help future researchers differentiate the research done in previous studies and the one examined in this paper. Therefore, this study proposes to examine the mediating effects of collaborative learning using social media in the relationship between educational factors and student academic performance among students studying at either a public or private higher educational institution in the Klang Valley area.

### **Student Academic Performance**

Student academic performance has always been a hot topic among educators. People are interested in identifying and understanding what influence contributes to student academic excellence. Academic performance can be defined as excellence in all academic disciplines. According to Filade et al. (2019), academic performance encompasses the capability of the student and their performance, including multi-dimensional, closely linked to human growth and cognitive, emotional and social physical development. It can also be referred to as how well the student can complete their studies tasks. Based on the research by (Kocak et al., 2021), there are a few factors that can affect student academic performance, such as social-economic, parent involvement, individual characteristics, social demographics and teaching methods. The teaching method is important for the student to help them academically. The teaching method needs to be the best for the subject matter in order to make changes in the student. (Adunola, 2011). Social media can be used for learning and teaching (Manca & Ranieri, 2017). It is the new tools that can use by the educators to make the learning experience more interesting, and the students can share information more widely between them. (Tiruwa et al., 2018). Besides that, these tools help the student actively involve themselves in collaborating groups. The student can work in groups of four to six to improve student learning. This will help them develop social skills such as teamwork, decision-making, and management. (Bonwell & Eison, 1991).

### **Social Media and Collaborative Learning**

Social media is known as a platform of electronic communication (website for social networking and microblogging) that the users can use to perform online communities so that they can share ideas, messages, information, etc. (Kern,2010). Carlsson (2010) also stated a group of social media allow people to interact socially by allowing them to share their knowledge, thoughts and opinion on the world platform where time and place are not important. They can communicate anywhere and anytime with the presence of social media. Social media can reinforce class materials and positively impact conversation, collaborative work and authoring (Alam & Aktar,2021). Facebook is one of the famous social media platforms that people can use for academic purposes. Facebook allows users to have a new network for collaborative learning (Tiruwa et al., 2018). Students using social media can share their homework together, deliver and obtain feedback immediately while discussing and interacting with each other (Sharma et al., 2016). Studies in western countries also stated that online social media used for collaborative learning positively affects student academic performance and satisfaction. (Ansari & Khan, 2020).

Social media can be described as a computer-based technology that can help people to share ideas, knowledge and opinion using an online platform (Alam & Aktar,2021). According to Wodzicki et al. (2012) also stated that it is a valuable platform that is useful for education and linking people globally. The student also can use social media as a learning process to express their learning experiences, and the study shows that there is a positive effect on their academic success (Hasnain et al., 2015). Moreover, social media also create an easy interaction between the group member where it fulfils their satisfaction from “active collaborative learning”, and at the same time, it will “improvise their academic performance” (Almulla & Alamri, 2021). Zhu (2012) also indicated that studies in western countries highlight that collaborative learning using social media has a relationship with student academic performance and satisfaction. Furthermore, based on student perceptions, the student mentioned that the most important factors that encourage the student to use social media as a learning tool are ‘Ease of use’ and

'Accessibility' (Wiid et al., 2013). Al-Rahmi et al. (2017) also identified that there are two variables of the technology acceptance model, which are "perceived ease of use" and "perceived usefulness", and with these variables, the researchers also use peer interaction, engagement and faculty interaction as the models for collaborative learning. Gikas and Grant (2013) indicated that electronic devices and social media open a chance for students to practice collaborative learning that allows them to share resources and material with their friends. This can be supported by Yang and his colleagues (2011), where the researchers stated that using social media has a positive significance that influences peer interaction and student academic performance.

## **Hypotheses Development**

### **Perceived Ease of Use**

The TAM model is an information system theory focused on learner motivation for technology acceptance and successful application of information literacy skills (Durodolu, 2016). It was developed by Davis in order to investigate the relationship between the presence of modern technologies and the aim to utilize them. Moreover, The TAM model can potentially assist future educators, practitioners, and academics in social media (Ibrahim Youssef Alyoussef, 2020). Perceived ease of use is known as one of the tools in the models that can be determined as a concept where people accept that information technology is easy to use and follow (Davis, 1989). All the jobs can be done if information systems are user-friendly, which may help them increase their performance. Besides that, Park (2009) also stated that perceived ease of use could be defined as how far learners are confident when using certain techniques that will be easy and naturally motivate the learners to use the technology. In the perception of online learning, it states that using online learning systems is easy to adopt. Based on the opinion of Rogers (2002), in the context of the learner, the perceived ease of use refers to the concept that the system is user-friendly and simple. This concept is adapted in the research to know the student's opinions on how to use these systems will help them improve their performance and learning. According to Islam (2013), based on the research, analyzes the function of perceived ease of use in the e-learning perception, and the result shows that student academic performance can be affected by perceived ease of use.

Perceived ease of use can be described as a term where people believe that systems are easy and simple to use (Nugroho et al., 2018). This concept is used in the research based on the student's perspective on how the systems can improve their learning and performance. Islam (2013) highlights the role of perceived ease of use in e-learning perspective and found that perceived ease of use impacts student performance. If the information systems are easy to use by the users, it will help the user to improve their performance. Besides that, based on the research by Tabak & Nguyen (2013) also stated that there is a relationship between perceived ease of use and student performance. Students believe that technology is easy to use and can help them improve their academic performance. In education, students need new informational technology, such as social media. This platform has attracted the attention of educators because it is very famous among students and possible affects student academic performance. (Abdullahi et al., 2019)

*H1: There is a relationship between perceived ease of use and student academic performance*

### **Perceived Usefulness**

Perceived usefulness refers to the extent to which people assume that their work performance can be improved using specific technologies (Davis, 1989). According to Permana and Setianto (2017), the perceived usefulness can be defined to the degree where the systems can be functional and help upgrade people's performance. People are willing to use the systems when they believe they are useful (Bhattacharjee, 2002). This can be supported when Amoako-Gyampah and Salam (2004) stated that information systems users believe that using a specific system can help them improve their performance. Besides that, perceived usefulness can be explained as the degree to which the learner can improve their performance if they believe the technology with the extrinsic motivation to adapt it (Selim, 2003). Based on online learning perceptives, perceived usefulness attracts the learner to believe that online learning surroundings can increase their course performance. (Lee et al., 2008).

Alyoussef (2020) highlights a positive relationship between perceived usefulness and student performance in the context of e-learning systems. When e-learning systems are useful and acceptable, the perceived usefulness will be higher, contributing to an increase in the use of the e-learning systems as sustainability in education and hence technology is fit. Using e-learning systems as sustainability will positively impact student academic performance. Tabak and Nguyen (2013), in their research, also found that there is a significant relationship between perceived usefulness and student performance. Before students decide to use social media, they will identify whether it can meet their study requirements and is valuable for their education. A student that uses learning systems can access or download educational materials and communicate with others by chatting, emailing or discussing. (Islam, 2013). Consequently, e-learning in learning processes should be encouraged as a long-term plan in higher education institutions (Alyoussef, 2020). This can help the student continue to improve their academic performance.

*H2: There is a relationship between perceived usefulness and student academic performance*

### **Interactivity with Peer**

According to Boud (2001), interacting with peers can be defined as a method of moving beyond independent to interdependent or mutual learning among learners. The students work together to explain their knowledge with others and involve themselves so they can also learn with others. This can be supported by Williams (2007) stated that it can be defined as a platform for the students to share their experiences and co-learning by including other people's perceptions, which it is important for the social and cognitive development of the student. Based on Olalekan (2006). Peer group has a big influence on the student, where they can determine the impact of motivation and achievement of the students. People believe that the academic performance of the student has a connection with the group that the student joins. For example, if someone joins a group of people that working hard to achieve an excellent academic goal, the student also will do the same things. This is because the student did not want to be excluded from the group. This show that peer influence provides inspires student's academic vigor and motivation for achievement among the students (Lashbrook, 2000)

According to Filade et al. (2019) study at Babcock Univerisity, Ogun State shows that is a positive relationship between interaction with peers and student academic performance. Peer group is one of the important parts of student life. They can influence social surroundings in the school and create or maintain differences from the home. A student who groups with a brilliant

student can change his or her attitude towards the learning process to be better, said Bandura in Olalekan (2016). This can be supported by Bankolen and Ogunsakin (2016), where the research finding noted that peer relationships influence student academic performance. Nunez-Andres et al. (2021) also stated that there is a significant relationship between interaction with peers and student performance. In the study, the researchers found that peer interaction helps the student to increase knowledge, motivation and commitment to sustainable design. Stone et al. (2013) also mention that the positive psychological perspective of peer learning on students can help to increase confidence and competence. Students will be more confident, and at the same time, they can increase their academic performance. They can study in groups and have better achievement

*H3: There is a relationship between interactivity with peer and student academic performance*

### **Collaborative Learning**

Collaborative learning can be described as a condition where two or more individuals learn or try to learn something in a group. (Chatti et al., 2012). It is known as a platform for social interaction among learners during a formal or informal learning process. In addition, collaborative learning can refer to the interaction between people that not only focuses on learning aspects but involve the group of people who work together to solve the problem, complete the job or produce the product. (Novitasari, 2019). According to the research by Yasmin and Naseem (2019), there are six roles of collaborative learning in the development of learner autonomy which are confidence, responsibility, skills, independence, motivation and interdependency among the educators. Besides that, collaborative learning also helps educators with the opportunity to learn in a group. They can work together to solve the problem, get meaningful feedback and trigger their confidence. The student will feel more comfortable sharing their point of view when they adapt to collaborative learning in their learning process (Novitasari, 2019). From the educational perspective, collaborative learning is a method that focuses on groups of people in many performance levels where they will work together to accomplish goals and objectives. The students take responsibility for their learning that can help them perform better (Rester & Laferriere, 2007). Johnson et al. (2007) reported that collaborative learning helps students to increase their academic performance. The student that works in a group tends to get better results than the student individually.

According to Chandra (2015), to have successful collaborative learning in producing better academic achievement, their friend must have a good attitude, interdependence, responsibility, and accountability towards their tasks. Making a group for collaborative learning will help the student to share their idea and learning experiences. At the same time, it will help the students have excellent learning performance either in the group or individually. (Huang, Wu & Chen, 2012). Besides that, Al-Rahmi et al. (2017) also mentioned that collaborative learning with social media support could help learning and knowledge sharing among the learner. This is because the users will feel how easy and effective social media is in helping them achieve their social-media-related goals. (Rauniar, 2014). Facebook is one of the tools of social media that can be used as a collaborative “open third room”. It can help in student speech, learning, community growth, and knowledge creation. The student can share information, discuss in groups and share examination questions with their friends using social media platforms (Mingle & Adams, 2015).

*H4: Collaborative learning will mediate the relationship between educational factors and student academic performance*

**Conceptual Framework**

There are three independent variables that have been highlighted by the researcher, which are perceived ease of use, perceived usefulness and interactivity with peers. The researcher also stated that the dependent variable for this study would be student academic performance. The researcher also added collaborative learning using social media as the mediator between educational factors and student academic performance.

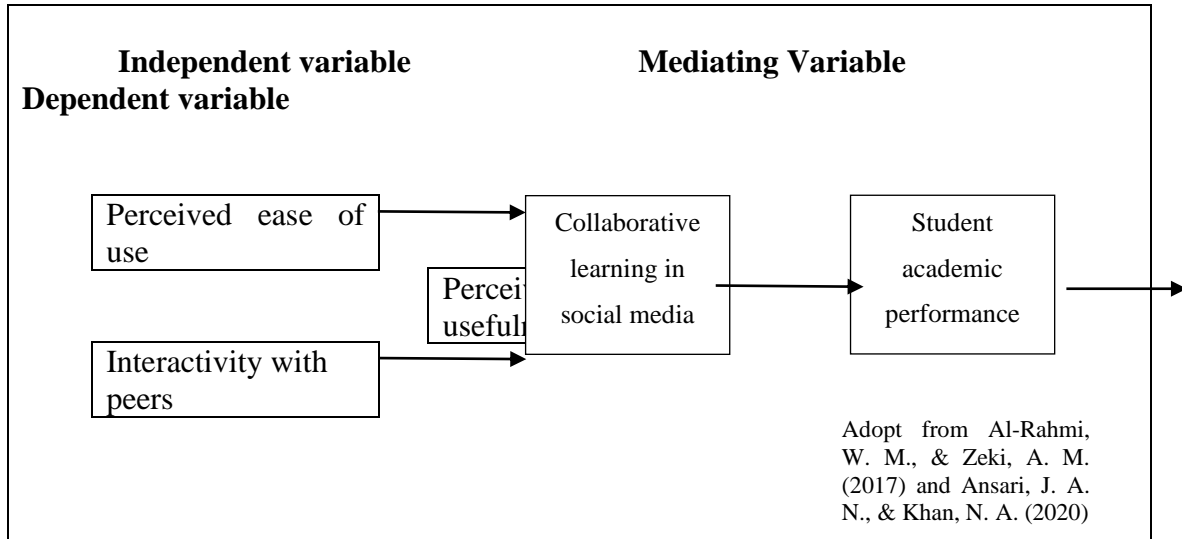


Figure 1: Conceptual Framework of proposed study

The researcher adapts it from the two author groups in different articles to form a conceptual framework diagram. The first group is Al-Rahmi, Waleed Mugahed, and Akram M. Zeki (2017), in the article on a model of using social media for collaborative learning to enhance learners’ performance in learning. While the next group are Ansari, Jamal Abdul Nasir, and Nawab Ali Khan (2020), in the article exploring the role of social media in collaborative learning, the new domain of learning. Al-Rahmi and colleagues stated that perceived ease of use, perceived enjoyment and perceived usefulness have a significant relationship with the student’s academic performance. The study defined that social media have been used heavily by students in their learning processes. That platform helps the student to share and exchange information with their friends.

Moreover, students also feel satisfied when using social media in collaborative learning, which helps them improve their academic performance. Based on the study, the current researcher chooses perceived ease of use and perceived usefulness to be tested in the current study. Moreover, Ansari and the colleague’s study about interactivity with peers, interaction with the teacher and online knowledge sharing behaviour have a positive relationship with student academic performance when using social media for collaborative learning. Based on the study, the researchers described that collaboration using social media would lead to better student academic performance. The study also indicated that students would be more creative,



innovative and connect to the world when using social media through collaborative learning. Based on the study, the current researcher chose interactivity with peers to be tested in the current study. In conclusion, the study wants to find out whether there is a positive relationship between the variables with student academic performance. The researcher also added collaborative learning using social media as a mediator in the proposed study.

### **Methodology**

The research design that uses in this study is correlational. In this study, the researcher obtains data from questionnaires for analysis. The sampling frame for this research will be an individual, a student that studies at either a public or private higher educational institution in the Klang Valley area. This is because the student has experiences in collaborative learning using social media, especially during pandemic Covid19. They need to adapt to the new learning environment, from face-to-face to virtual learning. Moreover, most of the target respondents are the younger generation who are masters at using social media. There will be no issues since this research focuses on collaborative learning using social media. This will help the researcher to obtain valid data when focusing on appropriate target respondents.

The sampling technique that will be used in the study is non-Probability which is convenient sampling. Moreover, this study will use G\*Power analysis to determine the sample size. This is because G\*Power analysis is most significant in identifying the sample size. Based on the analysis, the sample size needed for this study will be 138. The unit of analysis for this study is individual, referring to students from public or private higher education institutions located in the Klang Valley area.

Then, the researchers develop questionnaires using a google form to distribute to target respondents. All of the responses will remain anonymous in order to protect their privacy. The data collection process is expected to be completed in 1 month, giving them time to answer the question comfortably. On average, the survey would take less than 20 minutes for the respondents to complete. Besides that, an auto reminder will be set to alert the respondents. The researcher also used SPSS (Version 25) to analyse the collected data. Questions were adapted from various previous studies. All the questions design with 4-point Likert scale (Strongly Disagree; (2) = Disagree; (3) = Agree and (4) = Strongly Agree) except for demographic section.

In this research, to ensure the instrument is suitable and valid, all the questions will be validated by an expert before distributing to the respondents. This can ensure all question is suitable and accurate to meet research goals and objectives. According to Huck (2007), reliability is important to be tested because it refers to the consistency across the parts of the instrument. Cronbach Alpha coefficient is the most frequently in the study. This is because it is seen as the most suitable measure of reliability when using Likert Scales in the study (Robinson, 2009). According to Straub et al. (2004) suggested that reliability should be equal to or above 0.6 for a pilot study. Meanwhile, the acceptable reliability score for the questionnaire should be equal to or more than 0.7 (Hair et al., 2010). This can be supported by Dijkstra & Henseler (2015), where the researchers stated that Cronbach's alpha needs to be bigger than 0.7 to ensure the reliability of an instrument. Descriptive and multiple regression will be run in data analysis, and hypotheses also will be tested in the study.

In addition, the questionnaires adapted to consist of fifty-three with seven sections are section A; there are eight items adapted from Al-Sharqi, Laila, and Khairuddin Hashim (2016), while section B consists of five items adapted from Balakrishnan, Vimala, and Chin Lay Gan (2016). The next section is section C consists of ten items adapted from Balakrishnan, Vimala, and Chin

Lay Gan (2016) and section D consists of five items adapted by the same authors Balakrishnan, Vimala, and Chin Lay Gan (2016). Section E includes seven items adapted from Weinberger, Yehudith, and Miri Shonfeld (2018), while section F consists of eight items adapted from Ronald J.J. Voorn and Piet A.M. (2013). Lastly, section G consists of ten items were adapted from Oladeji and Ayinde Dauda (2019).

### **Conclusion**

In summary, academic performance is very important for students because it can help them identify their education level. Students need to have good academic performance so that they can develop their talents, achieve their goals and catch their dreams. Collaborative learning can be added as a new method where students can work together in the learning process. Moreover, this research is significant for the student because it can help them brainstorm and exchange ideas when using collaborative learning. Since they are experts in handling technologies, they can use social media as a new tool in their learning process. This will help the student increase their academic performance in the new learning environment that offers more joy and comfort. This study also can benefit academia, where they can spread knowledge anywhere and anytime. They can use this platform as a medium to interact with each other after learning sessions, which will help the student increase their academic performance more effectively. As the technologies grow rapidly around the world, these findings will benefit the government since they want to ensure all the young generation can adapt to technologies. This will help improve the country's economy if people can be in tune with technologies. This show that academic performance can increase when students practice collaborative learning using social media.

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### **References**

- Adunola, O. M. O. T. E. R. E. (2011). The impact of teachers' teaching methods on the academic performance of primary school pupils in Ijebu-Ode local cut area of Ogun State.
- Alam, M. S., & Aktar, H. (2021). The Effect of Social Media on Student Academic Performance: A Case Study at the Islamic University of Bangladesh. *International Journal on Transformations of Media, Journalism & Mass Communication*, 6(1).
- Almulla, M. A., & Alamri, M. M. (2021). Using Conceptual Mapping for Learning to Affect Students' Motivation and Academic Achievement. *Sustainability*, 13(7), 4029.
- Al-Rahmi, W. M., Alias, N., Othman, M. S., Ahmed, I. A., Zeki, A. M., & Saged, A. A. (2017). Social Media Use, Collaborative Learning and Students' academic Performance: A Systematic Literature Review of Theoretical Models. *Journal Of Theoretical & Applied Information Technology*, 95(20).
- AlYoussef, I. (2020). An Empirical Investigation on Students' Acceptance of (SM) Use for Teaching and Learning. *International Journal of Emerging Technologies in Learning (iJET)*, 15(4), 158-178.
- Amoako-Gyampah, K., & Salam, A. F. (2004). An extension of the technology acceptance model in an ERP implementation environment. *Information & management*, 41(6), 731-745.

- Ansari, J. A. N., & Khan, N. A. (2020). Exploring the role of social media in collaborative learning the new domain of learning. *Smart Learning Environments*, 7(1), 1-16.
- Bayham, J., & Fenichel, E. P. (2020). Impact of school closures for COVID-19 on the US health-care workforce and net mortality: a modelling study. *The Lancet Public Health*, 5(5), e271-e278.
- Bean, J. C., & Melzer, D. (2021). *Engaging ideas: The professor's guide to integrating writing, critical thinking, and active learning in the classroom*. John Wiley & Sons.
- Bhattacharjee, A. (2002). Individual trust in online firms: scale development and initial trust. *Journal of Management Information Systems*, 19(1), 213-243.
- Bonwell, C. C., & Eison, J. A. (1991). *Active Learning: Creating Excitement in the Classroom. 1991 ASHE-ERIC Higher Education Reports*. ERIC Clearinghouse on Higher Education, The George Washington University, One Dupont Circle, Suite 630, Washington, DC 20036-1183.
- Boud, D. (2001). Making the move to peer learning. *Peer learning in higher education: Learning from and with each other*, 1-21.
- Carlsson, J. (2010). An assessment of social media business models and strategic implications for future implementation. *Diploma in Advanced Strategy University of Oxford (Saïd) Business School*.
- Chandra, R. (2015). Competition and collaboration in cooperative coevolution of Elman recurrent neural networks for time-series prediction. *IEEE transactions on neural networks and learning systems*, 26(12), 3123-3136.
- Cooper, D. R., & Schindler, P.S. (2006). *Business Research Methods*, 9th Edition. McGraw-Hall International Edition.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 319-340.
- Dijkstra, T. K., & Henseler, J. (2015). Consistent partial least squares path modeling. *MIS quarterly*, 39(2), 297-316.
- Dunn, J. (2011). The 10 best and worst ways social media impacts education. Retrieved May, 3, 2012.
- Durodolu, O. (2016). Technology Acceptance Model as a predictor of using information system'to acquire information literacy skills. *Library Philosophy & Practice*.
- Farrington, D. The Consequences of COVID-19 on the Education System: The Legal Perspective.
- Filade, B. A., Bello, A. A., Uwaoma, C. O., Anwanane, B. B., & Nwangburka, K. (2019). Peer Group Influence on Academic Performance of Undergraduate Students in Babcock University, Ogun State. *African Educational Research Journal*, 7(2), 81-87.
- Gikas, J., & Grant, M. M. (2013). Mobile computing devices in higher education: Student perspectives on learning with cellphones, smartphones & social media. *The Internet and Higher Education*, 19, 18-26.
- Grover, V. K. (2014). Social Media as an educational tool: Opportunities and challenges. *International Journal of Innovative Research & Studies*, 3(2), 269-282.
- Hair, J. F., Anderson, R. E., Babin, B. J., & Black, W. C. (2010). *Multivariate data analysis: A global perspective* (Vol. 7).
- Hasan, A., Baser, J. A., Razzaq, R. A., Puteh, S., & Ibrahim, N. (2017). The influence factors to academic performance of architecture students in Malaysia. *Advances in Social Science, Education and Humanities Research*, 102(1), 306-308.

- Hasnain, H., Nasreen, A., & Ijaz, H. (2015, August). Impact of social media usage on academic performance of university students. In *2nd International Research Management & Innovation Conference (IRMIC)*.
- Huang, H. W., Wu, C. W., & Chen, N. S. (2012). The effectiveness of using procedural scaffoldings in a paper-plus-smartphone collaborative learning context. *Computers & Education, 59*(2), 250-259.
- Huck, S. W. 2007. *Reading Statistics and Research*, United States of America, Allyn & Bacon.
- Islam, A. K. M. (2013). Conceptualizing Perceived Usefulness In E-Learning Context and Investigating Its Role In Improving Students' Academic Performance.
- Johnson, D. W., Johnson, R. T., & Smith, K. (2007). The state of cooperative learning in postsecondary and professional settings. *Educational Psychology Review, 19*(1), 15-29.
- Kern, R. (2010). 5 social media tools for college students. *US News and World Report: Knowledge Sharing Network: Gradeguru.com*.
- Lashbrook, J. T. (2000). Fitting in: Exploring the emotional dimension of adolescent peer pressure. *Adolescence, 35*(140), 747.
- Lee, J. K., & Lee, W. K. (2008). The relationship of e-Learner's self-regulatory efficacy and perception of e-Learning environmental quality. *Computers in human Behavior, 24*(1), 32-47.
- Lenhart, A., Arafeh, S., & Smith, A. (2008). Writing, technology and teens. *Pew internet & American life project*.
- Manca, S., & Ranieri, M. (2017). Networked scholarship and motivations for social media use in scholarly communication. *International review of research in open and distributed learning, 18*(2), 123-138.
- Mardiana, H. (2016). Social Media and Implication for Education: Case Study in Faculty of Technology and Science Universitas Buddhi Dharma, Tangerang, Indonesia. *Online Submission, 1*(1).
- Martin Sanz, N., & Rodrigo, I. (2017). Exploring Academic Performance: Looking beyond Numerical Grades. *Universal Journal of Educational Research, 5*(7), 1105-1112.5(7), 1105-1112.
- Mingle, J., & Adams, M. (2015). Social media network participation and academic performance in senior high schools in Ghana. *Library Philosophy and Practice, 1*.
- Mushtaq, A. J., & Benraghda, A. (2018). The effects of social media on the undergraduate students' academic performances. *Library Philosophy and Practice, 4*(1).
- Novitasari, N. F. (2019). Collaborative learning in ESP speaking classroom: learners' perceptions and experiences.
- Nugroho, M. A., Dewanti, P. W., & Novitasari, B. T. (2018, September). The impact of perceived usefulness and perceived ease of use on student's performance in mandatory e-learning use. In *2018 International Conference on Applied Information Technology and Innovation (ICAITI)* (pp. 26-30). IEEE.
- Olalekan, A. B. (2016). Influence of peer group relationship on the academic performance of students in secondary schools: A case study of selected secondary schools in Atiba Local Government Area of Oyo State. *Global Journal of Human-Social Science, 16*(4), 89-94.
- Kocak, O., Goksu, İ., & Goktas, Y. (2021). The Factors Affecting Academic Achievement: A Systematic Review of Meta Analyses. *International Online Journal of Education and Teaching, 8*(1), 454-484.

- Park, S. Y. (2009). An analysis of the technology acceptance model in understanding university students' behavioral intention to use e-learning. *Journal of Educational Technology & Society*, 12(3), 150-162.
- Permana, I. B. G. A., & Setianto, D. P. (2017). Pengaruh Task Technology Fit, System Quality dan Information Quality terhadap User Performance: Perceived Usefulness dan Perceived Ease Of Use Sebagai Pemediasi. *Jurnal Manajemen Teori Dan Terapan/ Journal of Theory and Applied Management*, 10(3), 231.
- Rambely, A. S., & Shahabuddin, F. A. (2011). The Prevalence of Low Performing Students at the School of Mathematical Sciences. *Procedia-Social and Behavioral Sciences*, 18, 335-341.
- Rauniar, R., Rawski, G., Yang, J., & Johnson, B. (2014). Technology acceptance model (TAM) and social media usage: an empirical study on Facebook. *Journal of Enterprise Information Management*.
- Raut, V., & Patil, P. (2016). Use of Social Media in Education: Positive and Negative impact on the students. *International Journal on Recent and Innovation Trends in Computing and Communication*, 4(1), 281-285.
- Robinson, J. 2009. *Triandis theory of interpersonal behaviour in understanding software private behaviour in the South African context*. Masters degree, University of the Witwatersrand.
- Rogers, E. M. (2002). Diffusion of preventive innovations. *Addictive behaviors*, 27(6), 989-993.
- Selim, H. M. (2003). An empirical investigation of student acceptance of course websites. *Computers & Education*, 40(4), 343-360.
- Sharma, S. K., Joshi, A., & Sharma, H. (2016). A multi-analytical approach to predict the Facebook usage in higher education. *Computers in Human Behavior*, 55, 340-353.
- Shea, J. H. (1995). Problems with collaborative learning. *Journal of Geological Education*, 43(4), 306-308.
- Stone, R., Cooper, S., & Cant, R. (2013). The value of peer learning in undergraduate nursing education: a systematic review. *International Scholarly Research Notices*, 2013.
- Straub, D., Boudreau, M. C., & Gefen, D. (2004). Validation guidelines for IS positivist research. *Communications of the Association for Information systems*, 13(1), 24.
- Sudha, S., & Kavitha, E. S. (2016). The Effect of Social networking on Students' Academic Performance: the perspective of faculty members of Periyar University, Salem. *Library Philosophy and Practice (ejournal)*, 1455.
- Tabak, F., & Nguyen, N. T. (2013). Technology acceptance and performance in online learning environments: Impact of self-regulation. *Technology*, 9(1), 116-130.
- Thulin, E. (2017) Always on My Mind: How Smartphones are Transforming Social Contact among Young, *Young*, 26(5), 1–19. doi: 10.1177/1103308817734512
- Tiruwa, A., Yadav, R., & Suri, P. K. (2018). Modelling Facebook usage for collaborative learning in higher education. *Journal of Applied Research in Higher Education*.
- Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management science*, 46(2), 186-204.
- Wiid, J., Cant, M. C., & Nell, C. (2013). Open Distance Learning Students Perception Of The Use Of Social Media Networking Systems As An Educational Tool. *International Business & Economics Research Journal (IBER)*, 12(8), 867-882.
- Williams, P. (2007). Children teaching children. *Early Child Development and Care*, 177(1), 43-70.

- Wodzicki, K., Schwämmlein, E., & Moskaliuk, J. (2012). “Actually, I Wanted to Learn”: Study-related knowledge exchange on social networking sites. *The Internet and Higher Education*, 15(1), 9-14.
- Yang, Y., Wang, Q., Woo, H. L., & Quek, C. L. (2011). Using Facebook for teaching and learning: a review of the literature. *International Journal of Continuing Engineering Education and Life Long Learning*, 21(1), 72-86.
- Yasmin, M., & Naseem, F. (2019). Collaborative learning and learner autonomy: beliefs, practices and prospects in pakistani engineering universities. *IEEE Access*, 7, 71493-71499.
- Yousaf, T., Rabia, M., Shajhan, A., & Liaqat, A. (2019, December). Impacts of Technology on Youth: A Case Study in GC Women University Sialkot, Pakistan. In *Proc. 15th Islamic Countries Conference on Statistical Sciences, Lahore, Pakistan* (Vol. 34, pp. 169-178).
- Zhu, C. (2012). Student satisfaction, performance, and knowledge construction in online collaborative learning. *Journal of Educational Technology & Society*, 15(1), 127-136.