**Iranian Students’ Acceptance of SHAD as an Educational**

**Social Network: A Focus on Gender and Educational Level**

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**Abstract**

The main goal of this study was to investigate Iranian high-school students’ acceptance of SHAD as an educational social network based on Davis’s Technology Acceptance Model (TAM) considering their gender and educational level. 428 high-school students participated in the study. The sample included 207 junior and 221 senior high-school students and 194 male and 234 female students. They completed Educational Social Network Acceptance Scale (ESNAS) adapted to the context of the study to measure the participates’ acceptance of SHAD as an education social network. ESNAS has 30 items and five components based on TAM: external variables, perceived ease of use, perceived usefulness, attitudes, and intention to use. The data were analyzed by Multivariate Analysis of Variance (MANOVA). The results showed that generally the students do not accept SHAD as an educational social network despite its perceived ease of use. Further analysis revealed significant differences in students’ acceptance of SHAD as an educational social network considering their gender and educational level. The result implied acceptance of SHAD as an educational network by male and senior high-school students. The findings have practical implications for the ministry of education and materials developers and draw their attention to the key role students’ perceptions of the social networks designed for educational purposes play in students’ intention and actual use of that network for their studies.

**Key words:** technology acceptance; SHAD; social network; gender; educational level

**1. Introduction**

Due to the threat of COVID-19 in the last two years, educational centers were forced to decide how to continue the teaching and learning process while protecting teachers, staff, and students from a rapidly spreading health emergency condition (Hodges, Moore, Lockee, Trust, & Bond 2020). Many institutions and schools canceled their face-to-face classes and forced instructors and teachers to hold online classes to prevent further outbreaks of COVID-19. The implementation of emergency remote teaching (ERT) as an alternative to face-to-face education has taken place but not without its costs. This sudden and unprepared change inflicted irreparable damages on education including lower educational efficiency, critical rates of absenteeism and drop-outs, and a steep rise in cheating.

One basic problems teachers and students had in ERT was unpreparedness of the administrators for online teaching particularly the problems with technology infrastructure and content delivery platforms. While in normal situations, a lot of time is usually spent on evaluating the performance, installation, and usability of digital tools and online programs (Iglesias-Pradas et al 2021), during ERT due to the urgency of moving to online mode of teaching in a very short period of time, little opportunity was available for experimentation and testing of these systems. Consequently, students were urged to use different types of LMSs or educational networks for attending virtual classes from home. This rapid shift of media has had immense impacts on students’ mental health, learning gains, and behaviors (Copeland et al, 2021). The students have reported their dissatisfaction of online learning during COVID pandemic and the way they can communicate in this ecosystem (Tang et al., 2020). One of the major problems students have with ERT is technology and its related variables including Internet connection, lack of technology literacy, and lack of ICT resources (Adarkwah, 2021; Suryaman et al., 2020).

Similar to students in other countries, Iranian students have attended ERT since February 2020. Due to school closure, Iranian ministry of education developed an educational social network for online classes known as SHAD (https://shad.ir/(. All classes are held online and teachers’ instructional practices and students’ attendances in SHAD are monitored by school principals. Studies on Iranian teachers’ lived experiences amid COVID 19 pandemic show that generally teachers have positive attitudes to SHAD, although they believe that using this platform has its own problems (e.g., Abasi, Hejazi, & Hakimzadeh, 2020). As more than 15 million students use SHAD as an educational platform, their attitudes towards SHAD and how they view it as a valuable instructional network is of great importance. Despite this necessity, research on high-school students’ attitudes towards SHAD is scarce. The current study thus explores students’ acceptance of SHAD as an educational social network based on Davis’s Technology Acceptance Model (TAM) considering their gender and level of education. The main questions of this study are:

1. Do high-school students accept SHAD as an educational social network?
2. Is there any difference between male and female high-school students’ acceptance of SHAD as an educational social network?
3. Is there any difference between junior and senior high-school students’ acceptance of SHAD as an educational social network?

**2. Review of Literature**

*2.1. Technology Acceptance Model (TAM)*

One of the scientific theories of attitudes towards using technology is the Technology Acceptance Model (TAM) proposed by Davis (1986, 1989). TAM is derived from another common theory called the theory of reasoning action (TRA; Fishbein and Ajzen, 1975) in the field of social psychology. Based on this model, attitude is “a learned predisposition to respond in a consistently favorable or unfavorable manner with respect to a given object” (Fishbein & Ajzen, 1975, p. 6). TRA includes three general components, i.e., attitude, subjective norm, and behavioral intention. One’s behavioral intention is a function of both attitudes to performing the behavior and one’s subjective norm. The attitude is positive and negative feelings of doing something and subjective norm is “the person’s belief about whether significant others feel that he or she should perform the target behavior” (Hale, Householder, & Greene, 2003, p.260).

In this framework, TAM is a research model for predicting the use and acceptance of information and technology systems by individual users. TAM can be used to measure perceived usefulness, perceived ease of use, attitudes to using and behavioral intention to use a given technology. Perceived usefulness and perceived ease of use mediate the effects of external variables such as training, system characteristics, and development process on intention to use technology. The interplay between these components predicts the acceptance and use of the technology (Fig 1).



**Figure 1. Technology Acceptance Model (TAM) (Davis, 1989)**

TAM is a useful model for research on educational technology and probing into the differences among students’ academic achievement in face-to-face and online. Research reveals mixed findings on the impact of online learning on students’ learning gains. While many benefits for online learning are reported in the literature including promoting motivation, critical thinking, self-directedness, and achievement, the number of drop-outs of online courses is alarming. Dissatisfaction of students to online learning is greatly related to how they can work with the technology and how useful they find it for their educational purposes. Therefore, careful planning of the technological systems is essential when designing educational platforms (Iglesias-Pradas et al, 2021). With the widespread use of social networks for educational purposes during the COVID 19 pandemic, more attention to students’ satisfaction of these networks and their acceptance of the system is essentially required.

*2.2. Social Media Networks and ERT*

Social media can be defined as a “group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content”’ (Kaplan & Haenlein, 2010, p. 61). Recent research shows that faculty members and teachers in schools and institutions widely use social media for professional and educational purposes. The top-ranked social media for academic communication are Facebook, WhatsApp, YouTube, and Wikipedia (Klein, Junior, Barbosa, & Baldasso, 2018). Manca, (2020) claims that among these social media tools, Facebook and WhatsApp are most used in education for various educational purposes. The result of study on the use of social media for educational purposes confirms the value of social media tools for scientific communication, maintaining satisfaction and developing students' social lives (Dyson, et al, 2015). It is also found that the use of social media is effective in student participation and engagement in learning and this influences students' positive learning experiences particularly in crisis like pandemic (Khan, Ashraf, Seinen, Khan, Laar, 2021).

 Several studies on the role of social media in education has been done. Stewart (2016) organizes the benefits of social media for educational purposes in terms of increased and interactive audience, promoting students’ creativity, and increasing learning and literacies. Wang and Meiselwitz (2015) did a systematic review on the use of social media and reported that majority of the studies focused on students’ perspectives of the social media use for instructional purposes, students’ perceived learning experiences, leaning achievement, and students’ usage patterns. There are also studies that have probed into faculty perception and concerns of educational values of the social media.

 By the spread of COVID 19 and the critical issues pedagogues faced to sustain education, some studies have particularly focused on the use of social media networks in ERT. Sobaih, Hasanein, and Abu Elnasr (2020) examined social media usage among Egyptian faculty members and students after the COVID-19 pandemic and the stopping of traditional classroom learning. Their result confirm that proper usage of social media could promote a new era of social learning, social presence and an alternative platform to foster online learning.

In another study, Islam et al, (2021) investigated problematic smartphone use (PSPU) and problematic social media use (PSMU) among Bangladeshi college and university students during the COVID-19 pandemic. The results show that PSPU and PSMU were associated with poor psychological well-being (i.e., anxiety and depression) during the pandemic. Ghounane (2020) examined EFL first-year graduate students and teachers in Algeria to provide an in-depth look at the situation of EFL teaching and learning during the COVID-19 pandemic. The result showed that students prefer face-to-face interaction in the classroom and pamphlets over virtual learning. It was also demonstrated that students are motivated to employ social networks and other educational platforms as complementary teaching materials.

Elmer, Mepham, and Stadtfeld (2020) analyzed the change in multiple dimensions of social networks and mental health indicators in two groups of Swiss students who experienced a crisis and those who did not. The findings show that students’ levels of stress, anxiety and loneliness got worse in comparison to before-the-pandemic condition. Controlling for different levels of social media integration and COVID-19 related stressors, female students appeared to have worse mental health state. In another study, Nadeak, (2020) analyzed the effectiveness of distance learning using social media during the COVID-19 pandemic among Indonesian university students based on Multi-Attribute Utility Theory. The results showed that the distance learning using social media is effective for theoretical and practical theoretical courses but not for distance field courses.

 Considering what has been discussed, this study probes into Iranian high-school students’ acceptance of SHAD, the national student educational social network, after its application in all classes of the country for more than two years. The results of the study would shed light on the way students perceive the network as a beneficial and useful learning tool and if the network meets their’ expectations and learning needs.

**3. Method**

*3.1. Participants*

Four hundred and twenty-eight students participated in the study. The sample included 207 junior and 221 senior high-school students and 194 male and 234 female students. They were selected by convenient sampling from high-school students of Fars Province.

*3.2. The instrument*

To gather information on students’ acceptance of SHAD as an educational social network Educational Social Network Acceptance Scale (ESNAS) was used. ESNAS was developed based on attitudes towards using social media scale designed by Aifan (2015). Thirty items were selected and adapted to the context of the study based on TAM. To examine the factor structure of the scale, exploratory factor analysis was used and the presence of four factors with eigenvalues exceeding 1.0 that explained a total of 68.785% of the variance was approved. For estimating the reliability of ESNAS internal consistency method was used. The four factors, the number of their items, and their Cornbach’s alphas are reported in Table 1.

**Table 1. ESNAS and its factors**

|  |  |  |
| --- | --- | --- |
| **Variables**  | **Number of items** | **Reliability**  |
| External variables | 8 | .95 |
| Perceived ease of use | 2 | .73 |
| Perceived usefulness | 10 | .94 |
| Attitudes | 10 | .94 |
| ESNAS | 30 | .97 |

*3.3. The procedure*

To answer the research questions and achieve the aim of the study, a descriptive research method was adopted. The research started with an online survey (ESNAS) directed to 428 high-school students. Once the data were gathered, data analysis including descriptive statistics and Multivariate analysis of variance MANOVA were used and the findings were interpreted and discussed.

**4. Results**

In order to answer research question 1 and find Iranian high-school students’ acceptance of SHAD as an educational social network, descriptive statistics was used.

**Table 2. Descriptive statistics of ESNAS and its factors**

|  |  |  |
| --- | --- | --- |
| **Variables**  | **Mean** | **SD** |
| External variables | 2.584 | 1.306 |
| Perceived ease of use | 3.303 | 1.332 |
| Perceived usefulness | 2.738 | 1.250 |
| Attitudes | 2.417 | 1.237 |
| ESNAS | 2.533 | 1.053 |

As the result shows the mean values of the following factors are lower than the theoretical mean (mean=3): external variables (Mean=2.58, SD= 1.30), perceived usefulness (Mean=2.73, SD= 1.25), and attitudes (Mean=2.41, SD= 1.23). The only value that is above the mean is perceived ease of use (Mean=3.30, SD= 1.33). To examine the significant difference between these values and the theoretical mean, one sample t-test was used. The result of t-test is shown in Table 3.

**Table 3. The result of one sample t-test**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **t** | **df** | **Sig.** | **Mean Difference** | **95% Confidence Interval of the Difference** |
| **Lower** | **Upper** |
| External variables | -6.579 | 427 | .000\* | -.415 | -.539 | -.291 |
| Perceived ease of use | 4.716 | 427 | .000\* | .303 | .177 | .430 |
| Perceived usefulness | -4.334 | 427 | .000\* | -.261 | -.380 | -.143 |
| Attitudes | -9.745 | 427 | .000\* | -.582 | -.700 | -.465 |
| ESNAS | -9.319 | 427 | .000\* | -.466 | -.564 | -.367 |

As the result of t-test shows, Iranian high-school students do not accept SHAD as an educational social network. They have positive perceptions of the ease of use of SHAD (Mean= 3.30), though.

In order to answer research question 2 and examine the difference between male and female high-school students’ acceptance of SHAD as an educational social network, Multivariate Analysis of Variance (MANOVA) was used. The results of the Multivariate Tests suggested a statistically significant difference between two groups on the combined dependent variables (Wilks’ Lambda=.945, F=6.195; *p*=.000<.05; ηp2=.055). When the results for the dependent variables were considered separately, the differences between the means of both groups in all factors but perceived ease of use reached the statistical significance (Table 4).

**Table 4.** **Tests of Between-Subjects Effects**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Source** | **Dependent Variable** | **Type III Sum of Squares** | **df** | **Mean Square** | **F** | **Sig.** | **Partial Eta Squared** |
| gender | External variables | 10.899 | 1 | 10.899 | 6.463 | .011\* | .015 |
| Perceived ease of use | 7.888 | 1 | 7.888 | 4.480 | .035 | .010 |
| Perceived usefulness | 27.200 | 1 | 27.200 | 18.099 | .000\* | .041 |
| Attitudes | 13.936 | 1 | 13.936 | 9.283 | .002\* | .021 |
| Error | External variables | 718.442 | 426 | 1.686 |  |  |  |
| Perceived ease of use | 750.126 | 426 | 1.761 |  |  |  |
| Perceived usefulness | 640.190 | 426 | 1.503 |  |  |  |
| Attitudes | 639.517 | 426 | 1.501 |  |  |  |
| Total | External variables | 3588.016 | 428 |  |  |  |  |
| Perceived ease of use | 5429.500 | 428 |  |  |  |  |
| Perceived usefulness | 3876.150 | 428 |  |  |  |  |
| Attitudes | 3154.380 | 428 |  |  |  |  |
| Corrected Total | External variables | 729.342 | 427 |  |  |  |  |
| Perceived ease of use | 758.014 | 427 |  |  |  |  |
| Perceived usefulness | 667.389 | 427 |  |  |  |  |
| Attitudes | 653.452 | 427 |  |  |  |  |

The result of the descriptive statistics shows that significant differences between male and female students exist and boys are more supportive of SHAD as an educational social network in all factors but perceived ease of use.

**Table 5. Descriptive statistics of ESNAS and its factors**

**across gender**

|  |  |  |
| --- | --- | --- |
|  | **Male**  | **Female**  |
| **Variables**  | **Mean** | **SD** | **Mean** | **SD** |
| External variables | 2.759 | 1.216 | 2.439 | 1.363 |
| Perceived ease of use | 3.154 | 1.365 | 3.427 | 1.332 |
| Perceived usefulness | 3.014 | 1.148 | 2.508 | 1.286 |
| Attitudes | 2.615 | 1.214 | 2.253 | 1.233 |
| ESNAS |  |  |  |  |

In order to answer research question 3 and examine the difference between junior and senior high-school students’ acceptance of SHAD as an educational social network, MANOVA was used. The results of the Multivariate Tests suggested a statistically significant difference between the two groups on the combined dependent variables (Wilks’ Lambda=.926, F=8.457; *p*=.000<.05; ηp2=.074). When the results for the dependent variables were considered separately, the differences between the means of both groups in all factors reached the statistical significance (Table 6).

**Table 6.** **Tests of Between-Subjects Effects**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Source** | **Dependent Variable** | **Type III Sum of Squares** | **df** | **Mean Square** | **F** | **Sig.** | **Partial Eta Squared** |
| level | External variables | 43.138 | 1 | 43.138 | 26.781 | .00\* | .059 |
| Perceived ease of use | 14.875 | 1 | 14.875 | 8.527 | .004\* | .020 |
| Perceived usefulness | 31.166 | 1 | 31.166 | 20.868 | .000\* | .047 |
| Attitudes | 16.442 | 1 | 16.442 | 10.995 | .001\* | .025 |
| Error | External variables | 686.203 | 426 | 1.611 |  |  |  |
| Perceived ease of use | 743.139 | 426 | 1.744 |  |  |  |
| Perceived usefulness | 636.223 | 426 | 1.493 |  |  |  |
| Attitudes | 637.010 | 426 | 1.495 |  |  |  |
| Total | External variables | 3588.016 | 428 |  |  |  |  |
| Perceived ease of use | 5429.500 | 428 |  |  |  |  |
| Perceived usefulness | 3876.150 | 428 |  |  |  |  |
| Attitudes | 3154.380 | 428 |  |  |  |  |
| Corrected Total | External variables | 729.342 | 427 |  |  |  |  |
| Perceived ease of use | 758.014 | 427 |  |  |  |  |
| Perceived usefulness | 667.389 | 427 |  |  |  |  |
| Attitudes | 653.452 | 427 |  |  |  |  |

The result of the descriptive statistics shows that junior high school students were more supportive of SHAD as an educational social network in all factors, but perceived ease of use.

**Table 7. Descriptive statistics of ESNAS and its factors**

**across levels of education**

|  |  |  |
| --- | --- | --- |
|  | **Junior high-school**  | **Senior high-school** |
| **Variables**  | **Mean** | **SD** | **Mean** | **SD** |
| External variables | 2.912 | 1.308 | 2.277 | 1.231 |
| Perceived ease of use | 3.111 | 1.365 | 3.484 | 1.277 |
| Perceived usefulness | 3.016 | 1.214 | 2.476 | 1.228 |
| Attitudes | 2.619 | 1.230 | 2.227 | 1.215 |
| ESNAS |  |  |  |  |

**5. Discussion**

The findings primarily showed that high-school students do not accept SHAD as an educational social network, although they perceived this platform as being easy to use. The finding in agreement with a few other studies done on SHAD shows that this platform needs further revision and development to meet the needs of the students. SHAD has poses certain challenges for both students and teachers with respect to content delivery and assessment (Abasi, Hejazi, & Hakimzadeh, 2020) as SHAD is not a Learning Management System but a social network just for connecting people. Lack of features such as personalization, archiving, and assessment/ feedback providing makes this social network less appropriate and practical to be used as an LMS. In other words, the advantages of a true LMS are missing in SHAD including centralized learning environment to ensure consistency, tracking and reporting for enhanced performance, and immediate capabilities evaluation (Pilli, 2014). This corroborates the assumption that combining a learning management system and a social software reduces the constraints of both and can prepare the ground for more learning and interaction (Haghshenas, 2019).

Further, it was found that irrespective of positive perceptions of ease of use, male and female students had different levels of acceptance of SHAD. Actually, boys had higher level of acceptance of SHAD in comparison to girls. The reason of this finding can be related to the fact that females pay more attention to the use of standard language than males, so they are stricter in the rules of language use (Xia, 2013). It is an accepted idea that women are more careful, sensitive, and considerate than men. As Azlan and Yunus (2020) claim, social networks and platforms enable users to update profiles, active discussion through comments and chat tools, as well as provide feedback during activities. Therefore, the disapproval of SHAD by girls might be related to their judgment of the way the platform works and creates the environments they need for collaboration and interaction. The boys’ acceptance of SHAD in comparison to girls can also be related to boys’ higher perceived efficacy and convenience in online classes and girls’ dissatisfaction of e-learning. Girls are generally more studious than boys and they do their tasks more seriously. It is probable that girls have transferred their learning habits to the ERT (Korlat et al., 2021) and have got disappointed with SHAD due to its educational affordances. This finding is in agreement with other studies that gender is a significant predictor of students’ satisfaction with the e-learning systems (Lu & Chiou, 2010).

It was also found that junior high-school students had higher level of acceptance of SHAD as an educational social network in all factors, but perceived ease of use. Due to the reported problems of SHAD, including technical problems, installation restrictions on phones with different operating systems, authentication problems, etc., it can be concluded that senior high-school students can manage their problems with SHAD more efficiently than junior high-school students. Due to their experience in virtual world, they may have access to high-performance platforms and can use them to achieve their learning goals.

**Conclusions**

The study was conducted to examine Iranian high-school students’ acceptance of SHAD as an educational social network based on TAM. The findings suggest that despite positive perceptions of SHAD’s ease of use, the students did not accept SHAD as an educational social network and did not approve its usefulness in learning English. Considering the gender and the level of education, boys and senior high-school students were more found to be more supportive of SHAD.

The findings of the study would be useful for policy makers to develop more useful platforms for educational purposes based on constraints and needs analyses across the country. In this process, the opinions of all stakeholders of education system from students and teachers to parents and principals should be sought and included in designing more suitable educational networks.

Further research on appropriacy of SHAD as an educational network is required by utilizing mixed methods research and analysis of both qualitative and quantitative data. Also, other individual differences and technology-related factors such as age, socio-economic status of the parents, IT literacy, and technology ownership and access can be included into the design of the study to see their role in students’ acceptance of SHAD.

**References**

# Abasi, F., Hejazi, E., & Hakimzadeh, R. (2020). Iranian teachers' lived experience of virtual teaching in the early days of the coronavirus epidemic. *Journal of Research in Teaching, 8*(3), 1-24. (Persian).

Aifan, H. A. (2015). *Saudi students’ attitudes’ towards using social media to support learning,* (dissertation). King Abdu-Aziz University, Jeddah.

Adarkwah, M. A. (2021). “I’m not against online teaching, but what about us?”: ICT in Ghana post COVID-19. *Education and Information Technologies, 26*(2), 1665-1685

Azlan, N. A. B., & Yunus, M. M. (2020). Undergraduate students’ perceptions of social networking sites to improve English writing skills in Malaysia. *International Journal of Learning, Teaching and Educational Research*, *19*(3), 329-351.

Copeland, W. E., McGinnis, E., Bai Y, Adams, Z., Nardone, H., Devadanam, V., Rettew, J., Hudziak, J.J. Impact of COVID-19 pandemic on college student mental health and wellness. *Journal of the American Academy of Child & Adolescent Psychiatry, 60*(1), 134-141.

Dyson, B., Vickers, K., Turtle, J., Cowan, S., & Tassone, A. (2015). Evaluating the use of Facebook to increase student engagement and understanding in lecture-based classes. *Higher Education*, *69*(2), 303-313.

Elmer, T., Mepham, K., & Stadtfeld, C. (2020). Students under lockdown: Comparisons of students’ social networks and mental health before and during the COVID-19 crisis in Switzerland. *Plos One*, *15*(7), e0236337.

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. MA: Addison-Wesley.

Ghounane, N. (2020). Moodle or social networks: What alternative refuge is appropriate to Algerian EFL students to learn during COVID-19 pandemic. *Arab World English Journal*, *11*(3), 21-41.

Haghshenas, M. (2019). A model for utilizing social softwares in Learning Management System of e-learning. *Quarterly Journal of Iranian Distance Education, 1*(4), 25-38.

Hale, J. L., Householder, B. J., & Greene, K.L. (2003). The theory of reasoned action. In J.P. Dillard & M. Pfau (Eds.), *The persuasion handbook: Developments in theory and practice* (pp. 259-286). Thousand Oaks, CA: Sage Publications.

Hodges, C. B., Moore, S., Lockee, B. B., Trust, T., & Bond, M. A. (2020). The difference between emergency remote teaching and online learning. Retrieved December 2021 from https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning

Iglesias-Pradas, S., Hernández-García, Á., Chaparro-Peláez, J., & Prieto, J. L. (2021). Emergency remote teaching and students’ academic performance in higher education during the COVID-19 pandemic: A case study. *Computers in Human Behavior*, *119*, 106713.

Islam, M. S., Sujan, M. S. H., Tasnim, R., Mohona, R. A., Ferdous, M. Z., Kamruzzaman, S., ... & Pontes, H. M. (2021). Problematic smartphone and social media use among Bangladeshi college and university students amid COVID-19: the role of psychological well-being and pandemic related factors. *Frontiers in Psychiatry*, *12*, Article 647386.

Kaplan, A.M., & Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of social media. *Business Horizons, 53*(1), 59-68

Khan, M.N., Ashraf, M.A., Seinen, D., Khan, K.U., & Laar, R.A. (2021). Social media for Knowledge Acquisition and Dissemination: The Impact of the COVID-19 Pandemic on Collaborative Learning Driven Social Media Adoption. *Frontiers in Psychology, 12*, 648253.

Klein, A. Z., Junior, J. C. D. S. F., Barbosa, J. L. V., & Baldasso, L. (2018). The educational affordances of mobile instant messaging (MIM): Results of Whatsapp® used in higher education. *International Journal of Distance Education Technologies*, *16*(2), 51-64.

Korlat, S., Kollmayer, M., Holzer, J., Lüftenegger, M., Pelikan, E. R., Schober, B., & Spiel, C. (2021). Gender differences in digital learning during COVID-19: Competence beliefs, intrinsic value, learning engagement, and perceived teacher support. *Frontiers in Psychology, 12,* 637776

Lu, H., & Chiou, M. (2010). The impact of individual differences on e-learning system satisfaction: a contingency approach. *British Journal of Educational Technology, 41,* 307-323.

Manca, S. (2020). Snapping, pinning, liking or texting: Investigating social media in higher education beyond Facebook. *The Internet and Higher Education*, *44*, 100707.

Nadeak, B. (2020). The effectiveness of distance learning using social media during the pandemic period of COVID-19: A case in Universitas Kristen Indonesia. *International Journal of Advanced Science and Technology*, *29*(7), 1764-1772.

Pilli, O. (2014). LMS Vs. SNS: Can Social Networking Sites act as a Learning Management Systems? *American International Journal of Contemporary Research, 4*(5), 90-97.

Rodríguez-Moreno, J., Ortiz-Colón, A. M., Cordón-Pozo, E., & Agreda-Montoro, M. (2021). The influence of digital tools and social networks on the digital competence of university students during COVID-19 pandemic. *International Journal of Environmental Research and Public Health*, *18*(6), 2835.

Sobaih, A. E. E., Hasanein, A. M., & Abu Elnasr, A. E. (2020). Responses to COVID-19 in higher education: Social media usage for sustaining formal academic communication in developing countries. *Sustainability*, *12*(16), 6520.

Stewart, O. (2016). A critical review of the literature of social media’s affordances in the classroom. *E-Learning and Digital Media, 12*(5-6), 481-501.

Suryaman, M., Cahyono, Y., Muliansyah, D., Bustani, O., Suryani, P., Fahlevi, M., & Munthe, A. P. (2020). COVID-19 pandemic and home online learning system: Does it affect the quality of pharmacy school learning? *Systematic Reviews in Pharmacy, 11,* 524-530

Tang, T., Abuhmaid, A. M., Olaimat, M., Oudat, D. M., Aldhaeebi, M., & Bamanger, E. (2020). Efficiency of flipped classroom with online-based teaching under COVID-19.  *Interactive Learning Environments.* doi.org/10.1080/10494820.2020.1817761

Wang Y., Meiselwitz G. (2015). Social media and higher education: A literature review. In G. Meiselwitz (eds), *Social computing and social media*. SCSM 2015. Lecture Notes in Computer Science, vol 9182. Springer, Cham.

Xia, X. (2013). Gender differences in using language. *Theory and Practice in Language Studies*, *3*(8), 1485.

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