Beta: Jurnal Tadris Matematika, 16(2) 2023: 98-109
DOI 10.20414/betajtm.v16i2.503

Research articles

The impact of online learning on the social skills of prospective teachers with different thinking styles

Mohamad Nur Fauzi[1], Sofwan Hadi[1], Ulum Fatmahanik[1]

Abstrak Artikel ini membahas pengaruh model pembelajaran online dengan aplikasi Edmodo terhadap keterampilan sosial mahasiswa calon guru berdasarkan gaya berpikir. Penelitian kuantitatif dengan jenis eksperimen semu digunakan untuk menguji pengaruh tersebut. Pengumpulan data menggunakan angket yaitu angket keterampilan sosial dan angket karakteristik gaya berfikir yang diberikan kepada 100 calon guru. Uji Anova digunakan untuk menganalisis data. Hasil penelitian ini menunjukkan bahwa keterampilan sosial mahasiswa calon guru dengan empat gaya berpikir: sekuensial konkret (CS), sekuensial abstrak (AS), acak konkret (CR), dan acak abstrak (AR) yang menggunakan pembelajaran online edmodo lebih baik daripada pembelajaran langsung. Selain itu, keterampilan sosial mahasiswa calon guru pada masing-masing karakteristik gaya berpikir saat pembelajaran online tidak berbeda. Namun, pada pembelajaran langsung, keterampilan sosial calon guru dengan gaya berfikir acak abstrak lebih baik daripada sekuensial abstrak.

Kata kunci *Gaya berpikir, Keterampilan sosial, Pembelajaran online, Calon guru*

Abstract This article discusses the impact of online learning using Edmodo on prospective teachers' (PTs) social skills based on their thinking styles. This study employed quasi-experimental research to examine the impact. The researchers gathered the data using social skill and thinking style questionnaires administered to 100 PTs. The data were analysed using analysis of variances (ANOVA). The results show that PTs' social skills with four thinking styles: concrete sequential (CS), abstract sequential (AS), concrete random (CR), and abstract random (AR) through online learning are better than using direct learning. Moreover, PTs' social skills within each thinking style do not differ. However, in direct learning, PTs' social skills with abstract random thinking are better than PTs' with abstract sequential.

Keywords *Thinking styles, Social skills, Online learning, Prospective teachers*

Introduction

Corona pandemic has posed a significant challenge to the education sector worldwide, including in Indonesia. Online learning has become the new norm during the pandemic, but it has been challenging. To address the challenges, a new approach, blended learning, combines online and in-person learning, has emerged. This approach aims at preventing the spread of new variants of the coronavirus that may emerge in the future.

Blended learning is a reasonable choice for learning (Ceylan & Kesici, 2017). One of the objectives of blended learning is to increase student satisfaction with prospective teachers

[1] Mathematics Education Department, Institut Agama Islam Negeri (IAIN) Ponorogo, Indonesia, fauzinur228@gmail.com

participating in more effective learning (Dinh et al., 2021). In the learning process, student involvement is significant both during online and face-to-face learning to achieve learning objectives (Lam et al., 2018). This is in line with the results of other studies that show blended learning can provide improved learning outcomes, response, and motivation, activity, critical thinking, understanding of concepts, interests, power and independence of learning (Ceylan & Kesici, 2017; Arifin &; Herman, 2018; Pambuditama, 2010; Rafiola et al., 2020).

Implementing blended learning, especially in online learning, can be held using a learning management system (LMS), for example, Edmodo. It is a platform that combines a concept of social networking and learning, so students will likely be very interested in following learning, especially in learning mathematics (Tsetsos & Prentzas, 2020).

Prospective teachers (PTs) have found online learning in mathematics, specifically Geometry, to be more engaging and interactive when using Edmodo compared to traditional classroom learning (Kuliah et al., 2018). It highlights the importance of interaction between students and lecturers in online learning. These interactions involve discussions, cooperation, and providing alternative solutions for problem-solving, collectively known as social skills (Fligstein, 2001). Prospective teachers also require these skills to facilitate class discussions and directly interact with their students. The interaction between teachers and students can take various forms, including answering questions, providing guidance, and encouraging cooperation to complete assigned tasks.

The way to train and improve social skills is through coaching (Muijs et al., 2008). Social skills development has been recommended as an intervention for students who have difficulty building social relationships with peers and lecturers in the campus environment (Gresham et al., 2006). Relationships with peers are significant for students, prospective teachers, throughout the ages because, as social creatures, they will need each other one day (Wentzel, 2017). Therefore, social skills are essential to achieve success, specifically, PTs who will become teachers.

Students must develop social skills to communicate with their teachers and peers effectively. This ability to socialise is closely tied to the thinking process, which involves receiving and absorbing information (Rahmy et al., 2019). Gregorc (1998) identified four thinking styles: concrete sequential (CS), abstract sequential (AS), concrete random (CR), and abstract random (AR), each with its own set of strengths and weaknesses. The present study explored whether blended learning, specifically online learning with Edmodo, impacts PTs' social skills regarding their thinking styles (CS, AS, CR, and AR). This study also determined which thinking style enhances students' social skills while using Edmodo for online learning.

Prior research

In the new post-pandemic paradigm, learning activities have now experienced significant development. It can be seen in the collaboration of the learning implementation process. The collaboration in question is face-to-face (offline) and online, carried out entirely online during the pandemic. Online learning is a learning process carried out online or without a face-to-face process so that lecturers and prospective teachers are in different places (Pohan, 2020). On the other hand, offline learning is the opposite. So offline learning is without internet access (Ambarita et al., 2021).

According to several research results related to online learning, especially those using Edmodo, it has a positive influence on learning. Learning using Edmodo is more interactive than

those not using it (Suharti, 2021). In addition, Edmodo also provides more effective results than Google Classroom (Gultom et al., 2022). Basically, during the online learning process, the material delivered by lecturers is well absorbed by prospective teachers, as well as during offline learning.

Edmodo can help teachers build virtual classrooms according to classroom learning conditions based on real class division at school, where classes have assignments, quizzes, and assignments at the end of each lesson (Putranti, 2016). In addition, the facilities at Edmodo strongly support online learning activities so that interactive communication occurs between students and lecturers (Septanto, 2015). This aligns with a previous study that Edmodo-based blended learning has implications for teacher activeness by using technology for education and student independence in the learning process (Pertiwi et al., 2019). Blended learning can make students comfortable and increase achievements (Al-Kahtani, 2022). In addition, blended learning with Edmodo significantly influences learning interests (Fauziyah & Triyono, 2020).

This study aimed to determine the impact of using Edmodo in an online learning on social skills. In addition, the characteristics of thinking style are also one of the variables observed. Some researchers have focused on this topic but the context of the this study is different. Most studies only looked at the effect of blended learning on social skills (for example, Suprabha & Subramonian, 2019; Agusta & Pratiwi, 2021). However, the learning application was not the Edmodo application, and the characteristics of thinking styles have not been considered.

Social skills

Social skills are the ability to encourage cooperation with others (Fligstein, 2001). This ability to cooperate is essential in the world of education. Hochwarter et al. (2006) found that social skills are relevant to performance, so the relationship between social skills and job performance, especially in education, becomes stronger (Ferris et al., 2001). Shapiro (2003) identified five social skills: communication skills, humor-making skills, friendship skills, group skills, and courtesy skills. According to Gottman and Parker (1986), there are six specific social skills: (1) adjustment, cooperation, and competition; (2) risk-taking; (3) developing communication skills; (4) developing negotiation skills and tactfully; (5) handling conflicts; and (6) develop shared understanding in group interactions. According to Albrahim (2020), the aforementioned skills and competencies are classified into six categories: a) pedagogical skills, (b) content skills, (c) design skills, (d) technology skills, (e) management and institutional skills, and (f) social and communication skills.

Referring to the aspects of social skilss, this study observed several social skills: cooperation, communication, and negotiation and tact. These three aspects are significant for prospective teachers. A prospective teacher must communicate well to deliver material to his students. In addition, through communication, PTs will be able to help solve problems their students face. Without communication, they will not be able to know the development and obstacles of their students. Furthermore, PTs must be able to cooperate both with colleagues and with their students. Through cooperation, they will also be significantly helped in completing all activities related to the learning process. The following skills that PTs must have are negotiation and tact. This ability is needed when, later in education, they are faced with difficult choices that require immediate decisions. Therefore, this ability is essential for PTs.

Thinking styles

Gregorc (1998) argues that everyone has a different thinking style. There are two factors which influence it; how to receive information (perception) and use perceived information (regulation). Perception is divided into two, namely, concrete and abstract. At the same time, the arrangement consists of sequential (ordered) and random. The concrete sequential characteristics include accuracy, stability, and organisation. However, the abstract sequential is analytical, objective, thorough, logical, and systematic. Furthermore, the characteristics of concrete random are sensitivity, imagination, spontaneity, and flexibility. In contrast, abstract random includes intuitiveness, realism, innovation, and following instinct. Furthermore, the characteristics of thinking styles are divided into four, namely: Concrete Sequential (CS), Concrete Random (CR), Abstract Sequential (AS), and Abstract Random (AR).

From the explanation above, each prospective teacher might have different characteristics of thinking styles. It could affect their delivery of material to students. Every prospective teacher must know the type of characteristics of their thinking style to minimize if there are shortcomings. This is because thinking style is a form of self-regulation and self-organization of thinking activities (Rositawati, 2019). According to these ideas, Belousova (2014) distinguishes four functions by which the self-organization of collaborative thinking activity is performed: idea generation function, selective function, sense transfer function, and realization function.

Online learning using Edmodo

Edmodo is one of the online learning applications used in the teaching and learning process. According to Arifin and Ekayati (2019), Edmodo is similar to Facebook. It is just that Edmodo is more inclined to social media based on microblogging networks. It can only upload photos, videos, and files on other social media without reciprocity. So unlike Edmodo, in this application, in addition to those mentioned above, Edmodo can also manage the grades of both assignments and tests that have been prepared and ask questions directly in the application (Empson, 2012).

Using technology, whether laptops, smartphones, or others, to carry out learning positively influences social skills. During this online learning, prospective teachers who usually do not ask questions become willing to ask questions or give opinions (Gamage & Perera, 2021). These interactions are constructive for developing social skills (Bali, 2017). Using Edmodo, prospective teachers can also give their opinions through discussion rooms or polls.

Methods

This study used a quantitative approach with quasi-experimental research and a factorial design (Table 1). In this study, there were two independent variables. First, thinking styles which comprise concrete sequential (CS), abstract sequential (AS), concrete random (CR), and abstract random (AR). Second, learning model consists of a direct learning (control class) before using Edmodo and online learning using Edmodo (experimental class). The sample of this study was 100 PTs selected through cluster ramdom sampling.

Data were collected using social skill and thinking style questionnaires. The thinking style questionnaire was adapted from De Porter and Hermacki (2000). Fifteen groups of words were arranged according to the characteristics of each type of thinking style, while for social skills questionnaires were obtained from the results of researcher development by the observed aspects

of prospective teachers' social skills. Before being used, experts validated the social skill questionnaire and then it was tested on different pool of prospective teachers. The type of data for this questionnaire is interval. The social skill questionnaire contains five answer choices: strongly agree with a score of 5, agree with a score of 4, hesitate with a score of 3, disagree with a score of 2, and strongly disagree with a score of 1.

Table 1. Factorial research design

Learning model (A)	Characteristics of Thinking Styles			
	Concrete Sequential (B_1)	Sequential Abstract (B2)	Concrete Random (B3)	Abstract Random (B4)
Direct learning (A1)	A1 B1	A1 B2	A1 B3	A1 B4
Online learning with Edmodo (A_2)	A2 B1	A2 B2	A2 B3	A2 B4

Based on the trial questionnaire result, 40 out of 45 statements were deemed relevant for this study. To ensure the accuracy of the data, both questionnaires were administered to the participants as control class data before the study commenced. The experimental class data was obtained by giving the same questionnaire to participants after they received treatment but with randomized statement locations. The thinking style c questionnaire employs a nominal scale to categorize the participants, according to their thinking style characteristics, with no levels involved. These findings provide a solid foundation for further research in this field.

Analysis of variance (ANOVA) was used to determine the influence of the use of learning models on social skills seen from the characteristics of thinking styles so that in addition to being able to see the influence or not of the use of learning models on social skills, we can also find out which thinking style characteristics have better social skills in each learning model. Before testing the hypothesis, prerequisite tests were carried out, namely normality tests and homogeneity tests with a significance level of 5%, using the SPSS application version 21.

Findings and Discussion

The distribution data were obtained from the results of the distribution of social skills and thinking style questionnaires given to 100 participants, as shown in Table 2.

Table 2. Average distribution of social skills based on thinking styles

	Concrete Sequential (CS)	Sequential Abstract (SA)	Concrete Random (CR)	Abstract Random (AR)
Direct learning	80	79	80	81
Online learning with Edmodo	82	82	82	83
Respondents	29	28	22	21

Table 2 shows that indirect learning, the average social skills characteristic of abstract random thinking styles, has the most significant average of 81. However, the average social skills of concrete sequential, abstract sequential, and concrete random types have almost the

same average of around 79. Furthermore, in the online learning group with Edmodo, the same results were obtained as before. Namely, the abstract random type had the highest average of 83 compared to other types. In contrast, the concrete sequential, abstract sequential, and concrete random types had the same average of 82. The number of samples in this study was 100 students with criteria characteristic of thinking styles of concrete sequential type 29 students, abstract sequential 28 students, concrete random 22 students, and abstract random 21 students.

Furthermore, before testing the hypothesis of this study, a normality test and homogeneity test were carried out with the help of SPSS version 21. The normality test uses the Kolmogorov-Smirnov test (Table 3).

Table 3. One-sample Kolmogorov-Smirnov test

		Social_skill_edmodo	Social_skill_direct
N		100	100
Normal Parameters[a]	Mean	81.93	79.86
	Std. Deviation	2.896	2.416
Most Extreme Differences	Absolute	.116	.107
	Positive	.116	.107
	Negative	-.103	-.083
Kolmogorov-Smirnov Z		1.159	1.069
Asymp. Sig. (2-tailed)		.136	.203

a. Test distribution is Normal.

Table 3 shows the results of testing social skills data on direct and online learning using Edmodo sequentially as follows: asymp. Sig. 0.203 and 0.136. From these results, it can be seen that both data on the sig value. Everything above 0.05 means that the hypothesis that normal attributable data is accepted. Next, the normally distributed data is tested to determine whether the data is homogeneous. The results of the data homogeneity test are shown in Table 4.

Table 4. Test of homogeneity of variances

	Levene statistic	df1	df2	Sig.
Social_skill_direct	1.016	3	96	.389
Social_skill_edmodo	.754	3	96	.522

Based on Table 4, each sig value is examined. In each direct learning group, the value of sig. 0.389 and sig. Edmodo's learning is 0.522. The results show that the value of sig. more than 0.05 means the hypothesis that the data came from homogeneous variants is accepted.

The results of the data normality test and data homogeneity test show that the data is normally distributed and comes from homogeneous variants so that the hypothesis test can be implemented. Test the hypothesis here using a paired samples test to determine which social skills are better for direct learning or learning using Edmodo. The test results are represented in Table 5.

Table 5. Paired samples test

		Paired Differences					t	Df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	social_skill_direct - social_skill_edmodo	-2.070	3.696	.370	-2.803	-1.337	-5.600	99	.000

From the paired test results, the sample test obtained sig values. 0.000 where the value is less than 0.05, so it can be concluded that social skills with direct learning and online learning using Edmodo have differences. The average value of social skills shows that the value of social skills in online learning is better than in in-person learning. After the t-test, the ANOVA test was carried out to determine which provided better social skills in each of the characteristics of concrete sequential thinking styles, abstract sequential, concrete random, or abstract random types in the direct learning group and online learning using Edmodo.

Table 6. Analysis of variances

		Sum of Squares	Df	Mean Square	F	Sig.
Social_skill_direct	Between Groups	49.552	3	16.517	3.000	.034
	Within Groups	528.488	96	5.505		
	Total	578.040	99			
Social_skill_edmodo	Between Groups	11.628	3	3.876	.454	.715
	Within Groups	818.882	96	8.530		
	Total	830.510	99			

From Table 6 above, social skills in online learning using Edmodo obtained a sig value. 0.715, where the value is more than 0.05, means accepting the null hypothesis, namely, students with characteristics of thinking styles of CS, AS, CR, and AR have the same good social skills. Furthermore, in direct learning, sig values are obtained. 0.034, where the value is less than 0.05, so H_0 is rejected, which means there are differences in students' social skills seen from the characteristics of thinking styles. Therefore, a post hoc test is necessary to determine which type of thinking style characteristics provide better social skills: CS, AS, CR, or AR. The post hoc test uses the Bonferroni test.

The post hoc test results in Table 7 show that during direct learning, the characteristics of abstract sequential thinking styles and abstract random are differences in social skills. There is a difference in average value. The abstract sequential social skills is 79, while the random abstract is 81. It means abstract random social skills (AR) provide better social skills than abstract sequential (AS). In contrast, AR, CS, and CR social skills provide equally good social skills.

In line with the results of Noviyanti and Sugiharta's (2019) research, which said that online learning using Edmodo increased mathematical problem-solving skills. Online learning disseminates information through technological media (Tajik & Vahedi, 2021). In addition,

online learning with Edmodo also influences motivation, interest, independence, and learning outcomes (Sari & Trisnawati, 2021; Hatip & Listiana, 2019; Fauziyah & Triyono, 2020).

Table 7. Post Hoc test

Bonferroni

Dependent Variable	(I) thinking_style_ Characteristics	(J) thinking_style_ Characteristics	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
social_skill_direct	concret_sequential_CS	abstract_sequential_AS	.266	.622	1.000	-1.41	1.94
		concret_random_CR	-.176	.663	1.000	-1.96	1.61
		abstract_random_AR	-1.639	.672	.100	-3.45	.17
	abstract_sequential_AS	concret_sequential_CS	-.266	.622	1.000	-1.94	1.41
		concret_random_CR	-.442	.668	1.000	-2.24	1.36
		abstract_random_AR	-1,905*	.677	.036	-3.73	-.08
	concret_random_CR	concret_sequential_CS	.176	.663	1.000	-1.61	1.96
		abstract_sequential_AS	.442	.668	1.000	-1.36	2.24
		abstract_random_AR	-1.463	.716	.262	-3.39	.47
	abstract_random_AR	concret_sequential_CS	1.639	.672	.100	-.17	3.45
		abstract_sequential_AS	1,905*	.677	.036	.08	3.73
		concret_random_CR	1.463	.716	.262	-.47	3.39

*. The mean difference is significant at the 0.05 level.

Furthermore, Fauzi et al. (2018) conducted face-to-face research. Learning using the Student Facilitator and Explaining Social Skills Model was better than direct learning. Still, the same study found that each type of thinking style characteristic, CS, AS, CR, and AR, has social skills that are equally good in learning the SFE model. In this study, almost the same results were found. Still, in face-to-face learning, it was found that the characteristics of abstract random-type thinking styles have better social skills than abstract sequential types. This is because the characteristics of abstract random thinking styles have more intuitive and innovative thinking. Hence, this type of group has better social skills than abstract sequential. In addition, students with the characteristic AR thinking style are willing to try new things according to their innovations. AR may be better than the AS type, emphasizing logical and systematic thinking, so the things to be done must be carefully structured.

Knowledge of the thinking style possessed by prospective teachers is indispensable to improving teaching and learning (Zhang & Sternberg, 2002). The thinking styles of prospective teacher students also make a difference in their conception of effective teachers (Zhang, 2004). This thinking style will also provide a different way to interact during face-to-face and online learning. According to Dangwal (2017), in this blended learning, lecturers or prospective teacher students must master traditional and online methods. Such mastery aims to develop strong student engagement in face-to-face and online learning environments. It is essential to deliver active blended learning, as this prospective teacher engagement is required for positive learning responses (Lam et al., 2018).

One of the applications used to deliver online learning is the Edmodo application. The use of Edmodo in learning influences better creative thinking skills (Widyaningrum et al., 2020). This creativity in thinking will have an impact on the ability of students' social skills. Creative students will have better social skills (Chen, 2020). The results also show that social networks can increase social skills (She et al., 2023). It aligns with the researchers' findings that using Edmodo online learning significantly improves their social skills. However, the four types of thinking style characteristics at the time of online learning have the same good social skills. However, during direct learning, there is a thinking characteristic that is more prominent in the same quadrant, namely the abstract random thinking style, which is better than the abstract sequential thinking style.

Unfortunately, the Edmodo application can be used again since September 22, 2022. However, we can still use other applications with the same advantages and features as Edmodo. The application in question is the e-learning of each institution that continues to be developed and the Moodle application (Retnoningsih, 2017).

Conclusion

Developing social skills is crucial as it impacts various domains of one's life, including academic performance, behavior, relationships, mental health, and prospects (Øzerk et al., 2021). Prospective teachers need to hone their social skills to foster better collaboration and communication with their colleagues and students (Goodwin, 1999). To support this development, blended learning is a practical approach that provides ample opportunities for students. In this study, online learning using Edmodo was found to be more effective than direct learning in enhancing the social skills of prospective teachers. The study also discovered that participants' thinking styles did not differ significantly between the two approaches. However, there were variations in students' social skills, thinking styles (abstract random and abstract sequential), and characteristic types during direct learning. These findings highlight the need for educators to focus on developing social skills in students, which can be achieved through various approaches, including blended learning.

The study unequivocally demonstrates that online learning via Edmodo significantly positively impacts the social skills of prospective teachers, regardless of their thinking style. While direct learning shows varying social skill outcomes for two types of thinking style characteristics - abstract sequential and abstract random - blended learning has been identified as a highly effective way to improve social skills across all thinking style characteristics.

Blended learning offers a great opportunity to enhance independent learning and improve the overall learning performance of students. As Dinh et al. (2021) highlighted, an effective blended learning system can lead to higher student satisfaction among prospective teachers. To

ensure that the blended learning approach is constructive and student-focused, paying attention to the student's needs is crucial, as Asodeh et al. (2012) emphasized. It provides them with opportunities to learn, fosters social acceptance, builds confidence, and enhances their mental abilities. By taking a constructive approach to blended learning, we can create a more engaging and effective learning experience for all students.

References

Albrahim, F. A. (2020). Online teaching skills and competencies. *Turkish Online Journal of Educational Technology-TOJET*, *19*(1), 9-20. https://eric.ed.gov/?id=EJ1239983

Al-Kahtani, N., Almurayh, A., Subbarayalu, A. V., Sebastian, T., Alkahtani, H., & Aljabri, D. (2022). Sustaining blended and online learning during the normal and new normal conditions in a Saudi higher education institution: Health science students' perspectives. *Heliyon*, *8*(10).https://doi.org/10.1016/j.heliyon.2022.e10898

Agusta, A. R., & Pratiwi, D. A. (2021). Developing blended learning model Martapura to improve soft and social skills. In *4th Sriwijaya University Learning and Education International Conference (SULE-IC 2020)* (pp. 294-302). Atlantis Press. https://doi.org/10.2991/assehr.k.201230.121

Ambarita, J., Jarwati, S. P. K., & Restanti, D. K. (2021). *Pembelajaran luring.* Penerbit *Adab.*

Arifin, F., & Herman, T. (2018). Pengaruh pembelajarann e-learning model web centric course terhadap pemahaman konsep dan kemandirian belajar matematika siswa. *Jurnal Pendidikan Matematika, 12*(2), 1–12. https://doi.org/10.22342/JPM.12.2.4152.1-12

Arifin, M., & Ekayati, R. (2019). *E-learning berbasis Edmodo*. Deepublish.

Ashpihani, M. (2016). *Implementasi corona game engine pada game* edukasi *matematika sekolah dasar berbasis android* (Doctoral dissertation, Sekolah Tinggi Informatika dan Komputer Indonesia, Malang).

Asoodeh, M. H., Asoodeh, M. B., & Zarepour, M. (2012). The impact of student-centred learning on academic achievement and social skills. *Procedia-Social and Behavioral Sciences, 46,* 560-564. https://doi.org/10.1016/j.sbspro.2012.05.160

Bali, M. M. E. I. (2017). Model interaksi sosial dalam mengelaborasi keterampilan sosial. *Pedagogik: Jurnal Pendidikan, 4*(2). https://doi.org/10.33650/pjp.v4i2.19

Belousova, A. (2014). Thinking style as a factor of variable cognitive education. *Procedia-Social and Behavioral Sciences, 149,* 97-101. https://doi.org/10.1016/j.sbspro.2014.08.167

Ceylan, V. K., & Kesici, A. E. (2017). Effect of blended learning to academic achievement. *Journal of Human Sciences*, *14*(1), 308-320. https://www.j-humansciences.com/ojs/index.php/IJHS/article/view/4141

Chen, B. (2020). Enhance creative performance via exposure to examples: The role of cognitive thinking style. *Personality and Individual Differences, 154,* 109663. https://doi.org/10.1016/j.paid.2019.109663

Dangwal, K. L. (2017). Blended learning: An innovative approach. *Universal Journal of Educational Research, 5*(1), 129-136. https://doi.org/10.13189/ujer.2017.050116

De Porter, B., & Hernacki, M. (2000). *Quantum learning*. Mizan.

Dinh, T. C., Dao, K. T., Quach, D. K., Ha, N. P. T., & Ho, M. C. (2021). Factors affect students' satisfaction in blended learning courses in a private university in Vietnam. *Essays in Education, 28*(1), 2. https://openriver.winona.edu/cgi/viewcontent.cgi?article=1273&context=eie

Empson, R. (30 April 2012). As it graduates from network to platform, Edmodo now serving 7m users, 80k schools. TechCrunch. https://techcrunch.com/2012/04/30/edmodo-hits-7m/

Fauzi, M. N. (2018). The effect cooperative model type of SFE toward students social skills viewed from the thinking styles characteristics. *JPI (Jurnal Pendidikan Indonesia), 6*(2), 228-232. https://doi.org/10.23887/jpi-undiksha.v6i2.11875

Fauziyah, S., & Triyono, M. B. (2020). Pengaruh e-learning Edmodo dengan model blended learning terhadap minat belajar. *Jurnal Kependidikan: Penelitian Inovasi Pembelajaran*, *4*(1), 112-124.https://doi.org/10.21831/jk.v4i1.27562

Ferris, G. R., Witt, L. A., & Hochwarter, W. A. (2001). Interaction of social skill and general mental ability on job performance and salary. *Journal of Applied Psychology, 86*(6), 1075–1082.https://doi.org/10.1037/0021-9010.86.6.1075

Fligstein, N. (2001). Social skill and the theory of fields. *Sociological Theory, 19*(2), 105-125.https://doi.org/10.1111/0735-2751.00132

Gamage, K. A., & Perera, E. (2021). Undergraduate students' device preferences in the transition to online learning. *Social Sciences, 10*(8), 288. https://doi.org/10.3390/socsci10080288

Goodwin, M. W. (1999). Cooperative learning and social skills: What skills to teach and how to teach them. intervention in school and clinic, *35*(1), 29-33. https://doi.org/10.1177/105345129903500105

Gottman, J. M., & Parker, J. G. (1986). *Conversations of friends: Speculations on affective development.* Cambridge University Press.

Gregorc, A. F. (1998). *The mind styles model: Theory, principles and practice: A primer*. Gregorc Associates

Gresham, F. M., Van Bao, M., & Cook, C. R. (2006). Social skills training for teaching replacement behaviors: Remediating acquisition deficits in at-risk students. *Behavior Disorders*, *31*(4), 363–377. https://doi.org/10.1177/019874290603100402

Gultom, N. C., Hasibuan, A., & Gultom, C. R. (2022). Komparasi efektivitas Edmodo dengan Google Classroom sebagai media PJJ dalam penugasan pelajaran bahasa indonesia. *Asas: Jurnal Sastra, 11*(1). https://doi.org/10.24114/ajs.v11i1.31844

Hatip, A., & Listiana, Y. (2019). Minat, kemandirian dan hasil belajar mahasiswa pendidikan matematika dalam e-learning berbasis Edmodo. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*. https://doi.org/10.24127/ajpm.v8i3.2261

Hochwarter, W. A., Witt, L. A., Treadway, D. C., & Ferris, G. R. (2006). The interaction of social skill and organizational support on job performance. *Journal of Psychology, 91*(2), 482.https://psycnet.apa.org/doi/10.1037/0021-9010.91.2.482

Lam, Y. W., Hew, K. F., & Chiu, K. F. (2018). Improving argumentative writing: Effects of a blended learning approach and gamification. *Language learning & Technology, 22*(1), 97-118. http://hdl.handle.net/10125/44583

Muijs, D., Reynolds, D., Soetjipto, H., & Soetjipto, S. (2008). *Effective teaching: Teori dan aplikasi*. Pustaka Pelajar.

Noviyanti. F., & Sugiharta, I. (2019). Analisis kemampuan pemecahan masalah matematis: Dampak blended learning menggunakan Edmodo. Ejournal. *Desimal: Jurnal Matematika, 2*(2), 173–180. http://dx.doi.org/10.24042/djm.v2i2.4035

Øzerk, K., Özerk, G., & Silveira-Zaldivar, T. (2021). Developing social skills and social competence in children with autism. *International Electronic Journal of Elementary Education, 13*(3), 341-363. https://doi.org/10.26822/iejee.2021.195

Pambuditama, T. (2010). Pengembangan media pembelajaarn berbasis e-learning untuk meningkatkan minat siswa terhadap matematika.https://api.semanticscholar.org/CorpusID:142921548

Pertiwi, A., Kariadinata, R., Juariah, J., Sugilar, H., & Ramdhani, M. A. (2019). Edmodo-based blended learning on mathematical proving capability. https://doi.org/10.1088/1742-6596/1157/4/042001

Pohan, A. E. (2020). *Konsep pembelajaran daring berbasis pendekatan ilmiah*. CV. Sarnu Untung.

Putranti, N. (2016). Cara membuat media pembelajaarn online menggunakan Edmodo. *Jurnal Pendidikan Informatika dan Sains, 2*(2), 139–147. https://doi.org/10.31571/Saintek.V2i2.224

Rafiola, R., Setyosari, P., Radjah, C., & Ramli, M. (2020). The effect of learning motivation, self-efficacy, and blended learning on students' achievement in the industrial revolution 4.0. *International Journal of Emerging Technologies in Learning (iJET), 15*(8), 71-82. https://doi.org/10.3991/ijet.v15i08.12525

Rahmy, S. N., Usodo, B., & Slamet, I. (2019). Students' mathematics learning achievement in junior high school using 7E learning cycle. *Journal of Physics: Conference Series, 1265*(1). https://doi.org/10.1088/1742-6596/1265/1/012014

Retnoningsih, E. (2017). Perbandingan learning management system edmodo dan moodle dalam pembelajaran online. *Information System for Educators and Professionals: Journal of Information System, 1*(2), 221-230. https://doi.org/10.51211/isbi.v1i2.366

Rositawati, D. (2019). Kajian berpikir kritis pada metode inkuiri. *Prosiding SNFA (Seminar Nasional Fisika dan Aplikasinya), 3*, 74-84. http://doi.org/10.20961/prosidingsnfa.v3i0.28514

Sari, Y. I., & Trisnawati, N. (2021). Analisis pengaruh e-learning dan kesiapan belajar terhadap minat belajar melalui motivasi belajar sebagai variabel intervening mahasiswa program beasiswa FLATS di

Surabaya pada masa pandemi Covid-19. *Jurnal Kependidikan: Jurnal Hasil Penelitian dan Kajian Kepustakaan di Bidang Pendidikan, Pengajaran dan Pembelajaran*, *7*(2), 346-360. https://doi.org/10.33394/jk.v7i2.3736

Septanto, H. (2015). Elearning menggunakan edmodo sebuah aplikasi pembelajaran berbasis web. *Bina Insani ICT Journal*, 2(2), 121–141. http://ejournal-binainsani.ac.id/index.php/BIICT/article/view/793

Shapiro, L. E. (2003). *Mengajarkan emosional intellegence pada anak*. PT. Gramedia Pustaka Utama.

She, R., han Mo, P. K., Li, J., Liu, X., Jiang, H., Chen, Y., Ma, L., & fai Lau, J. T. (2023). The double-edged sword effect of social networking use intensity on problematic social networking use among college students: The role of social skills and social anxiety. *Computers in Human Behavior*, *140*, 107555. https://doi.org/10.1016/j.chb.2022.107555

Suharti, S. (2021). Efektivitas penerapan media pembelajaran interaktif berbasis Edmodo dalam menyongsong era revolusi industri 4.0 terhadap hasil belajar matematika siswa. *Jurnal Cendekia: Jurnal Pendidikan Matematika*, *5*(2), 1025-1038. https://doi.org/10.31004/cendekia.v5i2.564

Suprabha, K., & Subramonian, G. (2019). Effect of blended learning in developing social skills among higher secondary students. *International Journal of Pedagogical Studies (IJPS)*, *7*(1). http://agmcoe.ac.in/Document/ijps2019issue.pdf#page=8

Tajik, F., & Vahedi, M. (2021). Quarantine and education: An assessment of Iranian formal education during the COVID-19 outbreak and school closures. *International Journal of Education and Development using Information and Communication Technology*, *17*(1), 159-175. https://eric.ed.gov/?id=EJ1285530

Tsetsos, S., & Prentzas, J. (2020). A survey on recent learning approaches in school education using Edmodo. In *Open Educational Resources (OER) pedagogy and practices* (pp. 91–111). https://www.igi-global.com/chapter/a-survey-on-recent-learning-approaches-in-school-education-using-edmodo/243308

Wentzel, K. (2017). Peer relationships, motivation, and academic performance at school. *Handbook of competence and motivation*, 279-296. https://psycnet.apa.org/record/2017-17591-031

Widyaningrum, H. K., Hasanudin, C., Fitrianingsih, A., Novianti, D. E., Saddhono, K., & Supratmi, N. (2020). The use of Edmodo apps in flipped classroom learning. How is the students' creative thinking ability? *Ingenierie Des Systemes d'Information*, *25*(1), 69–74. https://doi.org/10.18280/isi.250109

Zhang, L. F. (2004). Thinking styles: University students' preferred teaching styles and their conceptions of effective teachers. *The Journal of Psychology*, *138*(3), 233-252. http://dx.doi.org/10.3200%2FJRLP.138.3.233-252

Zhang, L. F., & Sternberg, R. J. (2002). Thinking styles and teachers' characteristics. *International Journal of Psychology*, *37*(1), 3-12. https://doi.org/10.1080/00207590143000171