The Effect of Google Classroom Assisted Learning on Interest among Form Six Economics Students

Noornadiah Md Sari & Khoo Yin Yin

To Link this Article: http://dx.doi.org/10.6007/IJARPED/v10-i4/11503 DOI:10.6007/IJARPED/v10-i4/11503

Received: 08 September 2021, Revised: 11 October 2021, Accepted: 27 October 2021

Published Online: 21 November 2021

In-Text Citation: (Sari & Yin, 2021)

To Cite this Article: Sari, N. M., & Yin, K. Y. (2021). The Effect of Google Classroom Assisted Learning on Interest among Form Six Economics Students. International Journal of Academic Research in Progressive Education and Development, 10(4), 107–120.

Copyright: © 2021 The Author(s)

Published by Human Resource Management Academic Research Society (www.hrmars.com)

This article is published under the Creative Commons Attribution (CC BY 4.0) license. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this license may be seen at: http://creativecommons.org/licences/by/4.0/legalcode

Vol. 10(4) 2021, Pg. 107 - 120

http://hrmars.com/index.php/pages/detail/IJARPED

Full Terms & Conditions of access and use can be found at http://hrmars.com/index.php/pages/detail/publication-ethics
The Effect of Google Classroom Assisted Learning on Interest among form Six Economics Students

Noornadiah Md Sari & Khoo Yin Yin
Faculty of Management and Economics, Sultan Idris University of Education, Malaysia
Email: khoo@fpe.upsi.edu.my

Abstract
The use of online learning approaches such as Google Classroom has become a necessity since the Covid-19 pandemic. Through the Jalinan Digital Negara (JENDELA) plan (2020-2022), the digital learning approach is expected to be strengthened with better improvements post-pandemic in Malaysia. In line with the development of technology, collaborative learning is no longer limited to face-to-face but virtual. However, it has become common for collaborative learning approaches to be conducted face-to-face. To date, there is still a lack of Google Classroom-assisted collaborative learning research on economics subjects. This study aims to test the effect of Google Classroom-assisted learning on non-cognitive aspects, namely the interests of economics students. This quasi-experimental study used pre and post-questionnaire instruments to collect data on 207 form six economics students through cluster random sampling. Descriptive analysis and ANOVA were performed after data were collected and coded. The results showed that the group of students who were exposed to the collaborative approach (GCDK) showed a better interest in economic learning than the group of students who were not exposed to the collaborative approach (GCTK and KPK). The implications of this study contribute to teachers, administrators, and policymakers being prepared with the implementation transformation of the futuristic pedagogical methods. It is recommended for future researchers to conduct further research to identify the readiness and acceptance of educators towards the implementation of this learning approach. The learning approach is also recommended to be implemented on other subjects with a larger number of students.

Keywords: Collaborative Learning, Interests, Google Classroom, Online Learning and Economics Education, Post Covid-19.

Introduction
To curb the Covid-19 outbreak, 10,220 schools were forced to physically close operations causing 4,987,401 students nationwide to be affected in Malaysia (Ministry of Education Malaysia, 2020). Support for access to good and continuing education to the affected students should be implemented by the stakeholder. Online digital learning medium
such as Google Classroom, Zoom, Telegram, WhatsApp, and Facebook is the best alternative in the current situation (Butola, 2021; Gunawan et al., 2020; Mulyono et al., 2021; Zarzycka et al., 2021). Statistical evidence in Malaysia found that there is a sharp increase in the use of the internet (6%), computers (3.5%), and mobile phones (0.5%) in 2020 compared to 2017 due to the need for e-learning (Department of Statistics Malaysia, 2021).

The situation is expected to improve and will operate normally with the adoption of new norms when schools reopen. The United Nations Children's Fund (UNICEF) report also recommends that the digital learning approach be continued as one of the measures of the Covid-19 post-education recovery plan (UNICEF, 2021). Recently, the Ministry of Education Malaysia has announced the opening of schools in stages by complying with certain standard operating procedures. This situation illustrates the current situation that demands teachers to implement changes in the existing teaching delivery to new learning approaches in line with the integration of today’s technology. This situation reinforces the need for digital learning to ensure learning continuity and guarantee the educational rights of students. In this regard, the Jalinan Digital Negara (JENDELA) plan (2020-2022) was formulated at the level of schools and institutions of higher learning. Students will enjoy a new learning environment in line with the new norms after surviving the Covid-19 pandemic. Students will experience a hybrid learning environment with internet facilities and better infrastructure to improve the existing methods. Researchers also expect a transformation of the existing learning environment to digital learning after the education sector re-operates in the post-Covid-19 pandemic (Iyengar, 2021; Neuwirth et al., 2020; Pokhrel & Chhetri, 2021; Zhao & Watterston, 2021).

The Google Classroom application is one of the virtual learning mediums that has received attention in Malaysia. To date, the number of application users has increased and Malaysia is the 2nd highest number of users among the 54 countries (Google Trend, 2021). Since Google Classroom was launched in 2014, the use of Google Classroom is seen to be increasingly accepted and widely used (Brown & Hocutt, 2015; Hallisey, 2017). The Google Classroom app is described as being able to compete with Facebook's display (Jordan & Duckett, 2018) and replace the Moodle application (Myska & Samkova, 2017). Researchers also argue that the advantages offered by Google Classrooms such as ease of use (Al-maroor & Al-emran, 2018; Jakkaew & Hwumrongrote, 2017), time-saving (Heggart & Yoo, 2018), flexibility (Azlan et al., 2019), free (Dash, 2019) and mobile-friendly (Subandi et al., 2018; Ruiz et al., 2019). In addition, Google Classroom provides facilities for communication and discussion such as online discussions, forums, reviews, short messages, and emails to enable students to implement collaborative learning. Technological facilities help promote the learning process, support communication arrangements, evaluate learning activities, manage resources and create learning materials (Nadiyah et al., 2015).

Collaborative learning is one of the elements emphasized in 21st-century learning (Laal, 2012; Nadiyah & Faaizah, 2015). Collaborative learning is defined as learning activities in pairs or in small groups that have similar goals to solve problems, perform tasks or achieve specific objectives (Barkley et al., 2005; Laal & Laal, 2012). There are five main principles in the implementation of a collaborative learning approach that are positive dependence, interaction, individual accountability, social skills, and self-assessment of the group (Laal, 2013). Much past research has proven that virtual collaborative learning also improves student achievement. Active learning is better than conventional learning approaches (Alsadoon, 2020; Chan et al., 2020; Mozahem, 2020; Chen et al., 2018; Lento, 2016; Olelewe
& Agomuo, 2016) especially to weaker students (Almasseri & AlHojailan, 2019). Apart from the development of academic achievement, this learning approach also contributes to the development of social, psychological, and assessment aspects (Laal & Ghodsi, 2012; Sharifah Nadiyah et al., 2015). The social constructivism theory by Vygotsky stated that learning occurs when individuals actively interact. The difference between the current level of development and the level of potential development is known as the Zone of Proximal Development (ZPD) (Vygotsky, 1978). Following on from the ZPD discussion, the concept of scaffolding emerged, which is an external stimulus or support to help students cross the ZPD gap (Wood et al., 1976). In this study, students, through the help of friends and teachers, move through the ZPD to enable them to reach their potential. Through collaborative learning, students actively receive information, evaluate, compare differences in the existing information and analyze information critically with their peers before forming new knowledge.

However, the effectiveness of collaborative learning depends on several aspects such as soft skills, passenger members, differences in member competencies and friendships. (Le et al., 2018; Nadiyah & Faizah, 2015). Furthermore, it is common for collaborative learning approaches to be conducted face-to-face. In line with the development of technology, collaborative learning is no longer limited to face-to-face learning and can be done virtually. Previous research has often focused on the use of the Google Classroom app on science (Dash, 2019; Akhmal et al., 2020), mathematics (Abidin et al., 2021; Nurhasanah et al., 2021), and language subjects (Ammang et al., 2019; Fauzan & Nadia, 2021; Lau & Maslawati, 2021).

Research Objective
To date, there is still a lack of Google Classroom-assisted collaborative learning research on economics subjects. The formation of a balanced student is not only measured by achievement alone but also includes spiritual, emotional and physical aspects (Saharia, 2015). Therefore, this study was conducted to test the effect of Google Classroom-assisted learning on non-cognitive aspects, namely the interests of economics students.

Methodology
This quasi-experimental study was conducted in three schools in Melaka, Malaysia. The respondents consisted of 207 form six economics students, selected through cluster random sampling. Researchers used a questionnaire instrument (13 items). First, the researcher obtained permission from the Education Policy Planning and Research Division, Melaka State Education Department, the school principal, and get the student’s consent. Researchers distributed the pre-tests before the group intervention was conducted. The study participants involved were given an initial briefing and training for a week before the implementation of the intervention. Each student was given and used the same economics learning materials for 12 weeks. The GCDK students were grouped into small groups (4 to 6 people) using Google Classroom learning medium with a collaborative approach, the GCTK group used Google Classroom without collaboration, while the KPK group followed the conventional learning by the existing teachers. This quasi-experimental research was conducted for 12 weeks. At the end of the 12th week, post-tests are distributed to the students. Once data were obtained and coded, descriptive analysis and ANOVA were performed. Figure 1 shows the flow chart of the quasi-experimental study conducted.
Results

Table 1 summarizes the profiles of respondents. The total number of respondents in this study was 207 students from three Form Six daily schools. Distribution according to school; 63 respondents (30.0%) were from SMK1, 63 respondents (30.4%) from SMK2 and 81 respondents (39.1%) from SMK3. The demographic distribution by location of residence showed that respondents from urban areas recorded the highest number of 121 respondents (58.5%), followed by rural, that was 48 respondents (23.2%), and 38 suburban respondents (18.4%). The demographic distribution according to the number of mobile devices owned reported that the majority of respondents (140 people / 67.6%) owned at least one to two devices, followed by three to four of (38 people / 18.4%) and more than four (29 people / 14.0%). Whereas, none of the students reported not owning any personal device in this study. In addition, the distribution of respondents according to the experience of using the device showed that the majority of respondents had more than seven years of experience, which was 102 respondents (49.3%), followed by four to seven years of 90 respondents (43.5%) and less than three years of 15 respondents (7.2%). Meanwhile, the demographic distribution according to the frequency of internet use per day found the highest number of students used the internet between seven to 12 hours a day which was 98 people (47.3%), followed by one to six hours a day that was 73 people (35.3%) and finally, more than 12 hours a day was 36 people (17.4%).
Table 1
Respondent Profile (n=207)

| Items               | Characteristics | Frequency | Percentage |
|---------------------|-----------------|-----------|------------|
| 1. School           | SMK1            | 63        | 30.4       |
|                     | SMK2            | 63        | 30.4       |
|                     | SMK3            | 81        | 39.1       |
| 2. Residential Location | Rural        | 48        | 23.2       |
|                     | Suburbs         | 38        | 18.4       |
|                     | Urban           | 121       | 58.5       |
| 3. Number of Devices | No            | 0         | 0          |
|                     | 1 to 2          | 140       | 67.6       |
|                     | 3 to 4          | 38        | 18.4       |
|                     | More than 4     | 29        | 14.0       |
| 4. Usage Experience | Less than 3 years | 15 | 7.2 |
|                     | 4 to 7 years    | 90        | 43.5       |
|                     | More than 7 years | 102 | 49.3 |
| 5. Daily Internet Use | 1 to 6 hours  | 73        | 35.3       |
|                     | 7 to 12 hours   | 98        | 47.3       |
|                     | More than 12 hours | 36 | 17.4 |

Table 2 reported the responses to the interest variable. In the post-test, the GCDK respondents reported the highest mean score on item B12 (I learned interesting new knowledge about the national economy) with a mean score of 4.3492. Students likely make further discussions beyond the learning topics of the existing syllabus by relating them to the current national issues. Meanwhile, the GCTK respondents reported the highest mean score of 4.0476 on items B9 (I asked the teacher about the practice questions that I did not understand) and B11 (I paid full attention throughout the teacher's teaching in the classroom). In this case, students need the help of the teacher for further explanation on an economic topic that they did not understand. Therefore, students will focus on the teacher's teaching to improve understanding. Whereas, the lowest mean was recorded on item B6 (I tried to find additional information on an economic issue) by the GCDK group. However, the GCTK and KPK groups showed the lowest mean score on item B13 (I chose an economics-related career in the future). This is likely because the respondents are less exposed to potential career-related contributions throughout the learning process.
### Table 2

*Response of the Treatment Group (GCDK and GCDK) and the Control Group on Interest Variable*

| Groups | GCDK (N=63) | GCTK(N=63) | KPK(N=81) |
|--------|-------------|------------|-----------|
| Statement | Pre-Mean | Post-Mean | Pre-Mean | Post-Mean | Pre-Mean | Post-Mean |
| B1 I enjoy learning about economics | 3.7937 | 4.0317 | 3.6508 | 3.7619 | 3.6914 | 3.4815 |
| B2 Economics is one of my favorite subjects | 3.3651 | 3.7302 | 3.1905 | 3.5397 | 3.6296 | 3.2469 |
| B3 I realize economics is useful in my daily life | 3.9524 | 4.1905 | 3.7143 | 3.9524 | 3.8025 | 3.7037 |
| B4 I can make better decisions based on the economic concepts I learned | 3.6984 | 3.9365 | 3.6190 | 3.6508 | 3.6543 | 3.5062 |
| B5 I shared my own opinion even if the opinion is contrary to that of others | 3.4444 | 3.5556 | 3.3810 | 3.5873 | 3.3457 | 3.4938 |
| B6 I tried to find additional information on an economic issue. | 3.4603 | 3.5397 | 3.4762 | 3.4127 | 3.0864 | 3.5432 |
| B7 While in class, I am willing to share general knowledge with my peers | 3.6190 | 3.9048 | 3.5556 | 3.7778 | 3.6420 | 3.7160 |
| B8 I am involved in group work assignment discussions | 3.8889 | 3.9206 | 3.7302 | 3.9206 | 3.6543 | 3.7901 |
| B9 I asked the teacher about the practice questions that I did not understand | 3.9365 | 3.9841 | 3.9048 | 4.0476 | 4.0123 | 3.7778 |
| B10 I find additional economic reading material in addition to the notes given by the teacher | 3.5873 | 3.9206 | 3.6825 | 3.7778 | 3.6420 | 3.8765 |
| B11 I paid full attention throughout the teacher's teaching in the classroom | 3.9365 | 4.1746 | 4.0635 | 4.0476 | 4.0617 | 3.8148 |
| B12 I learned interesting new knowledge about the country's economy | 3.8730 | 4.3492 | 3.9206 | 3.9524 | 3.7284 | 3.7778 |
| B13 I will chose an economics-related career in the future | 3.2063 | 3.6032 | 3.1905 | 3.0476 | 3.4691 | 3.1728 |

Referring to the results of ANOVA test on student interest variables in Table 3, it was found that the significant value at the pre-experimental stage was $F(2, 204) = 0.132, p = .877 (p > .05)$, $\eta^2 = 0.013$. Whereas, the significant value at the post-experimental stage was $F(2, 204) = 5.327, p = .006 (p < .05)$, $\eta^2 = 0.049$. These findings proved that there
were significant differences in the learning approaches of GCDK and GCTK compared to KPK on students’ interests. Analysis of the effect size of the pre-experimental student attitude variable reported that the Eta Squared value of 0.013 was small (0.01 > Eta Squared < 0.6) (Cohen, 1988, 1992). Whereas, the value of Eta Squared at post-experiment was 0.049, indicating a small effect size (0.01 > Eta Squared < 0.6) (Cohen, 1988). These findings proved that there was a significantly small interaction effect size on the interest variables between the treatment group and the control group.

Table 3
ANOVA Test Report (Pre -Test and Post -Test) on Student Interest Based on Learning Approach Groups

| Variables          | Learning Approach | N  | Mean   | SD    | F       | Sig.  | Eta Squared |
|--------------------|-------------------|----|--------|-------|---------|-------|-------------|
| Interests (pre-)   | GCDK              | 63 | 3.6740 | 0.53503| 0.132   | .877  | 0.013       |
|                    | GCTK              | 63 | 3.6215 | 0.58604|         |       |             |
|                    | KPK               | 81 | 3.6477 | 0.59371|         |       |             |
| Interests (post-)  | GCDK              | 63 | 3.9109 | 0.55387| 5.327   | .006  | 0.049       |
|                    | GCTK              | 63 | 3.7289 | 0.54932|         |       |             |
|                    | KPK               | 81 | 3.6078 | 0.55571|         |       |             |

Discussion

The findings of this study significantly prove that the group of students exposed to the collaborative approach (GCDK) showed better interest in economic learning than the GCTK and KPK groups of students. The findings of this study are similar to previous research reports such as Zheng et al (2020); Bailey et al (2020); Khoo et al (2018); Al-Bahrani et al (2017); Zhai et al (2019) which tested the effectiveness of online collaborative learning on interest variable. However, Adefila et al (2020) stated this approach will involve a challenging social learning process and students do not always fully accept what is learned. Positively, the challenges that occur encourage students to think creatively and critically to find the best alternative solutions (Hur et al., 2020; Ozdemir et al., 2016).

The collaborative learning approach is not just about sharing information materials to complete tasks but also includes interaction, communication, and knowledge-building activities. The learning medium assisted by the learning management system also provides space for students to communicate by participating in discussion forums (Hu et al., 2019; Mpungose & Khoza, 2020; Morton et al., 2016). Each student has the opportunity to contribute cognitively by asking questions, giving answers, and providing information (Winter, 2018). Furthermore, the sharing of common goals encourages student engagement cognitively, affectively, and behaviorally (Kahn et al., 2016). This affects student motivation, quality of work (Zhu et al., 2021), enjoyment (Khajavy et al., 2017) and encourages student autonomy to collaborate positively (Hsieh, 2016). In this study the students of the intervention group (GCDK) engaged in a discussion of knowledge proliferation, sharing an intrinsic interest in learning, seeking knowledge, and interacting with the same purpose.

Moreover, the current generation lifestyle is synonymous with the use of mobile devices and the internet. According to Coll and Coll (2017), the use of digital learning platforms encourages collaborative learning activities. Students strive to explore learning...
activities as well as create new knowledge by relating personal experiences that are commonly used in everyday life (Jamiludin et al., 2021; Sari et al., 2020). Learning materials are easily available and students have sufficient time to access the learning content (Graham et al., 2017). If faced with difficulties, students have the autonomy to seek outside help from various sources. Compared to the conventional approach (KPK), GCDK and GCTK students have the autonomy to determine their learning schedules, setting individual learning periods and not being tied to the physicality of the classroom. Thus, the students of the intervention group (GCDK and GCTK) had better autonomy in economic learning and were able to control the rate of instruction outside the classroom. The self-control of learning meets the basic psychological needs of students (Wong, 2019), thereby stimulating students’ emotions and interest in exploring economic learning in more depth.

This is a space for improvement in enhancing the quality of economic learning and teaching. The technological advances provide room for improvement over the conventional teacher-centered approach to active learning, parallel with 21st-century learning. The method is adapted to the development of economic learning approaches by increasing student interest.

Conclusion

In conclusion, the teacher's teaching environment and approach can stimulate students’ interest intrinsically and extrinsically in economics learning. Students gain a new perspective on economics learning methods as they actively engaged in a fun and meaningful collaborative learning environment through the support of Google Classroom learning medium. However, this study is limited to a small sample that involves only three schools. It is suggested that further studies involve a greater number of respondents and for other subjects. In addition, further researches to identify the readiness and acceptance of educators towards the implementation of this learning approach is proposed. School administrators should encourage teachers to diversify their delivery approaches by enriching the digitization of education. The policymaker should provide good infrastructure and teachers’ expertise in facing the country’s post-pandemic education recovery plan. Increasingly challenging and complex tasks nowadays demand more effort and self-discipline.

The increasingly challenging environment encourages teachers to implement innovations in teaching. Theoretically the findings of this study have developed the application of constructivist social learning approach through digital platforms. In parallel with current technological developments, social interaction is now not only limited in the classroom environment. Contextually this approach helps economic students gain access and manage learning content more easily. This approach meets the learning needs of generation Z students who prioritize interactive e-learning, just-in-time learning and collaborative learning (Khan & Al-Shibami, 2019). Teachers and students need to be prepared towards the transformation of education with mastery of the use of digital mediums. Mastery of technology literacy encourages the diversity of teaching and learning approaches to economic students. This is because the evidence from the study findings shows that teachers need to be prepared to master futuristic pedagogical methods such as cybergogy, gamification and heutagogy will be part of the learning environment in Malaysia. Furthermore, future research of other factors that support the implementation effectiveness of a reasonable collaborative learning approach was developed. Therefore, the factor of interest in economic learning
should be developed, nurtured and expanded so that students remain focused throughout the learning period.

References
Adefila, A., Opie, J., Ball, S., & Bluteau, P. (2020). Students’ engagement and learning experiences using virtual patient simulation in a computer supported collaborative learning environment. *Innovations in Education and Teaching International, 57*. https://doi.org/10.1080/14703297.2018.1541188

Abidin, Z., & Saputro, T. M. E. (2020). Google classroom as a mathematics learning space: Potentials and challenges. *Journal of Physics: Conference Series*. 10.1088/1742-6596/1567/2/022094

Azlan, A. C., Hsiu, J. D. W., Li, K. T., Nizam, M. S. A. H., Ngie, M. U., Pallath, V., Phoay, C. L. T., Chai, H. Y., & Kwan, H. N. (2020). Teaching and learning of postgraduate medical physics using Internet-based e-learning during the COVID-19 pandemic—A case study from Malaysia. *Physica Medica*. https://doi.org/10.1016/j.ejmp.2020.10.002

Al-Bahrani, A., Patel, D., & Sheridan, B. J. (2017). Evaluating Twitter and its impact on student learning in principles of economics courses. *The Journal of Economic Education, 48*(4), 243–253. https://doi.org/10.1080/00220485.2017.1353934

Al-marooif, R. A. S., & Al-emran, M. (2018). Students acceptance of Google Classroom: An exploratory study using PLS-SEM approach. *Journal of Emerging Technologies in Learning (IJET)*, 13(6), 112–123.

Almasseri, M., & AlHojailan, M. I. (2019). How flipped learning based on the cognitive theory of multimedia learning affects students’ academic achievements. *Journal of Computer Assisted Learning*. https://doi.org/10.1111/jcal.12386

Alsadoon, E. (2020). The impact of an adaptive e-course on students’ achievements based on the students’ prior knowledge. *Education and Information Technologies*. https://doi.org/10.1007/s10639-020-10125-3

Ammang, L., Rafii’ah N., & Amaluddin. (2019). Utilizing google classroom application to teach speaking to Indonesian EFL learner. *Asian EFL Journal, 24*(4), 176 – 193.

Bailey, D., Almusharraf, N., & Hatcher, R. (2020). Finding satisfaction: Intrinsic motivation for synchronous and asynchronous communication in the online language learning context. *Education and Information Technologies*. https://doi.org/10.1007/s10639-020-10369-z

Barkley, E. F., Cross, K. P., & Major, C. H. (2005). *Collaborative learning techniques: A handbook for college faculty*. John Wiley & Sons.

Brown, M. E., & Hocutt, D. L. (2015). Learning to use, useful for learning: A usability study of Google apps for education. *Journal Usability Studies, 10*(4), 160–181.

Butola, L. K. (2021). E-learning- A new trend of learning in 21st century during covid-19 pandemic. *Indian Journal of Forensic Medicine & Toxicology, 15*(1), 422-426.

Chan, A. K. M., Botelho, M. G., & Lam, O. L. T. (2020). The relation of online learning analytics, approaches to learning and academic achievement in a clinical skills course. *European Journal of Dental Education*. https://doi.org/10.1111/eje.12619

Chen, C. C., Huang, C., Gribbins, M., & Swan, K. (2018). Gamify online courses with tools built into your learning management system (LMS) to enhance self-determined and active learning. *Online Learning, 22*(3), 41-54. https://doi.org/10.24059/olj.v22i3.1466
Coll, S. D., & Coll, R. K. (2017). Using blended learning and out-of-school visits: Pedagogies for effective science teaching in the twenty-first century. Research in Science & Technological Education, 36(2), 185–204. https://doi.org/10.1080/02635143.2017.1393658

Dash, S. (2019). Google classroom as a learning management system to teach biochemistry in a medical school. Biochemistry and Molecular Biology Education. https://doi.org/10.1002/bmb.21246

Department of Statistics Malaysia. (2021). Laporan penyiasatan penggunaan dan capaian ICT individu dan isi rumah, Malaysia 2020 (Individual and household ICT use and access survey report, Malaysia 2020). https://www.dosm.gov.my/v1/uploads/files/5_Gallery/2_Media/4_Stats%40media/4-Press_Statement/2021/20210412-Kenyataan_Media-Penggunaan_dan_Capaian_ICT_oleh_Individu_dan_Isi_Rumah_2020.pdf

Fauzan, U., & Nadia. (2021). The reformation discourse of internet-based learning of Madrasah Aliyah english teachers in Kalimantan. Asian EFL Journal, 28(13), 101 – 121.

Google Trend. (2021). Google Classroom. https://trends.google.com/trends/explore?q=Google%20classroom&geo=MY

Graham, M., McLean, J., Read, A., Suchet-Pearson, S., & Viner, V. (2017). Flipping and still learning: Experiences of a flipped classroom approach for a third-year undergraduate human geography course. Journal of Geography in Higher Education, 41(3), 403–417. https://doi.org/10.1080/03098265.2017.1331423

Gunawan, Suranti, N. M. Y., & Fathoroni. (2021). Variations of models and learning platforms for prospective teachers during the COVID-19 pandemic period. Indonesian Journal of Teacher Education, 1(2), 61–70.

Hallisey, E. J. (2017). High school use of digital tools: A case study approach. [Doctoral dissertation, Columbia University]. ProQuest Dissertation and Theses.

Heggart, K. R., & Yoo, J. (2018). Getting the most from Google Classroom: A pedagogical framework for tertiary educators. Australian Journal of Teacher Education, 43(3).

Hsieh, Y. C. (2016). A case study of the dynamics of scaffolding among ESL learners and online resources in collaborative learning. Computer Assisted Language Learning, 30(1-2), 115–132. https://doi.org/10.1080/09588221.2016.1273245

Hu, X., Ng, J., Tsang, K. K. Y., & Chu, S. K. W. (2019). Integrating mobile learning to learning management system in community college. Community College Journal of Research and Practice, 1–16. https://doi.org/10.1080/10668926.2019.1640146

Hur, J. W., Shen, Y. W., & Cho, M. H. (2020). Impact of intercultural online collaboration project for pre-service teachers. Technology, Pedagogy and Education, 29(1), 1–17. https://doi.org/10.1080/1475939X.2020.1716841

Iyengar, R. (2021). Rethinking community participation in education post Covid-19. Prospects, 1–11. https://doi.org/10.1007/s11125-020-09538-2

Jakkaew, P., & Hemrungrote, S. (2017). The use of UTAUT2 model for understanding student perceptions using Google Classroom: A case study of introduction to information technology course. 2017 International Conference on Digital Arts, Media and Technology (ICDAMT). https://doi.org/10.1109/ICDAMT.2017.7904962

Jamiludin, Darnawati, Uke, W. A. S., & Salim. (2021). The use of Google Classroom application in a blended learning environment. Journal of Physics: Conference Series. https://doi.org/10.1088/1742-6596/1752/1/012066
Jordan, M. M., & Duckett, N. D. (2018). Universities confront ‘tech disruption’: Perceptions of student engagement online using two learning management systems. *The Journal of Public and Professional Sociology, 10*(1). https://digitalcommons.kennesaw.edu/jpps/vol10/iss1/4

Kahn, P., Everington, L., Kelm, K., Reid, I., & Watkins, F. (2016). Understanding student engagement in online learning environments: the role of reflexivity. *Educational Technology Research and Development, 65*(1), 203–218. https://doi.org/10.1007/s11423-016-9484-z

Khajavy, G. H., MacIntyre, P. D., & Barabadi, E. (2017). Role of the emotions and classroom environment in willingness to communicate. *Studies in Second Language Acquisition, 1*–20. https://doi.org/10.1007/s11423-016-9484-z

Khan, I. A., & Al-Shibami, A. H. (2019). ‘Generation Z’s learning preferences: Impact on organisational learning and development–a study conducted in a vocational institute in UAE’. *International Journal of Learning and Change, 11*(4), 379–399. https://doi.org/10.1504/IJLC.2019.105646

Khoo, Y. Y., Rohaila, Y., Yap, S. P. L., & Zainzam, Z. (2018). The effects of collaborative mobile learning using Edmodo among economics undergraduates. *International Journal of Academic Research in Progressive Education and Development, 7*(3), 40–47. http://dx.doi.org/10.6007/IJARPED/v7-i3/4283

Ministry of Education Malaysia. (2020). *Statistik bilangan sekolah, murid & guru (Statistics on the number of schools, students & teachers)*. https://www.moe.gov.my/en/statistik-menu/statistik-bilangan-sekolah-murid-guru

Laal, M. (2013). Positive interdependence in collaborative learning. *Procedia - Social and Behavioral Sciences, 93*, 1433–1437. https://doi.org/10.1016/j.sbspro.2013.10.058

Laal, M., & Ghodsi, S. M. (2012). Benefits of collaborative learning. *Procedia - Social and Behavioral Sciences, 31*, 486–490. https://doi.org/10.1016/j.sbspro.2011.12.091

Laal, M., & Laal, M. (2012). Collaborative learning: What is it? *Procedia - Social and Behavioral Sciences, 31*, 491-495.

Laal, M., Laal, M., & Kermanshahi, Z. K. (2012). 21st century learning; Learning in collaboration. *Procedia-Social and Behavioral Sciences, 47*, 1696–1701. https://doi.org/10.1016/j.sbspro.2012.06.885

Lau, E. Y. Y., & Maslawati, M. (2021). Spelling mastery via Google Classroom among year 4 elementary school ESL students during the COVID-19 pandemic. *Journal of Education and e-Learning Research, 8*(2), 206-215.

Le, H., Janssen, J., & Wubbels, T. (2018). Collaborative learning practices: Teacher and student perceived obstacles to effective student collaboration. *Cambridge Journal of Education, 48*(1), 103-122. https://doi.org/10.1080/0305764X.2016.1259389

Lento, C. (2016). Promoting active learning in introductory financial accounting through the flipped classroom design. *Journal of Applied Research in Higher Education, 8*(1), 72–87. https://doi.org/10.1108/JARHE-01-2015-0005

Morton, C. E., Saleh, S. N., Smith, S. F., Hemani, A., Ameen, A., Bennie, T. D., & Toro-Troconis, M. (2016). Blended learning: How can we optimise undergraduate student engagement? *BMC Medical Education, 16*(1). https://doi.org/10.1186/s12909-016-0716-z
Mozahem, N. A. (2020). Using learning management system activity data to predict student performance in face-to-face Courses. *International Journal of Mobile and Blended Learning*, 12(3), 20–31. https://doi.org/10.4018/IJMBL.2020070102

Mpungose, C. B., & Khoza, S. B. (2020). Postgraduate students’ experiences on the use of Moodle and Canvas learning management system. *Technology, Knowledge and Learning*. https://doi.org/10.1007/s10758-020-09475-1

Mulyono, H., Suryoputro, G., & Jamil, S. R. (2021). The application of WhatsApp to support online learning during the COVID-19 pandemic in Indonesia. *Heliyon*, 7. https://doi.org/10.1016/j.heliyon.2021.e07853

Myska, K., & Samkova, L. (2017). Analysis of the possibilities of Google Classroom as Moodle replacement. *The European Proceedings of Social & Behavioural Sciences*. https://doi.org/http://dx.doi.org/10.15405/epsbs.2017.07.03.40

Nadiyah, R. S., & Faaiizah, S. (2015). The development of online project based collaborative learning using ADDIE model. *Procedia - Social and Behavioral Sciences*, 195, 1803–1812. https://doi.org/10.1016/j.sbspro.2015.06.392

Neuwirth, L. S., Jović, S., & Mukherji, B. R. (2020). Reimagining higher education during and post-COVID-19: Challenges and opportunities. *Journal of Adult and Continuing Education*. https://doi.org/10.1177/1477971420947738

Nurhasanah, F., Usodo, B., Ekana, H. C., Kuswardi, Y., Sutopo, & Lestari, S. (2021). Mathematics teacher professional development program: Fostering the skills for teaching meaningful mathematics through active learning during pandemic era. *Journal of Physics: Conference Series*. https://doi.org/10.1088/1742-6596/1957/1/012017

Akhmal, N. M. Z., Haslinda, H., & Syerina, S. (2021). Evaluating e-learning Google Classroom tools for computer science subjects during COVID-19 pandemic. *International Journal of Advanced Trends in Computer Science and Engineering*, 9(4).

Olelewe, C. J., & Agomuo, E. E. (2016). Effects of B-learning and F2F learning environments on students’ achievement in QBASIC programming. *Computers & Education*, 103, 76–86. https://doi.org/10.1016/j.compedu.2016.09.012

Ozdemir, O., Erten, P., & Kazu, I. Y. (2016). Attitudes of preservice instructional designers towards online collaborative learning. *Turkish Online Journal of Educational Technology*.

Palma-Ruiz, J. M., González-Moreno, S. E., & Cortés-Montalvo, J. A. (2019). Learning management systems in mobile devices: Evidence of acceptance at a public university in Mexico. *Innovacion Educativa Mexico*, 19(79), 35–56.

Pokhrel, S., & Chhetri, R. (2021). A literature review on impact of COVID-19 pandemic on teaching and learning. *Higher Education for the Future*, 8(1), 133–141. https://doi.org/10.1177/2347631120983481

Saharia, I. (2015). Pembangunan insan dalam falsafah pendidikan kebangsaan. *Journal of Human Capital Development*, 8(2).

Sari, L., Sulisworo, D., Toifur, M., & Abd Rahman, N. N. (2020). Effects of Schoology online cooperative learning to learning achievement. *International Journal of Scientific & Technology Research*, 9(2).

Nadiyah, S. R., Faaiizah, S., Hanipah, H., & Norasiken, B. (2015). Online collaborative learning elements to propose an online project based collaborative learning model. *Jurnal Teknologi*, 77(23). https://doi.org/10.11113/jt.v77.6688
Subandi, S., Choirudin, C., Mahmudi, M., Nizaruddin, N., & Hermanita, H. (2018). Building interactive communication with Google Classroom. *International Journal of Engineering & Technology, 7*(2.13), 460. https://doi.org/10.14419/ijet.v7i2.13.18141

United Nations Children’s Fund (UNICEF). (2021). *Situation analysis on the effects of and responses to COVID-19 on the education sector in Asia*. UNICEF ROSA, UNICEF EAPRO, UNESCO Bangkok, Cambridge Education. https://www.unicef.org/eap/reports/covid-19-education-situation-analysis-asia

Vygotsky, L. S. (1978). *Mind and society: The development of higher psychological processes*. Harvard University Press.

Winter, J. W. (2018). Analysis of knowledge construction during group space activities in a flipped learning course. *Journal of Computer Assisted Learning*. https://doi.org/10.1111/jcal.12279

Wong, R. (2019). Basis psychological needs of students in blended learning. *Interactive Learning Environments, 1–15*. https://doi.org/10.1080/10494820.2019.1703010

Wood, D., Bruner, J. S., & Ross, G. (1976). The role of tutoring in problem solving. *Journal of Child Psychology, Psychiatry, & Applied Disciplines, 17*, 89–100.

Zarzycka, E., Krasodomska, J., Mazurczak-Mąka, A., & Turek-Radwan, M. (2021). Distance learning during the COVID-19 pandemic: Students’ communication and collaboration and the role of social media. *Cogent Arts & Humanities, 8*(1). https://doi.org/10.1080/23311983.2021.1953227

Zhai, X., Li, M., & Chen, S. (2019). Examining the uses of student-led, teacher-led, and collaborative functions of mobile technology and their impacts on physics achievement and interest. *Journal of Science Education and Technology, 28*, 310–320.

Zhao, Y., & Watterston, J. (2021). The changes we need: Education post COVID-19. *Journal of Educational Change, 22*, 3–12. https://doi.org/10.1007/s10833-021-09417-3

Zheng, L., Liu, R., & Zhang, X. (2020). Effects of an interest-driven creation approach on students’ mobile learning performance and creativity in learning science in a science museum. *Journal of Computers in Education*. https://doi.org/10.1007/s40692-020-00175-4

Zhu, M., Berri, S., & Zhang, K. (2021). Effective instructional strategies and technology use in blended learning: A case study. *Education and Information Technologies*. https://doi.org/10.1007/s10639-021-10544-w