



Self-esteem of students who use social media

Ahmad Bakri ¹, Ahmad Hidayat ²

¹ Universitas Islam Riau, Indonesia

² Universitas Islam Riau, Indonesia

Corresponding Author: Ahmad Bakri, E-mail; ahmadhidayat@psy.uir.ac.id

Article Information:

Received March 15, 2024

Revised June 28, 2024

Accepted August 30, 2024

ABSTRACT

Individuals who like to socialize tend to build a positive self-image on social media to increase their self-esteem. Self-esteem is a self-evaluation formed by individuals by describing themselves both positively and negatively. Social media, which is a means of communication and interaction for every individual, also has a role in increasing a person's self-esteem. The aim of this research is to determine the self-esteem of students who use social media at the Faculty of Psychology, Riau Islamic University. This type of research is quantitative with a statistical descriptive approach. The scale used is a self-esteem scale consisting of 32 items. The number of samples used was 300 people using a non-probability sampling technique using the consecutive sampling method. The results of the research conducted in this study, if viewed as a whole, students who use social media have the highest self-esteem in the medium category, namely 127 people (42.3%), there is no difference in the level of self-esteem of students who use social media, both male and female. female, there is no difference in the level of self-esteem of students who use social media based on age and there is no difference in the level of self-esteem of students who use social media based on semester.

Keywords: *Self-Esteem, Socialize Tend, Social Media*

Journal Homepage <https://ejournal.staialhikmahpariangan.ac.id/Journal/index.php/wp/>

This is an open access article under the CC BY SA license

<https://creativecommons.org/licenses/by-sa/4.0/>

How to cite: Bakri, A & Hidayat, A. (2024). Self-esteem of students who use social media. *World Psychology*, 3(2), 325-338. <https://doi.org/10.55849/wp.v3i2.620>

Published by: Sekolah Tinggi Agama Islam Al-Hikmah Pariangan Batusangkar

INTRODUCTION

The use of social media is one of the most popular activities in life. Apart from being used to interact, social media is widely used for various activities according to the needs of each individual. Social media itself is a communication tool that produces interactions for many people who previously did not have such media for the community (Brogan, 2010). Social media has various platforms such as Youtube, Whatsapp, Instagram, and so on. Based on the results of a survey conducted by We Are Social in 2020, it was recorded that the platform most frequently visited by social

media users in Indonesia is Youtube, then the second rank is Whatsapp and then Facebook.

The emergence of social media has various meanings according to its users. This is explained in research by (Maryani & Arifin, 2012) which describes several meanings of social media, namely a) social media as a means for self-existence, a place to express thoughts, entertainment and build social networks, b) social media is used as an efficient means for sharing, publishing work, forming communities, and means of educating thoughts, c) social media concerning freedom is interpreted as being able to provide space and break away from the bonds of cultural values or norms, d) social media is used as a place to dialogue and sharpen thoughts.

This is due to several factors, including women wanting to look existent and to save or share memories through posting photos or videos on Instagram. Women are very different from men. So far, some men tend not to be so interested in social media. Men tend to choose to use devices/smartphones for other purposes, such as playing games. Women are more likely to express feelings, express, or share things that women do on social media for the benefit, even pleasure of each person (Barker, 2009; Whiting & Williams, 2013).

Sheldon (2008)) in his research explains that women prefer social media to establish relationships with people they already know, while men use social media more to meet new people. Individuals who have feelings of inferiority tend to be more sensitive to the views of others towards themselves. This is in line with the results of research conducted by Fazriyati (2013) in his research finding that individuals who feel low self-esteem are more likely to worry and think about other people's comments when posting about themselves. Conversely, individuals with high self-esteem will maximize themselves to accentuate a positive self-image on their social media.

Individuals who like to socialize tend to build a positive self-image on social media to increase their self-esteem. Santrock (in Baron & Byrne, 2003) explains that self-esteem is a self-evaluation formed by individuals by describing themselves both positively and negatively. Social media, which is a means of communication and interaction for each individual, also has a role in increasing a person's self-esteem. This is in line with the opinion of Mukhlis (Ghufron & Risnawitaq, 2011) explaining that self-esteem has been formed starting from individuals gaining experience and social interaction, where a person already has the ability to understand perception.

Self-esteem is also the result of judgments made and maintained by individuals, which are obtained from interacting with people around, and from the praise received, as well as the treatment of others towards themselves (Klass & Hodge in Ghufron & Risnawitaq, 2011). In accordance with this opinion, social media can be a tool to increase or decrease a person's self-esteem. This is because individuals who actively use social media tend to evaluate themselves from comments and interactions obtained from fellow social media users.

Based on the results of a survey conducted on 119 Riau Islamic University students, 119 people (100%) stated that they used social media. The most widely used

social media is Instagram, namely 118 people (99.2%). The most viewed content is entertainment content, namely 102 people (85.7%). Furthermore, it was found that Riau Islamic University students use social media in a day with the most intensity of 5-6 hours, namely 33 people (27.5%).

The survey results found that students checked their social media accounts more than 9 times a day with a percentage of 76 people (63.3%). Some respondents, namely 41.7% of students, stated that they felt inferior when posting videos/photos on social media. Meanwhile, 37.5% of respondents stated that they were worried if they received negative comments and felt inappropriate to provide education on social media. So it can be concluded that based on the survey results, students of the Faculty of Psychology, Riau Islamic University show indications of experiencing low self-esteem in using social media.

Individuals who have poor self-esteem will tend to show off their strengths because they feel they do not depend on others to feel comfortable and vice versa, individuals will tend to use social media to get praise and judgment to increase self-esteem, which contains various fantasies about the success of what is achieved (Bhakti, 2016). This explains that a person's low self-esteem can cause individuals to tend to ask for admiration and self-esteem from others for their appearance and advantages (Adi & Yudiati, 2009).

This is also reinforced by the opinion of Wirawan (2001) regarding factors that affect self-esteem, which include physical, psychological and social factors. Physical appearance will be a person's initial assessment, if the individual feels badly viewed, his self-confidence will decrease and will reduce his self-esteem. Likewise, what happens to social media users, for example, such as social media Instagram, if they get negative comments about the individual's appearance, social media users Instagram will delete the photo and replace it with a better photo.

Internal and external factors become two groups in influencing the formation of self-esteem. Gender, intelligence and physical condition are internal factors that influence the formation of self-esteem. Then, the social environment, school and family become external factors in shaping self-esteem (Ghufron & Risnawitaq, 2011). Research conducted by Walters and Martin (2000) explains that there are no significant differences in self-esteem between men and women. However, only a few of the studies explain the difference in self-esteem between women and men, where it is explained that women have higher self-esteem than men (Bhardwaj & Agrawal, 2013).

Based on the phenomenon described above, researchers are interested in describing the self-esteem of current social media users. Researchers took from students of the Faculty of Psychology, Riau Islamic University social media users based on gender. Therefore, this study is entitled "Self-esteem Overview of Social Media User Students at the Faculty of Psychology, Riau Islamic University".

RESEARCH METHODOLOGY

The research method used is descriptive research with a quantitative approach (Sugiyono, 2012). The population to be studied is students of the Faculty of Psychology, Riau Islamic University. The population in this study was 1,176 students. To determine the sample size in this study, researchers used the Slovin formula $n = N / (1 + Ne^2)$ with an error of 5%. So the sample of the population was 298.4 people. However, in this study the sample used amounted to 300 people. The sampling technique used in this study was non-probability sampling with consecutive sampling method. This sampling technique was chosen in consideration of the research time to be shorter and faster to get the sample in accordance with the provisions (Nursalam, 2013). The criteria are active students of psychology at Riau Islamic University and social media users. Self-esteem is measured using a measuring instrument made by Coopersmith in Taufa's research, (2022) which consists of 32 items with four aspects, namely meaningfulness (significance), strength (power) ability (Competence) and virtue (Virtue).

RESULT AND DISCUSSION

1. Self-esteem by gender

Table 1 Self-esteem by Gender

Categorisation	Gender		Total
	Male	Women	
Very high	0	0	0
High	11	31	42
Medium	26	101	127
Low	27	91	118
Very low	1	12	13
Total			300

Based on the results of the table analysis above, it can be concluded that the level of self-esteem in male students is mostly in the low category. While the level of self-esteem in women is mostly in the moderate category. After conducting a chi-square analysis, it is known that there is no difference in the category of self-esteem levels between male and female students of the Faculty of Psychology, Riau Islamic University. This can be seen from the asymptotic significance value of 0.530 ($p > 0.05$). The results of the chi-square analysis can be seen in the table:

Table 2 Chi Square Based on Gender

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-	2,212 ^a	3	0,530

Square			
Likelihood Ratio	2,562	3	0,464
Linear-by-Linear Association	0,557	1	0,456
N of Valid Cases	300		

2. Self-esteem by age

Table 3. Self-esteem by age

Category	Age						Total
	20 Year	21 Year	22 Year	23 Year	24 Year	27 Year	
Very High	0	0	0	0	0	0	
High	13	22	4	3	0	0	42
Medium	44	70	13	0	0	0	127
Low	40	60	14	2	1	1	118
Very Low	7	4	1	1	0	0	13
Total	104	156	32	6	1	1	300

Based on the results of the analysis of the table above, it can be concluded that students aged 20 years and 21 years have a majority level of self-esteem in the moderate category and the ages of 22 years, 24 years and 27 years are mostly in the low category, while the age of 23 years is mostly in the high category. In the chi-square analysis, it can be seen that there is no difference in the category of self-esteem level in terms of age in students of the Faculty of Psychology, Riau Islamic University. This can be seen from the asymptotic significance value of 0.341 ($p > 0.05$). The complete chi square analysis results can be seen in the following table.

Table 4. Chi Square by Age

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	16,642 ^a	15	0,341
Likelihood Ratio	16,709	15	0,337
Linear-by-Linear Association	0,004	1	0,951

N of Valid Cases	300
------------------	-----

3. Self-esteem by Semester

Table 5. Self-esteem by Semester

Categorisation	Semester				Total
	Semester 4	Semester 6	Semester 8	Semester 10	
Very High	0	0	0	0	0
High	12	24	4	2	42
Medium	46	70	11	0	127
Low	42	63	10	3	118
Very Low	8	4	0	1	13
Total	108	161	25	6	300

Based on the results of the analysis of the table above, it can be concluded that students in semester 4, semester 6 and semester 10 mostly have a level of self-esteem in the moderate category and semester 10 mostly in the low category. The following is a histogram of self-esteem based on semester. In the chi-square analysis, it can be seen that there is no difference in the category of self-esteem level in terms of semester in students of the Faculty of Psychology, Riau Islamic University. This can be seen from the asymptotic significance value of 0.212 ($p > 0.05$). The complete chi square analysis results can be seen in the following table.

Table 6. Chi Square Self Esteem Based on Semester

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	12,018 ^a	9	0,212
Likelihood Ratio	14,143	9	0,117
Linear-by-Linear Association	1,169	1	0,280
N of Valid Cases	300		

4. Self-esteem picture based on domicile

Table 7. Self-esteem based on domicile

Tabel 7. Harga Diri Berdasarkan Domisili

Categorisation	Domisili		Total
	Migrants	Non-	

	migrants		
Very High	0	0	
High	40	2	42
Medium	109	18	127
Low	106	12	118
Very Low	9	4	13
Total	264	36	300

Based on the results of the table analysis above, it can be concluded that the majority of migrants and non-migrants have a level of self-esteem in the moderate category. The following is a histogram of self-esteem based on domicile status. In the chi-square analysis, it can be seen that there is no difference in the category of self-esteem level in terms of domicile in students of the Faculty of Psychology, Riau Islamic University. This can be seen from the asymptotic significance value of 0.061 ($p > 0.05$). The complete chi square analysis results can be seen in the following table.

Table 8. Chi Square Self Esteem Based on Domicile

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	7,363 ^a	3	0,061
Likelihood Ratio	6,774	3	0,079
Linear-by- Linear Association	1,766	1	0,184
N of Valid Cases	300		

Based on the results of research conducted by researchers from 300 samples of social media user students at the Faculty of Psychology, Riau Islamic University. When viewed as a whole, students who use social media have the most self-esteem in the moderate category, namely 127 people (42.3%). When viewed by gender, there is no difference in the level of self-esteem of students who use social media, both men and women are in the moderate category. When viewed by age, there is no difference in the level of self-esteem of students who use social media, in terms of age in the moderate category. However, students aged 20 years and 21 years the majority have a level of self-esteem in the moderate category and ages 22 years, 24 years and 27 years the majority are in the low category, while age 23 years the majority are in the high category. When viewed based on semester, there is no difference in the level of self-

esteem of students who use social media. However, students in semester 4, semester 6 and semester 10 mostly have a level of self-esteem in the moderate category and semester 10 mostly in the low category.

In this study, the highest number of participants had a level of self-esteem in the moderate category, this category indicates that individuals have a good level of self-esteem in using social media. Rosenberg (1965) revealed that good self-esteem describes individuals can appreciate themselves as they are, but do not admire themselves and do not expect others to admire themselves, and do not consider themselves higher than others. Thus people who feel that there are positive things in themselves will of course like themselves more and develop a feeling that they are very valuable. When this happens, it can provide inner peace and is a source of mental health, in other words, self-admiration is an indication of good mental health.

Sarwono (2002) states that good self-esteem reflects superiority to others and people are motivated to maintain it. This is in line with Pradana's research (2018) that active users of social media networks do many ways to be able to increase their self-esteem. This research is supported by research conducted by Clarke et al., (2014) which states that the main reason behind self-esteem, depression and super ego development is excessive use of social media.

Another study conducted by Dyane (2013) suggests that social media applications are a place to show an individual's self-identity. Based on the explanation above, it can be concluded that good self-esteem will tend to use social media less, but on the other hand, people who have low self-esteem will open up opportunities for someone to use social media more intensely or frequently.

In communication individuals can share many things, ranging from stories to pictures and videos that can increase their self-esteem through positive feedback. In addition, the number of friends and the behaviour of uploading status (in the form of writing or pictures) can increase the self-esteem of individuals (Hawi & Samaha, 2017). In essence, the results showed that 42.3% of participants who were sampled in this study had moderate self-esteem. Individuals who have good self-esteem are characterised by a sense of meaningfulness in the individual and will see themselves as better than others, believe in their opinions, have high self-confidence, and can show a more active attitude and the extent to which individuals can accept their own condition as a valuable person (Coopersmith, 1967; Rosenberg, 1965).

CONCLUSION

Based on the results of the research that has been conducted in this study, it can be concluded that students who use social media at the Faculty of Psychology, Riau Islamic University have the most self-esteem in the moderate category. This category shows that individuals have a good level of self-esteem in using social media. Good self-esteem describes individuals can appreciate themselves as they are, but do not admire themselves and do not expect others to admire themselves, and do not consider themselves higher than others.

REFERENCES

- Abbas, J., Aman, J., Nurunnabi, M., & Bano, S. (2019). The Impact of Social Media on Learning Behavior for Sustainable Education: Evidence of Students from Selected Universities in Pakistan. *Sustainability*, 11(6), 1683. <https://doi.org/10.3390/su11061683>
- Albalawi, R., Yeap, T. H., & Benyoucef, M. (2020). Using Topic Modeling Methods for Short-Text Data: A Comparative Analysis. *Frontiers in Artificial Intelligence*, 3, 42. <https://doi.org/10.3389/frai.2020.00042>
- Alharbi, A. S. M., & de Doncker, E. (2019). Twitter sentiment analysis with a deep neural network: An enhanced approach using user behavioral information. *Cognitive Systems Research*, 54, 50–61. <https://doi.org/10.1016/j.cogsys.2018.10.001>
- Bankó, P., Lee, S. Y., Nagygyörgy, V., Zrínyi, M., Chae, C. H., Cho, D. H., & Telekes, A. (2019). Technologies for circulating tumor cell separation from whole blood. *Journal of Hematology & Oncology*, 12(1), 48. <https://doi.org/10.1186/s13045-019-0735-4>
- Binks, A. P., LeClair, R. J., Willey, J. M., Brenner, J. M., Pickering, J. D., Moore, J. S., Huggett, K. N., Everling, K. M., Arnott, J. A., Croniger, C. M., Zehle, C. H., Kranea, N. K., & Schwartzstein, R. M. (2021). Changing Medical Education, Overnight: The Curricular Response to COVID-19 of Nine Medical Schools. *Teaching and Learning in Medicine*, 33(3), 334–342. <https://doi.org/10.1080/10401334.2021.1891543>
- Bock, A., Modabber, A., Kniha, K., Lemos, M., Rafai, N., & Hölzle, F. (2018). Blended learning modules for lectures on oral and maxillofacial surgery. *British Journal of Oral and Maxillofacial Surgery*, 56(10), 956–961. <https://doi.org/10.1016/j.bjoms.2018.10.281>
- Bora, A., Balasubramanian, S., Babenko, B., Virmani, S., Venugopalan, S., Mitani, A., de Oliveira Marinho, G., Cuadros, J., Ruamviboonsuk, P., Corrado, G. S., Peng, L., Webster, D. R., Varadarajan, A. V., Hammel, N., Liu, Y., & Bavishi, P. (2021). Predicting the risk of developing diabetic retinopathy using deep learning. *The Lancet Digital Health*, 3(1), e10–e19. [https://doi.org/10.1016/S2589-7500\(20\)30250-8](https://doi.org/10.1016/S2589-7500(20)30250-8)
- Bryant, C., Szejda, K., Parekh, N., Deshpande, V., & Tse, B. (2019). A Survey of Consumer Perceptions of Plant-Based and Clean Meat in the USA, India, and China. *Frontiers in Sustainable Food Systems*, 3, 11. <https://doi.org/10.3389/fsufs.2019.00011>
- Budd, J., Miller, B. S., Manning, E. M., Lamos, V., Zhuang, M., Edelstein, M., Rees, G., Emery, V. C., Stevens, M. M., Keegan, N., Short, M. J., Pillay, D., Manley, E., Cox, I. J., Heymann, D., Johnson, A. M., & McKendry, R. A. (2020). Digital technologies in the public-health response to COVID-19. *Nature Medicine*, 26(8), 1183–1192. <https://doi.org/10.1038/s41591-020-1011-4>
- Chen, H., Guo, J., Wang, C., Luo, F., Yu, X., Zhang, W., Li, J., Zhao, D., Xu, D., Gong, Q., Liao, J., Yang, H., Hou, W., & Zhang, Y. (2020). Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: A retrospective review of medical records. *The Lancet*, 395(10226), 809–815. [https://doi.org/10.1016/S0140-6736\(20\)30360-3](https://doi.org/10.1016/S0140-6736(20)30360-3)

- Chick, R. C., Clifton, G. T., Peace, K. M., Propper, B. W., Hale, D. F., Alseidi, A. A., & Vreeland, T. J. (2020). Using Technology to Maintain the Education of Residents During the COVID-19 Pandemic. *Journal of Surgical Education*, 77(4), 729–732. <https://doi.org/10.1016/j.jsurg.2020.03.018>
- Debnath, R., Bardhan, R., Reiner, D. M., & Miller, J. R. (2021). Political, economic, social, technological, legal and environmental dimensions of electric vehicle adoption in the United States: A social-media interaction analysis. *Renewable and Sustainable Energy Reviews*, 152, 111707. <https://doi.org/10.1016/j.rser.2021.111707>
- Dutta, P., Choi, T.-M., Somani, S., & Butala, R. (2020). Blockchain technology in supply chain operations: Applications, challenges and research opportunities. *Transportation Research Part E: Logistics and Transportation Review*, 142, 102067. <https://doi.org/10.1016/j.tre.2020.102067>
- Dwivedi, Y. K., Hughes, D. L., Coombs, C., Constantiou, I., Duan, Y., Edwards, J. S., Gupta, B., Lal, B., Misra, S., Prashant, P., Raman, R., Rana, N. P., Sharma, S. K., & Upadhyay, N. (2020). Impact of COVID-19 pandemic on information management research and practice: Transforming education, work and life. *International Journal of Information Management*, 55, 102211. <https://doi.org/10.1016/j.ijinfomgt.2020.102211>
- Dziuban, C., Graham, C. R., Moskal, P. D., Norberg, A., & Sicilia, N. (2018). Blended learning: The new normal and emerging technologies. *International Journal of Educational Technology in Higher Education*, 15(1), 3. <https://doi.org/10.1186/s41239-017-0087-5>
- Feng, H., Wang, X., Duan, Y., Zhang, J., & Zhang, X. (2020). Applying blockchain technology to improve agri-food traceability: A review of development methods, benefits and challenges. *Journal of Cleaner Production*, 260, 121031. <https://doi.org/10.1016/j.jclepro.2020.121031>
- Fernandes, N., Costa, D., Costa, D., Keating, J., & Arantes, J. (2021). Predicting COVID-19 Vaccination Intention: The Determinants of Vaccine Hesitancy. *Vaccines*, 9(10), 1161. <https://doi.org/10.3390/vaccines9101161>
- Hart, C. M. D., Xu, D., Hill, M., & Alonso, E. (2021). COVID-19 and Community College Instructional Responses. *Online Learning*, 25(1). <https://doi.org/10.24059/olj.v25i1.2568>
- Huang, C., Huang, L., Wang, Y., Li, X., Ren, L., Gu, X., Kang, L., Guo, L., Liu, M., Zhou, X., Luo, J., Huang, Z., Tu, S., Zhao, Y., Chen, L., Xu, D., Li, Y., Li, C., Peng, L., ... Cao, B. (2021). 6-month consequences of COVID-19 in patients discharged from hospital: A cohort study. *The Lancet*, 397(10270), 220–232. [https://doi.org/10.1016/S0140-6736\(20\)32656-8](https://doi.org/10.1016/S0140-6736(20)32656-8)
- Jabreel, M., & Moreno, A. (2019). A Deep Learning-Based Approach for Multi-Label Emotion Classification in Tweets. *Applied Sciences*, 9(6), 1123. <https://doi.org/10.3390/app9061123>
- Jacques, S., Ouahabi, A., & Lequeu, T. (2021). Synchronous E-learning in Higher Education during the COVID-19 Pandemic. *2021 IEEE Global Engineering Education Conference (EDUCON)*, 1102–1109. <https://doi.org/10.1109/EDUCON46332.2021.9453887>
- Javaid, M., Haleem, A., Vaishya, R., Bahl, S., Suman, R., & Vaish, A. (2020). Industry 4.0 technologies and their applications in fighting COVID-19 pandemic.

- Diabetes & Metabolic Syndrome: Clinical Research & Reviews*, 14(4), 419–422.
<https://doi.org/10.1016/j.dsx.2020.04.032>
- Johnston, J., Walshe, G., & Ríordáin, M. N. (2020). Supporting Key Aspects of Practice in Making Mathematics Explicit in Science Lessons. *International Journal of Science and Mathematics Education*, 18(7), 1399–1417.
<https://doi.org/10.1007/s10763-019-10016-1>
- Kamilaris, A., Fonts, A., & Prenafeta-Boldó, F. X. (2019). The rise of blockchain technology in agriculture and food supply chains. *Trends in Food Science & Technology*, 91, 640–652. [set-company-logo-design-ideas-vector.zip](https://doi.org/10.1016/j.tfs.2019.06.011)
- Kaya & Bilge. (2019). Deep Metric Learning: A Survey. *Symmetry*, 11(9), 1066.
<https://doi.org/10.3390/sym11091066>
- Kim, S. (2018). Public Service Motivation, Organizational Social Capital, and Knowledge Sharing in the Korean Public Sector. *Public Performance & Management Review*, 41(1), 130–151.
<https://doi.org/10.1080/15309576.2017.1358188>
- Kirn, A., & Benson, L. (2018). Engineering Students' Perceptions of Problem Solving and Their Future. *Journal of Engineering Education*, 107(1), 87–112.
<https://doi.org/10.1002/jee.20190>
- König, J., Jäger-Biela, D. J., & Glutsch, N. (2020). Adapting to online teaching during COVID-19 school closure: Teacher education and teacher competence effects among early career teachers in Germany. *European Journal of Teacher Education*, 43(4), 608–622. <https://doi.org/10.1080/02619768.2020.1809650>
- Kopnov, V. A., Shmurygina, O. V., Shchipanova, D. E., Dremina, M. A., Papaloizou, L., Orphanidou, Y., & Morevs, P. (2018). FUNCTIONAL ANALYSIS AND FUNCTIONAL MAPS OF QUALIFICATIONS IN ECVET CONTEXT. *The Education and science journal*, 20(6), 90–117. <https://doi.org/10.17853/1994-5639-2018-6-90-117>
- Kukulska-Hulme, A., & Viberg, O. (2018). Mobile collaborative language learning: State of the art: Mobile collaborative language learning. *British Journal of Educational Technology*, 49(2), 207–218. <https://doi.org/10.1111/bjet.12580>
- Li, W., Gillies, R., He, M., Wu, C., Liu, S., Gong, Z., & Sun, H. (2021). Barriers and facilitators to online medical and nursing education during the COVID-19 pandemic: Perspectives from international students from low- and middle-income countries and their teaching staff. *Human Resources for Health*, 19(1), 64. <https://doi.org/10.1186/s12960-021-00609-9>
- Liu, Y., Zhu, Y., & Cui, Y. (2019). Challenges and opportunities towards fast-charging battery materials. *Nature Energy*, 4(7), 540–550.
<https://doi.org/10.1038/s41560-019-0405-3>
- Mahler, D., Großschedl, J., & Harms, U. (2018). Does motivation matter? – The relationship between teachers' self-efficacy and enthusiasm and students' performance. *PLOS ONE*, 13(11), e0207252.
<https://doi.org/10.1371/journal.pone.0207252>
- McGrew, S., Breakstone, J., Ortega, T., Smith, M., & Wineburg, S. (2018). Can Students Evaluate Online Sources? Learning From Assessments of Civic Online Reasoning. *Theory & Research in Social Education*, 46(2), 165–193.
<https://doi.org/10.1080/00933104.2017.1416320>
- Montero Perez, M., Peters, E., & Desmet, P. (2018). Vocabulary learning through viewing video: The effect of two enhancement techniques. *Computer Assisted*

- Language Learning, 31(1–2), 1–26.
<https://doi.org/10.1080/09588221.2017.1375960>
- Oztemel, E., & Gursev, S. (2020). Literature review of Industry 4.0 and related technologies. *Journal of Intelligent Manufacturing*, 31(1), 127–182.
<https://doi.org/10.1007/s10845-018-1433-8>
- Patra, J. K., Das, G., Fraceto, L. F., Campos, E. V. R., Rodriguez-Torres, M. del P., Acosta-Torres, L. S., Diaz-Torres, L. A., Grillo, R., Swamy, M. K., Sharma, S., Habtemariam, S., & Shin, H.-S. (2018). Nano based drug delivery systems: Recent developments and future prospects. *Journal of Nanobiotechnology*, 16(1), 71. <https://doi.org/10.1186/s12951-018-0392-8>
- Pierce, M., Hope, H., Ford, T., Hatch, S., Hotopf, M., John, A., Kontopantelis, E., Webb, R., Wessely, S., McManus, S., & Abel, K. M. (2020). Mental health before and during the COVID-19 pandemic: A longitudinal probability sample survey of the UK population. *The Lancet Psychiatry*, 7(10), 883–892.
[https://doi.org/10.1016/S2215-0366\(20\)30308-4](https://doi.org/10.1016/S2215-0366(20)30308-4)
- Pikhart, M., & Klímová, B. (2020). eLearning 4.0 as a Sustainability Strategy for Generation Z Language Learners: Applied Linguistics of Second Language Acquisition in Younger Adults. *Societies*, 10(2), 38.
<https://doi.org/10.3390/soc10020038>
- Podlewska, S., & Kafel, R. (2018). MetStabOn—Online Platform for Metabolic Stability Predictions. *International Journal of Molecular Sciences*, 19(4), 1040.
<https://doi.org/10.3390/ijms19041040>
- Pouyanfar, S., Yang, Y., Chen, S.-C., Shyu, M.-L., & Iyengar, S. S. (2019). Multimedia Big Data Analytics: A Survey. *ACM Computing Surveys*, 51(1), 1–34.
<https://doi.org/10.1145/3150226>
- Pujadas, G., & Muñoz, C. (2019). Extensive viewing of captioned and subtitled TV series: A study of L2 vocabulary learning by adolescents. *The Language Learning Journal*, 47(4), 479–496.
<https://doi.org/10.1080/09571736.2019.1616806>
- Rao, S. K., & Prasad, R. (2018). Impact of 5G Technologies on Industry 4.0. *Wireless Personal Communications*, 100(1), 145–159. <https://doi.org/10.1007/s11277-018-5615-7>
- Rosenberg, H., & S. C. Asterhan, C. (2018). “WhatsApp, Teacher?”—Student Perspectives on Teacher-Student WhatsApp Interactions in Secondary Schools. *Journal of Information Technology Education: Research*, 17, 205–226.
<https://doi.org/10.28945/4081>
- Scherer, R., Siddiq, F., & Tondeur, J. (2019). The technology acceptance model (TAM): A meta-analytic structural equation modeling approach to explaining teachers’ adoption of digital technology in education. *Computers & Education*, 128, 13–35. <https://doi.org/10.1016/j.compedu.2018.09.009>
- Shamantha, R. B., Shetty, S. M., & Rai, P. (2019). Sentiment Analysis Using Machine Learning Classifiers: Evaluation of Performance. *2019 IEEE 4th International Conference on Computer and Communication Systems (ICCCS)*, 21–25.
<https://doi.org/10.1109/CCOMS.2019.8821650>
- Swidan, A., Hermans, F., & Smit, M. (2018). Programming Misconceptions for School Students. *Proceedings of the 2018 ACM Conference on International Computing Education Research*, 151–159. <https://doi.org/10.1145/3230977.3230995>

- Theobald, E. J., Hill, M. J., Tran, E., Agrawal, S., Arroyo, E. N., Behling, S., Chambwe, N., Cintrón, D. L., Cooper, J. D., Dunster, G., Grummer, J. A., Hennessey, K., Hsiao, J., Iranon, N., Jones, L., Jordt, H., Keller, M., Lacey, M. E., Littlefield, C. E., ... Freeman, S. (2020). Active learning narrows achievement gaps for underrepresented students in undergraduate science, technology, engineering, and math. *Proceedings of the National Academy of Sciences*, 117(12), 6476–6483. <https://doi.org/10.1073/pnas.1916903117>
- Torales, J., O'Higgins, M., Castaldelli-Maia, J. M., & Ventriglio, A. (2020). The outbreak of COVID-19 coronavirus and its impact on global mental health. *International Journal of Social Psychiatry*, 66(4), 317–320. <https://doi.org/10.1177/0020764020915212>
- Unsworth, L., & Mills, K. A. (2020). English language teaching of attitude and emotion in digital multimodal composition. *Journal of Second Language Writing*, 47, 100712. <https://doi.org/10.1016/j.jslw.2020.100712>
- Walther, J., Brewer, M. A., Sochacka, N. W., & Miller, S. E. (2020). Empathy and engineering formation. *Journal of Engineering Education*, 109(1), 11–33. <https://doi.org/10.1002/jee.20301>
- Wang, Y., Zhang, D., Du, G., Du, R., Zhao, J., Jin, Y., Fu, S., Gao, L., Cheng, Z., Lu, Q., Hu, Y., Luo, G., Wang, K., Lu, Y., Li, H., Wang, S., Ruan, S., Yang, C., Mei, C., ... Wang, C. (2020). Remdesivir in adults with severe COVID-19: A randomised, double-blind, placebo-controlled, multicentre trial. *The Lancet*, 395(10236), 1569–1578. [https://doi.org/10.1016/S0140-6736\(20\)31022-9](https://doi.org/10.1016/S0140-6736(20)31022-9)
- Wehner, S., Elkouss, D., & Hanson, R. (2018). Quantum internet: A vision for the road ahead. *Science*, 362(6412), eaam9288. <https://doi.org/10.1126/science.aam9288>
- Yi, S., & Liu, X. (2020). Machine learning based customer sentiment analysis for recommending shoppers, shops based on customers' review. *Complex & Intelligent Systems*, 6(3), 621–634. <https://doi.org/10.1007/s40747-020-00155-2>
- Yu, X., Wang, C., & Zhou, X. (2018). A Survey on Robust Video Watermarking Algorithms for Copyright Protection. *Applied Sciences*, 8(10), 1891. <https://doi.org/10.3390/app8101891>
- Zhang, Q., Yang, L. T., Chen, Z., & Li, P. (2018). A survey on deep learning for big data. *Information Fusion*, 42, 146–157. <https://doi.org/10.1016/j.inffus.2017.10.006>
- Zhao, Y., Chen, X., & Yin, J. (2019). Adaptive boosting-based computational model for predicting potential miRNA-disease associations. *Bioinformatics*, 35(22), 4730–4738. <https://doi.org/10.1093/bioinformatics/btz297>
- Zhou, F., Yu, T., Du, R., Fan, G., Liu, Y., Liu, Z., Xiang, J., Wang, Y., Song, B., Gu, X., Guan, L., Wei, Y., Li, H., Wu, X., Xu, J., Tu, S., Zhang, Y., Chen, H., & Cao, B. (2020). Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: A retrospective cohort study. *The Lancet*, 395(10229), 1054–1062. [https://doi.org/10.1016/S0140-6736\(20\)30566-3](https://doi.org/10.1016/S0140-6736(20)30566-3)

Copyright Holder :

© Ahmad Bakri et al. (2024).

First Publication Right :

© World Psychology

This article is under:

