ISSN 1798-4769
Journal of Language Teaching and Research, Vol. 13, No. 4, pp. 872-883, July 2022
DOI: https://doi.org/10.17507/jltr.1304.20

Hybrid Learning or Virtual Learning? Effects on Students' Essay Writing and Digital Literacy

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***Abstract*—This study compared the effect of a hybrid learning model and a virtual learning model on Saudi secondary school students' essay writing and digital literacy skills. The study employed the quantitative quasi-experimental design. The sample comprised 56 Saudi secondary school students divided into two experimental groups: hybrid learning group (n=29) and virtual learning group (n=27). A hybrid model learning and a virtual learning model were designed for the study purposes. Data sources included a pretest and posttest for essay writing and a questionnaire for assessing pre and post-digital literacy skills. Results indicated statistically significant differences in favor of the students in the hybrid learning model with large effect sizes in all essay writing domains. In addition, the hybrid learning model positively improved the students' digital literacy skills compared to the virtual learning model. The findings were discussed, and implications and further research were recommended.**

***Index Terms*—digital literacy, essay writing, hybrid learning, secondary school, virtual learning**

I. Introduction

Writing is a complex process that involves cognitive abilities, techniques, and strategies that should be learned to support students during the writing process. It is the most challenging skill in learning English as a foreign or second language because it requires a mastery of different linguistic elements, techniques, and abilities (Manik & Sinurat, 2015). Students are expected to produce written products that are acceptable, accurate, and culturally appropriate (Ghulamuddin et al., 2021). Furthermore, writing is not a linear process; it is a recursive process, "in which the writer is constantly drafting, editing, and revising throughout the writing event" (Pytash & O'byrne, 2014, p.183). It is a strategic and multidimensional process that includes planning, transforming ideas into a text, and revising the product (Harris et al., 2010). For advanced students, writing an essay is a challenging task that requires a well-informed argument, evidence-based development, coherence based on the relationship between ideas, logical order, formal tone, and specific syntactic features, including embedded phrases, complex phrasal structures, and hierarchical structure (Maamuujav et al., 2021). Therefore, it is a difficult task to produce a coherent, fluent, and extended piece of writing even for second language learners (Nunan, 1999).

Literature suggests that online learning environments such as virtual learning and hybrid learning can be helpful approaches to facilitate essay writing (e.g., Aghajani & Adloo, 2018; Shin et al., 2021). Virtual learning is a form of online learning that utilizes digital platforms for delivering learning materials through the web (Abdullah et al., 2021). It allows a "wide range of interactions and knowledge sharing with other participants with an access to a wide range of resources" (Mane et al., 2021, p. 175). Virtual learning may help students overcome difficulties in learning to write through collaboration and increasing understanding of the writing process. On the other hand, hybrid learning can be viewed as "a mixture of collective learning and individual learning, a mixture of synchronous learning and asynchronous learning, a mixture of self-learning and collaborative learning, and also a mixture of formal learning and informal learning" (Qi & Tian, 2011, p. 554). Hybrid learning organizes how students, teachers, space, technology, process, and content interrelate in a contextualized mode (Arnab, 2020). Hybrid foreign language instruction has shifted from the Web 1.0 applications to embrace Web 2.0 online technologies such as wikis, blogs, online community sites, mind-mapping tools, block-diagramming, and collaborative writing tools. These tools provide creativity or innovation in designing hybrid language learning environments and enhance students' achievement and attitudes (Kovacic, 2016). Since writing is an asynchronous activity that is not restricted to a particular time and space, it can be practiced at any time and place using technology-based tools and applications in hybrid environments (Shin et al., 2021).

Virtual learning and hybrid learning not only assist learning but also promote the ability to use digital tools as a communication method is crucial for digital literacy. Digital literacy for writing activities involves using technology for searching and evaluating resources to find valid and relevant information to communicate through the writing process (Shin et al., 2021). Research suggested that digital literacy assists the use of e-learning and should be considered when investigating the impact of e-learning on performance (Mohammadyari & Singh, 2015). Therefore, digital literacy is needed for students to succeed in virtual and hybrid learning. Nonetheless, students lack the required digital literacy skills for digital learning (Anthonysamy, 2019) because students mainly use technologies for entertainment and communication but not for learning (Prior et al., 2016). Students' deficiencies in digital literacy include lacking the critical skills needed for finding, analyzing, and evaluating digital information and contents (Shariman et al., 2012;

Tohara et al., 2021), lacking knowledge on the technical details (Ting, 2015), not understanding ownership and copyright issues (Shariman et al., 2012; Williams et al., 2014), and difficulties in Internet access and platforms (Williams et al., 2014).

Although many studies have investigated the impact of virtual and hybrid learning on language skills, few studies have focused on essay writing (e.g., Faridi et al., 2020; Syuhida et al., 2017) or digital literacy (Sutisna & Vonti, 2020). These studies focused mainly on undergraduate learners and compared hybrid learning to traditional face-to-face learning. Research has yet to establish the effectiveness of virtual learning compared to hybrid learning on developing essay writing and digital literacy at the secondary school level. Therefore, there is a research gap in understanding the impact of virtual learning compared to hybrid learning in developing essay writing and digital literacy. Thus, the current study aims to address this research gap by investigating the effect of a virtual learning model versus a hybrid learning model on Saudi secondary school students' essay writing and digital literacy.

II. Literature Review

A. Writing Instruction

Writing instruction in traditional classrooms is consistently taught using model examples in limited learning environments in which "little attention is given to the substance of the students' writing, depriving them of opportunities to create their own meanings or be part of a writing community that supports, guides and motivates their development of personal voice" (Kiss & Mizusawa, 2018, p. 61). Traditional teaching practices affect students' motivation and attitudes towards writing. These practices consider students passive listeners and encourage memorization for testing purposes (Salem, 2018). Negative attitudes towards writing significantly affect students' writing achievement and limit students' participation in writing (Graham, 2018).

Contrary to such traditional practices, students should be guided to plan, analyze and participate in the writing process in a rich learning environment that motivates students and fosters their autonomy and involvement. Kansizoglu and Comert (2021) state that systematic review and meta-analysis studies include practical solutions to insufficient writing instruction; they include increasing students' knowledge of writing, providing sufficient time and feedback on writing; teaching students how to plan, draft and edit, creating supportive writing environments, adopting a process-based writing approach, and emphasizing metacognitive skills. Purpose, context, and audience are complexly related; students must know why they are writing and their intended audience (Pytash & O'byrne, 2014). Writing is an essentially social activity in at least three ways. First, writers write for an audience that significantly influences how they write and what to write, so writing is a social transaction between writers and readers. Second, writers involve others in the process of writing, whether in traditional classrooms or digital environments. Third, writing conventions, forms, and rules are socially constructed, and they evolved over time due to writing purposes (Yagelski, 2018).

B. Hybrid and Virtual and Writing Instruction

Writing is a social activity situated within specific communities shaped by political, cultural, social, institutional, and historical influences (Graham, 2018). Technological advancements have shaped writing instruction since they create social contexts and environments for teachers and students to practice writing. From a social perspective, integrating technology in writing instruction might lead to better outcomes since writing is a social act in nature. L2 writers' digital practices have become communicative, interactive, interest-driven, purposeful, and embedded in authentic contexts (Zheng et al., 2018). Furthermore, information and communication technologies are changing writing instruction practices since they provide "a wealth of tools for the teaching of second or foreign language writing" (Li et al., 2020, p. 77).

Hybrid learning is a model that combines the advantages of face-to-face (F2F) instruction and technology-based learning (Shang et al., 2008). Hybrid learning is different from blended learning in that the latter is a simple combination of face-to-face instruction with e-learning. In contrast, hybrid learning combines a standard instructional setting and online and offline activities outside the classroom in a well-designed system (Barenfanger, 2005). It is a flexible learning model that includes multiple modes of information; it involves writing using various modes of communication, including language, videos, images, and other resources to produce a written text in explicit social contexts (Pytash & O'byrne, 2014). In the hybrid learning contexts, teaching is not coordinated by place and time; teachers could organize collaborative activities that might include synchronous applications such as video conferencing, instant chat, and asynchronous tools such as e-mail, blogs, wikis, or forums (Hijon-Neira et al., 2010). Limited studies have investigated utilizing hybrid learning in writing instruction. Faridi et al. (2020) investigated the impact of hybrid learning and critical thinking skills on Indonesian undergraduate learners' writing performance. Results revealed that hybrid TBLT had a significant impact on students writing performance. In addition, Syuhida et al. (2017) conducted a study to determine the impact of a learning model and self-regulated learning on the writing skills of the first-year students at a vocational high school in Indonesia. Results indicated that hybrid learning was effective in developing students' writing skills. Balzotti and Hansen (2019) conducted a study to define and introduce a hybrid learning experience for students to participate in a fictional narrative through a simulated environment and engage in classroom activities and lessons through in-game and out-of-game experiences to improve technical writing. Students responded positively to Microcore since it provided an authentic context for students to grapple with purpose, audience, and genre.

On the other hand, virtual learning is a model that enables teachers and students to attend synchronous classrooms to interact, discuss a lesson, communicate, and share resources. It helps students be motivated and provided with rich experiences that facilitate their learning (Herrera, 2017). Using virtual classrooms provides an easy access to various educational resources at any time. They promote self-learning and allow students to collaborate with others via different tools. Virtual learning encourages students to develop their writing skills through the implementation of interactive tools "that combine the Internet and the synchronization of instant messages, e-mails, forums, videos, audio among other resources that innovate the learning process of the English writing skills" (Freire Nieto, 2018, p. 10). Hashemi and Moghaddam (2014) investigated the impact of virtual instruction on 50 Iranian EFL learners' essay writing. They divided that sample into two equal groups: experimental and control, and employed the quasi-experimental design. The result revealed that virtual learning was not statistically significant, but it turned to be useful if combined with conventional classes. In addition, Khoshsima and Sayadi (2016) investigated the impact of virtual language learning on the writing ability of Iranian EFL learners. They divided 20 students into two groups: an experimental which studied via virtual learning and a control group that followed the conventional method. A writing posttest was administered, and the findings revealed both groups had some improvement, but the experimental group significantly outperformed the control group. Jamian et al. (2018) examined the impact of the Frog Virtual Learning Environment on 60 Malaysian students' essay writing performance. The quasi-experimental design was employed to assess essay writing, grasping the main idea and contents. Findings indicated that the Frog VLE significantly improved students' essay writing and contents but did not improve grasping the main idea.

C. Hybrid Learning, Virtual Learning, and Digital Literacy

Digital literacy is one of the crucial skills in the technological era. It plays a crucial role in digital learning environments (Anthonysamy, 2019). Digital literacy includes "all aspects of developing the knowledge, skills, competencies, confidence, and capabilities needed to use, interact with, communicate through, learn with, work with, and create with digital technologies" (White, 2015, p. 10). Within educational contexts, digital literacy encompasses cognitive, technical, and social-emotional aspects of learning with both offline and online digital technologies (Ng, 2012). Vuorikari et al. (2016) updated and published the European Commission's Digital Competency Framework (DigComp 2.0) that comprised five elements: information and data literacy, communication and collaboration, digital content creation, safety, and problem-solving. These elements provide clear guidance to foster digital literacy education and afford a basic standard to determine digital literacy learning objectives and activities (Hsu, 2019). This framework guides this study to develop digital literacy in a hybrid learning environment. Virtual and hybrid learning embrace integrating technology in the learning/teaching process. In such environments, students are not only required to master the contents, but they have to be digital literates to deal with technology effectively and safely. Therefore, hybrid learning is an ideal model for fostering digital literacy. Besides, language skills embedded in hybrid English classrooms affect digital literacy because English is the main language on the Internet (Murtafi'ah & Putro, 2018). Students who have low proficiency in English face challenges in digital literacy since the technological skills are underpinned by English language proficiency (Hepworth & Walton, 2013; Lwoga, 2014; Shariman et al., 2012). Therefore, writing instruction in hybrid learning environments provides a remarkable opportunity for students to be digital literates since there is a positive relationship between digital literacy and academic writing performance in digital environments (Hamouma & Menezla, 2019).

Several studies have investigated the impact of hybrid learning on digital literacy in language learning contexts. Sutisna and Vonti (2020) investigated the impact of hybrid learning on the digital literacy of fifteen undergraduates in an English Language Study Program. The result showed that the process of hybrid learning improved the students' digital literacy. In addition, Vonti and Grahadila (2020) conducted a study to explore the effect of hybrid learning on grammar and digital literacy. Results revealed that hybrid learning positively impacted students' grammar achievement and digital literacy. In addition, a substantial amount of research focused on examining the impact of blended learning or a single application on digital literacy across disciplines. Patmanthara and Hidayat (2018) investigated the impact of blended learning on 172 vocational high school students' digital literacy and found statistically significant differences in digital literacy between the study groups in favor of the experimental group. Hsu et al. (2019) examined digital literacy (DL) development among 32 elementary-level students, and the results indicated statistically significant increases in digital literacy practices.

Few studies have investigated the impact of virtual learning on digital literacy. Niemi et al. (2014) stated that "the new virtual learning environments comprise more spaces and practices in which digital resources, tools, and applications are used" (p. 357). They recruited 319 students and 28 teachers from three countries, and they analyzed their digital literacy. They concluded that students enjoyed creating their stories and learned many 21st-century skills. Besides, Novo et al. (2016) analyzed students' perceptions in relation to their digital literacy in a virtual environment. Results indicated that students significantly improved their digital literacy in virtual environments.

D. The Present Study

Research on writing instruction in hybrid environments only focused on designing hybrid courses (e.g., Balzotti & Hansen, 2019) or students' attitudes in hybrid writing environments (e.g., Fithriani & Alharbi, 2021; Keiner, 2017). Despite the positive effect of hybrid learning and virtual learning on writing skills, there has been little research

regarding the effect of hybrid learning compared to virtual learning on secondary students' essay writing. Regarding digital literacy, few studies examined the impact of different blended learning models (e.g., Hsu et al., 2019; Patmanthara & Hidayat, 2018) on digital literacy. Little research has been found on the impact of hybrid learning and virtual learning on digital literacy (Sutisna & Vonti, 2020; Vonti & Grahadila, 2020).

In conclusion, although the effects of hybrid learning and virtual learning on writing skills have been the focus of a large body of research, a comparison of their effects on essay writing and digital literacy has not been investigated yet. Thus, the following research questions were formulated:

1. Is there a difference between the effects of hybrid learning and virtual learning on secondary school students' essay writing?
2. Is there a difference between the effects of hybrid learning and virtual learning on secondary school students' digital literacy skills?

III. Methodology

A. Method

This quantitative study adopted the quasi-experimental design to investigate the effect of hybrid learning versus virtual learning on Saudi secondary school students' essay writing and digital literacy skills. Two groups were chosen randomly: the first experimental group was taught via hybrid learning, and the second experimental studied the same content via virtual learning. Both groups teaching was supported with digital literacy activities. The experiment lasted ten weeks for both groups. The two groups had the same pretest and posttest essay writing test. They also completed a questionnaire to assess their digital literacy skills before and after the experiment.

B. Participants

The participants in this study were third-year secondary school students. All participants were male students studying an English course called "Mega Goal level 5". The study sample comprised 56 students divided randomly into two groups: the first experimental group (n=29) studied via the hybrid learning model, and the second experimental group (n=27) studied via the virtual learning model. The participants were 16-17 years old of public schools in Taif, Saudi Arabia. They were all native speakers of the Arabic language. In addition, all students have studied English for more than eight years and shared the same cultural, social, and economic background.

C. Instruments and Materials

1. The Essay Writing Test

The two experimental groups participants were given two different topics to write a short essay of 150-200 words; one for the pretest and one for the posttest. In addition, all the participants were asked to write an essay on "*A common technology tool*" for the pretest, and they were asked to write an essay on "*An animal tale*" for the posttest at the end of the experiment. These two topics were chosen from the English language textbook (Mega Goal level 5) assigned for the third-year secondary grade. Students were given a time limit of 40 minutes to write each essay.

2. The Writing Scoring Rubric

The study adopted Jacobs et al.'s (1981) scoring rubric for scoring the essays. The rubric consists of five domains: Content, Language use, Organization, Vocabulary, and Mechanics. The rubric comprises a 100-point scheme in which 30 points were given to content, 25 points to language use, 20 points to organization, 20 points to vocabulary, and 5 points to mechanics. In addition, students were given instructions on how their essays would be rated.

3. Digital Literacy Skills Test

A questionnaire was developed to assess the digital literacy skills of the two experimental groups before and after the experiment. The questionnaire was based on the European Commission's Digital Competency Framework DigComp 2.0 (Vuorikari et al., 2016). It comprised five elements: Information and data literacy (3 items), Communication and collaboration (6 items), Digital content creation (4 items), Safety (4 items), and Problem-solving (4 items). The questionnaire was translated to Arabic to help the students respond to the items correctly. In this process, the questionnaire was first translated to Arabic and back-translated to English to ensure validity and reliability of the translated version. Three experts in educational technology confirmed the content validity of the questionnaire. After the draft was revised and verified, a pilot study was conducted to compute the reliability of the questionnaire. Thirty students participated in the pilot study; their comments helped modify the confusing items. The Cronbach's alpha coefficient was 0.79, which indicated that the questionnaire was suitable for data collection. The questionnaire was a 5-point Likert scale ranging from strongly disagree (1 point) to strongly agree (5 points).

4. The Proposed Hybrid Learning Model

The model utilizes online and offline activities inside and outsides the classroom. These activities include online meetings, blogs, forums, e-dictionaries, and discussions supported by digital literacy guidelines and commands. In addition, the writing genres and the process-based approach are integrated to produce quality writing. The model has

five phases: prewriting, drafting, revising, editing, and publishing. These phases integrated writing genres, writing skills, and digital literacy guidelines and commands (Figure 1).

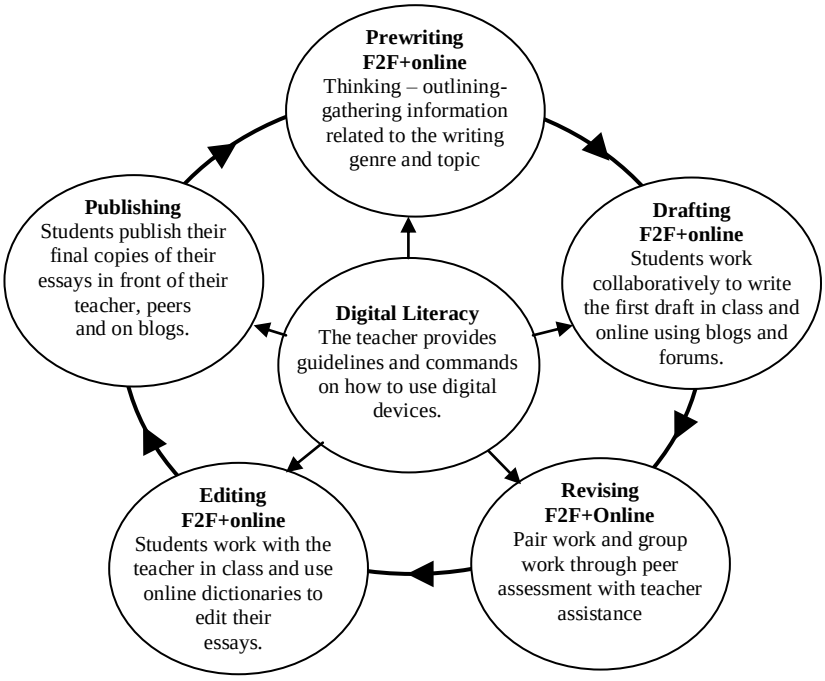

Figure 1: The Hybrid Learning Model

In the first phase, students were taught through face-to-face activities that were carried out to help students understand the writing topic. Then, they were given online activities to practice the writing processes and the element of the essay (introduction, body, conclusion). First, the teacher assisted students in thinking of the writing task, outlining, and gathering information related to the topic. Then, students had to search the Internet to have an idea about the topic being discussed.

The second phase was assigned to write the first draft. The teacher gave students the link to the task blog, and they collaboratively wrote the first draft. Students were advised to read their peers' works and comment on them. Then, they had to put ideas generated in the first phase in sentences to create an essay. The teacher commented on the students' drafts regarding content, organization, and vocabulary use. Again, students were free to comment and give peer feedback. The teacher instructed students to focus on ideas rather than spelling, grammar, or mechanics.

In the third phase, students were divided into groups to revise their peers' drafts in an online classroom. They were instructed to revise the content and how the ideas were organized. The teacher gave feedback and reminded students of the frequent errors in content and organization. Students who had difficulties were referred to online resources outside the classroom.

The fourth phase focused on editing grammar, spelling, and mechanics. Online classes were assigned to instruct students on finding and using free e-dictionaries and digital writing assistants such as Grammarly to correct their grammar, mechanics, and spelling mistakes.

Students were recommended to publish their essays in class and on social media platforms in the fifth phase. Again, the teacher evaluated the essays and considered students' peer assessments. Students who could not write a good essay were instructed to go back to the writing steps and re-write the essay.

Above all, during each phase, the teacher provided students with digital literacy guidelines and commands such as searching methods, plagiarism, safety, resource evaluation, tips on using online classes, solving technical problems as they appeared to foster students' digital literacy skills.

5. The Proposed Virtual Learning Model

In the virtual learning model, students were taught the writing prompts via fully virtual classrooms. The model integrated the writing genres and the writing process model. The model has five phases: The model has five phases: prewriting, drafting, revising, editing, and publishing (Figure 2). The teacher helps students when they face technical problems.

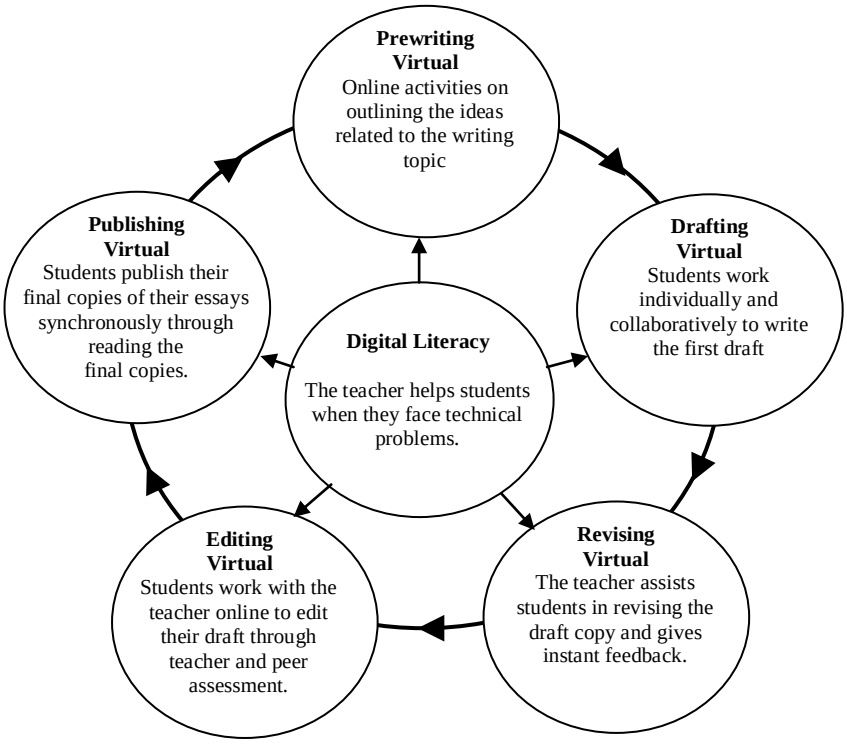

Figure 2: The Virtual Learning Model

In the first phase, students were given war-up activities on the writing topics. The teacher provided online activities to help students practice the writing processes and the element of the essay (introduction, body, conclusion). Then, the teacher presented the topic and asked the students to outline the main ideas individually and collaboratively. In the second phase, the teacher asked students to write the first draft. Students began to write, and the teacher gave them instruction during class time. Then, students shared their first draft, and the teacher provided instant feedback regarding content, organization, and vocabulary use. In the third phase, students were asked to revise the content and the generated ideas. The teacher provided necessary feedback and shared the common mistake with the students. During the fourth phase, students were asked to edit grammar, spelling, and mechanics. Teacher and peer assessment were utilized to correct these mistakes to produce the final copy of the essay. Finally, in the fifth phase, some students were chosen to read their essays while the teacher pointed out the mistakes and evaluated their essays online. During each phase, the teacher instructed students on the technical problems they faced and solved them. He also advised students on how to use the tools when needed.

D. Data Collection Procedure

Before the treatment, the two experimental groups participants were given the same topic, *A common technology tool*, as a pretest to assess their essay writing. Students were given 40 minutes to complete the writing task, but most spent 25-30 minutes finishing the task. In addition, the participants in the two experimental groups were given the digital literacy questionnaire as a pretest. The participants were instructed to read each item carefully and rate each one using a 5-point-Likert.

Two qualified teachers taught the two experimental groups with almost the same experiences. The participants in the first experimental group were taught the assigned writing prompts in four units of Mega Goal 5 (Unit 2: Rags to Riches, Unit 3: What will they think of next?, Unit 4: The world of TV and Unit 5: Do you really need it?) via the proposed virtual learning model and the second experimental group were taught the same content through the hybrid learning model.

The treatment lasted ten weeks for both groups. At the end of the tenth week, all participants were given another writing topic, *An animal tale*, to write a short essay as a posttest. Participants were given 40 minutes to complete the task. In addition, the digital literacy questionnaire was delivered again to the participants in the two experimental groups as a posttest.

E. Data Analysis

For scoring the essays, the researcher and an independent writing teacher used the same scoring rubric to rate a sample of ten essays to ensure inter-rater reliability of the scoring procedure. The inter-rater reliability between the independent teacher and the researcher was measured for each writing domain and the whole writing test. The average

inter-rater correlation coefficient reached 0.92, indicating a high degree of reliability. Then the two raters rated the 112 essays produced by the 56 participants from the pretest and the posttest.

The data were analyzed using SPSS (version 22). Arithmetic means and standards deviations for each writing domain were calculated. The pretest scores were used as covariates to control the effect of the pretest. One-way Multivariate Analysis of Covariance (MANCOVA) was performed to determine whether there were statistically significant differences between the scores of the two groups in the posttest essay writing domains. In addition, the mean scores and standard deviations of the digital literacy skills were calculated. The pretest scores were used as covariates to control the effect of the pretest. Then, one-way MANCOVA was run to determine whether there were statistically significant differences between the scores of the two groups in each domain of the posttest digital literacy skills test.

IV. Results and Discussion

A. Results

To examine the effect of the hybrid learning model versus virtual learning on students' essay writing, the descriptive statistics of the essay writing domains were presented in Table 1. The findings in Table 1 show that the means of the essay writing posttest on the five domains of the first experimental group (hybrid learning) were higher than the means of the second experimental group (virtual learning).

TABLE 1
DESCRIPTIVE STATISTICS OF THE ESSAY WRITING POSTTEST (MAX. SCORE=100, MIN. SCORE=0)

Domains	Group	N	Mean	Std. Deviation
Content	hybrid	29	22.86	3.17
	virtual	27	16.19	4.67
Language use	hybrid	29	16.06	1.82
	virtual	27	9.49	3.77
Organization	hybrid	29	11.86	1.59
	virtual	27	7.31	3.15
Vocabulary	hybrid	29	12.45	1.58
	virtual	27	7.73	4.15
Mechanics	hybrid	29	3.72	.46
	virtual	27	1.83	1.22
Total Score	hybrid	29	66.95	7.02
	virtual	27	42.55	10.41

To test the homogeneity of the test scores, Levene's test of equality of error variances was run as presented in Table 2. The findings show that the values were not statistically significant, indicating that the test scores were homogeneous.

TABLE 2
LEVENE'S TEST OF EQUALITY OF ERROR VARIANCES OF THE ESSAY WRITING TEST

Domains	F	df1	df2	p value
Content	.296	1	54	.589
Language use	.921	1	54	.341
Organization	.282	1	54	.597
Vocabulary	.097	1	54	.756
Mechanics	1.816	1	54	.183

A one-way MANCOVA test was used as presented in Table 3 to examine whether there were significantly significant differences between the mean scores of the two groups in the essay writing posttest. Essay writing pretest scores were used as covariates.

TABLE 3
MANCOVA RESULTS OF THE PRETEST AND POSTTEST OF THE ESSAY WRITING TESTS

Source	Domains	Type III Sum of Squares	df	Mean Square	F	p value	Partial Eta Squared
Corrected Model	Content	1130.215	6	188.369	9.888	.000	
	Language use	972.845	6	162.141	13.460	.000	
	Organization	612.069	6	102.011	11.351	.000	
	Vocabulary	633.306	6	105.551	11.815	.000	
	Mechanics	63.831	6	10.639	16.590	.000	
Intercept	Content	651.898	1	651.898	34.220	.000	
	Language use	392.446	1	392.446	32.579	.000	
	Organization	171.375	1	171.375	19.069	.000	
	Vocabulary	207.444	1	207.444	23.220	.000	
	Mechanics	17.577	1	17.577	27.411	.000	
Group	Content	499.10	1	499.10	26.20	.000	.35
	Language use	507.02	1	507.02	42.09	.000	.46
	Organization	257.36	1	257.36	28.64	.000	.37
	Vocabulary	258.29	1	258.29	28.91	.000	.37
	Mechanics	42.74	1	42.74	66.65	.000	.58

Table 3 shows that there were statistically significant differences between the two groups in the essay writing posttest scores in favor of the hybrid learning in all essay writing domains: Content [F= 26.20, p=.000; partial Eta squared: .35], Language use [F= 42.09, p=.000; partial Eta squared: .46], Organization [F= 28.64, p=.000; partial Eta squared: .37], Vocabulary [F= 28.91, p=.000; partial Eta squared: .37], and Mechanics [F= 66.65, p=.000; partial Eta squared: .58].

To examine the impact of the hybrid learning model versus virtual learning on the posttest of students' digital literacy skills, the descriptive statistics of the digital literacy skills were presented in Table 4. The findings show that the means of the digital literacy skills on the five domains of the first experimental group (hybrid learning) were higher than the means of the second experimental group (virtual learning).

TABLE 4
DESCRIPTIVE STATISTICS OF THE DIGITAL LITERACY SKILLS POSTTEST (MAX. SCORE=5, MIN. SCORE=1)

Domains	Group	N	Mean	Std. Deviation
Information and data	hybrid	29	4.02	.612
	virtual	27	3.45	.801
Communication and collaboration	hybrid	29	3.26	.533
	virtual	27	2.76	.713
Content creation	hybrid	29	2.69	.570
	virtual	27	2.25	.639
Safety	hybrid	29	2.97	.669
	virtual	27	2.47	.830
Problem solving	hybrid	29	3.10	.769
	virtual	27	2.56	.933
Total Score	hybrid	29	3.18	.364
	virtual	27	2.67	.653

Levene's test of equality of error variances was run as presented in Table 5 to test the homogeneity of the digital literacy skills scores. The findings show that the values were not statistically significant, indicating that the questionnaire scores were homogeneous.

TABLE 5
LEVENE'S TEST OF EQUALITY OF ERROR VARIANCES OF THE DIGITAL LITERACY SKILLS

Domains	F	df1	df2	p value
Information and data	2.748	1	54	.102
Communication and collaboration	3.024	1	54	.088
Content creation	.530	1	54	.470
Safety	2.558	1	54	.116
Problem solving	2.664	1	54	.108

To examine whether there were significantly significant differences between the mean scores of the two groups in the digital literacy skills posttest, a one-way MANCOVA test was run as presented in Table 6. Digital literacy skills pretest scores were used as covariates.

TABLE 6
MANCOVA RESULTS OF THE PRETEST AND POSTTEST OF THE DIGITAL LITERACY SKILLS TEST

Source	Domains	Type III Sum of Squares	df	Mean Square	F	p value	Partial Eta Squared
Corrected Model	Information and data	8.448	6	1.408	3.403	.007	
	Communication	5.353	6	.892	2.368	.044	
	Content creation	7.201	6	1.200	3.899	.003	
	Safety	6.300	6	1.050	1.994	.085	
	Problem solving	11.271	6	1.878	3.117	.011	
Intercept	Information and data	5.282	1	5.282	12.765	.001	
	Communication	2.449	1	2.449	6.499	.014	
	Content creation	1.776	1	1.776	5.768	.020	
	Safety	.373	1	.373	.707	.404	
	Problem solving	.048	1	.048	.080	.779	
Group	Information and data	5.019	1	5.019	12.130	.001	.20
	Communication	3.751	1	3.751	9.956	.003	.17
	Content creation	2.680	1	2.680	8.707	.005	.15
	Safety	3.766	1	3.766	7.151	.010	.13
	Problem solving	4.898	1	4.898	8.127	.006	.14

Table 6 shows that there were statistically significant differences between the two groups in the posttest of digital literacy skills in favor of the hybrid learning in all digital literacy domains: Information and data [F= 12.13, p=.001; partial Eta squared: .20], Communication and collaboration[F= 9.96, p=.003; partial Eta squared: .17], Content creation [F= 8.71, p=.005; partial Eta squared: .15], Safety [F= 7.15, p=.010; partial Eta squared: .13], and Problem solving [F= 8.13, p=.006; partial Eta squared: .14].

B. Discussion

The current study aimed at investigating the effect of the hybrid learning model versus virtual hybrid learning on secondary school students' essay writing and digital literacy skills. Furthermore, the result revealed that the hybrid learning model significantly improved students' essay writing and digital literacy skills compared to the virtual learning model. The effect sizes of the hybrid learning model were large in all essay writing and digital literacy domains, indicating the statistical and practical significance of the model.

Integrating the writing process and writing skills in the hybrid model was effective since it helped students provide richer content. Students had the opportunity to outline, organize, and search for ideas related to the writing topic. They also benefited from the advantages of mixing face-to-face instruction and online experiences and had invaluable opportunities to produce and generate related ideas during the pre-writing process. Online resources facilitated students' brainstorming and gathering information that ultimately improved the content of the writing genres (Rashtchi & Porkar, 2020; Shin et al., 2021). Moreover, the hybrid learning model developed students' language use since it provided opportunities for students to work individually and collaboratively inside the classroom and online. This indicated the importance of linguistic tools as e-dictionaries and Grammarly in helping students initiate their essays during the draft phase.

Regarding essay organization, the model effectively improved the essay writing organization for several reasons. Darning the drafting stage, the hybrid model helped students generate clear topic sentences supported by clear details. Students were motivated to search for main and supporting ideas and connect them following a logical progression to form the introductory paragraph, the body, and the conclusion. Collaboration and e-resources were also beneficial in reducing the cognitive burden to focus on the writing organization.

In addition, during the revising and editing phases, the hybrid model improved students' vocabulary and writing mechanics. It is an expected result since mixing face-to-face instruction, and online classes provided additional opportunities to correct their mistakes. Besides, the e-dictionaries and linguistics tools that utilized artificial intelligence, such as Grammarly, were helpful in determining vocabulary and mechanics mistakes and providing suggestions to students to improve their writing outcomes. In the hybrid learning model, students had an opportunity to focus on organizing their ideas that decreased the burden of grammar, vocabulary, and mechanics, while students using the virtual learning model were restricted to the teacher instructions that were not sufficient for correcting their mistakes.

In addition, utilizing blogs and synchronous tools in the hybrid model was helpful during the publishing phase. As a result, students felt confident and motivated when they finally published their work and had informative feedback from their teacher and peers. In conclusion, since the hybrid model combined face-to-face learning, online resources, and writing assistant tools, it was superior to the virtual model, which focused on the teacher's instructions and comments as a source of information.

These findings went in line with the findings of the previous studies (e.g., Faridi et al., 2020; Syuhida et al., 2017), which showed the positive effect of hybrid learning on essay writing. The findings also indicated that all five writing domains were improved since the writing process integrated into the hybrid learning model helped students follow the assigned procedures step by step. In addition, this approach increased students' cognitive and metacognitive awareness of the writing process and their writing skills, which resulted in relatively accurate essays.

On the other hand, the hybrid learning model effectively fostered students' digital literacy skills. The domains of information and data, communication and collaboration, content creation, safety, and problem solving were positively improved due to the careful integration of digital literacy skills in the hybrid learning model. In each phase of the hybrid model, the teacher provided some guidelines and commands as necessary to help students overcome the e-learning pitfalls, search for information, evaluate the resources, collaborate with peers online and offline, respect the ethics and copyrights of the resources on the Internet, and apply safety requirements to save their data and hardware. The findings indicated that digital literacy skills were developed in digitally language learning connected environments (Son et al., 2017), and they are connected to academic essay writing (Hamouma & Menezla, 2019). The findings also were consistent with previous literature (e.g., Hsu et al., 2019; Patmanthara & Hidayat, 2018; Sutisna & Vonti, 2020; Vonti & Grahadila, 2020), which indicated that hybrid learning positively improved language learners' digital literacy.

V. Conclusion, Limitations, and Further Research

The study findings revealed a positive effect of the hybrid learning model versus the virtual learning model on students' essay writing. Therefore, it is essential to encourage writing teachers to create hybrid learning environments that help students focus on the writing process, which is a powerful approach to enhancing writing skills. In addition, teachers are required to integrate the writing process in a hybrid writing classroom using various tools such as e-resources, e-dictionaries, blogs, and digital writing assistants. These tools can be integrated into writing classes as needed; some tools can be used in planning such as searching writing resources, in drafting such as blogs and writing forums, in revising such as online discussion, in editing such as e-dictionaries, and in the publishing stage such as blogs and websites.

On the other hand, the hybrid learning model showed a positive effect on digital literacy skills. Integrating digital literacy in writing hybrid learning encouraged students to foster their digital literacy. Since many courses are delivered online, most students have essential digital skills. Teachers are advised to provide some guidelines and commands on dealing with technology. They have to facilitate students' participation in e-learning environments since sufficient

language learning requires a deep understanding of digital literacy skills. Students' digital literacy enables them to focus on the content and helps them deal safely with the digital learning environments. Some teachers consider digital literacy an extra duty, but it represents an essential ability in the 21st digital century. Therefore, enhancing students' digital literacy is one of the most crucial responsibilities teachers must burden.

The study has some limitations. First, the model was designed to integrate hybrid learning, writing, and digital literacy. This complicated process needs more empirical investigations with more proficient students and teaching using different writing genres. Second, since face-to-face learning was suspended, the COVID19 pandemic necessitates comparing the hybrid model to virtual learning. Thus, more studies were required on examining this model versus face-to-face learning. Third, the textbook assigned for this study is a general course designed to teach all four skills. Therefore, the hybrid learning model should be assessed in pure writing courses to provide enough time to practice writing skills.

REFERENCES

[1] A Abdullah, A. S., Abirami, R. M., Gitwina, A., & Varthana, C. (2021). Assessment of academic performance with the e-mental health interventions in virtual learning environment using machine learning techniques: A hybrid approach. *Journal of Engineering Education Transformations, 34*, 79-85.

[2] Aghajani, M., & Adloo, M. (2018). The effect of online cooperative learning on students' writing skills and attitudes through Telegram application. *International Journal of Instruction, 11*(3), 433-448.

[3] Anthonysamy, L. (2019). Digital literacy deficiencies in digital learning among undergraduates. *Understanding Digital Industry: Proceedings of the Conference on Managing Digital Industry, Technology and Entrepreneurship*. Bandung, Indonesia.

[4] Anthonysamy, L., Koo, A., & Hew, S. (2020). Self-regulated learning strategies in higher education: Fostering digital literacy for sustainable lifelong learning. *Education and Information Technologies, 25*(4), 2393-2414.

[5] Applebee, A., & Langer, J. (2011). A snapshot of writing instruction in middle schools and high schools. *English Journal, 100*, 14–27.

[6] Arnab, S. (2020). *Game science in hybrid learning spaces*. Routledge.

[7] Balzotti, J., & Hansen, D. (2019). Playable Case Studies: A new educational genre for technical writing instruction. *Technical Communication Quarterly, 28*(4), 407-421.

[8] Barenfanger, O. (2005). Learning management: A new approach to structuring hybrid learning arrangements. *Electronic Journal of Foreign Language Teaching, 2*(2), 14-35.

[9] Faridi, A., Saleh, M., & Fitriati, S. (2020). The Effect of Hybrid Task-Based Language Teaching and Critical Thinking on Writing Performance in Indonesia. *The New Educational Review, 61*, 109-118.

[10] Fithriani, R., & Alharbi, M. (2021). The adoption of Edmodo in a hybrid EFL writing class: What do Indonesian students and lecturers say? *Asian EFL Journal Research Articles, 28*(2.3), 38-60.

[11] Freire Nieto, M. (2018). *The B-learning as a methodological strategy to develop the writing skill in basic education students* [Master's thesis, Universidad Técnica de Ambato]. UTA digital repository.

[12] Ghulamuddin, N., Mohari, S., & Ariffin, K. (2021). Discovering writing difficulties of Malay ESL primary school level students. *International Journal of Linguistics and Translation Studies, 2*(1), 27-39.

[13] Goldstein, S., & McGoldrick, K. (2021). The future role of executive functions in education: From acquisition to knowledge and effective application. In T. Limpo & T. Olive (Eds.), *Executive functions and writing* (pp. 288- 296). Oxford University Press.

[14] Graham, S. (2018). A revised writer(s)-within-community model of writing. *Educational Psychologist, 53*(4), 258-279.

[15] Graham, S., & Hebert, M. (2011). Writing-to-read: A meta-analysis of the impact of writing and writing instruction on reading. *Harvard Educational Review, 81*, 710-744.

[16] Hamouma, C., & Menezla, N. (2019). The impact of digital literacy proficiency on EFL students' academic writing performance: A case study of Algerian third year EFL students. *International Journal of Digital Literacy and Digital Competence, 10*(4),40-55.

[17] Harris, K., Santangelo, T., & Graham, S. (2010). Metacognition and strategies instruction in writing. In H. Waters & W. Schneider (Eds.), *Metacognition, strategy use, and instruction* (pp. 226- 256). The Guilford Press.

[18] Hashemi, F. N., & Moghaddam, M. Y. (2014). The effect of virtual vs. actual writing instruction on Iranian intermediate EFL learners' essay writing performance in Islamic Azad University, Dubai Branch. *International Journal on Studies in English Language and Literature, 2*(1), 1-12.

[19] Hepworth, M., & Walton, G. (Eds.). (2013). *Developing people's information capabilities: fostering information literacy in educational, workplace and community contexts*. Emerald Group Publishing.

[20] Herrera, L. (2017). Impact of implementing a virtual learning environment (VLE) in the EFL classroom. *Ikala, 22*(3), 479-498.

[21] Hijon-Neira, R., Velazquez-Iturebide, A., & Rodriquez-Martin, J. (2010). Model for an interaction assessment strategy in hybrid learning including Web 2.0 resources. In F. Wang, J. Fong, & R. Kwan (Eds.), *Handbook of research on hybrid learning models: Advanced tools, technologies and applications* (pp. 450-465). IGI Global.

[22] Hsu, H. (2019). *A longitudinal, cross-sectional case study of students' digital literacy learning and development at the middle school using a blended, technology-rich, project-based learning approach* [Doctoral Dissertation, The University of Texas at Austin]. UT Electronic Theses and Dissertations.

[23] Hsu, H., Wenting, Z., & Hughes, J. (2019). Developing elementary students' digital literacy through Augmented Reality creation: Insights from a longitudinal analysis of questionnaires, interviews, and projects. *Journal of Educational Computing Research, 57*(6), 1400–1435.

[24] Jacobs, H., Zinkgraf, S., Wormuth, D., Hartfiel, V., & Hughey, J. (1981). *Testing ESL composition: A practical approach*. Newbury House Publishers.
[25] Jamian, A. R., Ali, Y. M., Sabil, A. M., & Othman, S. (2018). Malay Language Learning Innovation in Enhancing Essay Writing Performance. *International Journal of Academic Research in Business and Social Sciences, 8*(11), 666-675.
[26] Kansizoglu, H., & Comert, O. (2021). The effect of teaching writing based on flipped classroom model on metacognitive writing awareness and writing achievements of middle school students. *Education and Science, 46*(205), 279-302.
[27] Keiner, J. (2017). *Pedagogy and process: A case study of writing in a hybrid learning model* [Doctoral Dissertation, Indiana University of Pennsylvania]. ProQuest Dissertations Publishing (10264733).
[28] Khoshsima, H., & Sayadi, F. (2016). The effect of virtual language learning method on writing ability of Iranian intermediate EFL learners. *Advances in Language and Literary Studies, 7*(2), 192-202.
[29] Kiss, T., & Mizusawa, K. (2018) Revisiting the pedagogy of multiliteracies: Writing instruction in a multicultural context. *Changing English, 25*(1), 59-68.
[30] Kovacic, A. (2016). Learner perceptions of wiki-based collaborative grammar writing activities in a hybrid learning context: An experimental study. In Z. Dinkovic & M. Djigunovic (Eds.), *English studies from archives to prospects: Volume 2– Linguistics and applied linguistics* (pp. 290-310). Cambridge Scholars Publishing.
[31] Li, Z., Dursun, A., & Hegelheimer, V. (2020). Technology and L2 writing. In C. Chapelle & S. Sauro (Eds.), *The handbook of technology and second language teaching and learning* (77-92). Wiley Blackwell.
[32] Lwoga E. (2014). Critical success factors for adoption of web-based learning management systems in Tanzania. *International Journal of Education and Development Using Information and Communication Technology,10*(1), 4-21
[33] Maamuujav, U., Olson, C., & Chung, H. (2021). Syntactic and lexical features of adolescent L2 students' academic writing. *Journal of Second Language Writing, 53*, 1-16.
[34] MacArthur, C., Graham, S., & Fitzgerald, J. (2017). *Handbook of writing research* (2nd edition). The Guilford Press.
[35] Mane, M. M., Menon, B., & Gaikwad, M. A. (2021). An investigation into the relationship between collaborative learning and student satisfaction in virtual learning environment (VLE) using case study approach. *UGC Care Journal, 44*(1), 175-181.
[36] Manik, S., & Sinurat, J. (2015) Improve students' narrative writing achievement through film at SMA NEGERI I PALIPI. *International Journal of English Linguistics, 5*(2), 172-188.
[37] Manyike, T., & Phatudi, N. (2019). Writing instruction in Xitsonga in South Africa. In A. Sherris & J. Peyton (Eds.), *Teaching writing to children in indigenous languages: Instructional practices from global contexts* (pp. 1-24). Routledge.
[38] Mohammadyari, S., & Singh, H. (2015). Understanding the effect of e-learning on individual performance: The role of digital literacy. *Computers & Education, 82*, 11-25.
[39] Motallebzadeh, K., Ahmadi, F., & Hosseinnia, M. (2018). Relationship between 21st Century skills, speaking and writing skills: A structural equation modelling approach. *International Journal of Instruction, 11*(3), 265-276.
[40] Murtafi'ah, B., & Putro, N. (2018). Digital literacy in the English curriculum: Models of learning activities. *Proceedings of the International Conference of Teaching English as a Foreign Language*. Purwokerto, Indonesia.
[41] Nazik I. (2009). *Factors affecting EFL students' writing at Al-Baha University* [Unpublished Master Thesis]. The University of Gezira.
[42] Ng, W. (2012). Can we teach digital natives digital literacy? *Computers & Education, 59*(3), 1065-1078.
[43] Niemi, H., Harju, V., Vivitsou, M., Viitanen, K., Multisilta, J., & Kuokkanen, A. (2014). Digital storytelling for 21st-century skills in virtual learning environments. *Creative Education, 5*, 657-671.
[44] Novo, A., Bastos, G., & Vasconcelos, A. I. (2016, October). *Effects of a virtual learning environment on librarians' information literacy and digital literacy competences*. In European Conference on Information Literacy (pp. 655-664). Springer, Cham.
[45] Nunan, D. (1999). *Second language teaching and learning*. Heinle & Heinle Publishers.
[46] Patmanthara, S, & Hidayat, W. (2018). Improving vocational high school students digital literacy skill through blended learning model. J*ournal of Physics: Conference Series, 1028*, 1-7.
[47] Prior, D., Mazanov, J., Meacheam, D., Heaslip, G., & Hanson, J. (2016). Attitude, digital literacy, and self-efficacy: Flow-on effects for online learning behavior. *Internet and Higher Education, 29*, 91–97.
[48] Pytash, K., & O'byrne, W. (2014). Research on literacy instruction and learning in virtual, blended, and hybrid environments. In R. Ferdig & K. Kennedy (Eds.), *Handbook of research on K-12 online and blended learning* (pp. 179-200). ETC Press.
[49] Qi, L., & Tian, A. (2011). Design and application of hybrid learning platform based on Joomla. In M. Zhou & H. Tan (Eds.), *Advances in computer science and education applications: International conference proceedings, Part II* (pp. 549-556). Springer.
[50] Rashtchi, M., & Porkar, R. (2020). Brainstorming revisited: does technology facilitate argumentative essay writing? Language Teaching Research Quarterly, *18*, 1–20.
[51] Salem, A. (2018). Engaging ESP university students in flipped classrooms for developing functional writing skills, HOTs, and eliminating writer's block. *English Language Teaching, 11*(12), 177-198.
[52] Shang, J., Jong, M., Lee, F., & Lee, J. (2008). VISOLE: An example of hybrid learning. In J. Fong, R. Kwan & F. Wang (Eds.), *Hybrid learning and education* (pp. 348-358). Springer.
[53] Shariman, T., Razak, N., & Noor, N. (2012). Digital literacy competence for academic needs: An analysis of Malaysian students in three universities. *Procedia - Social and Behavioral Sciences, 69*, 1489 – 1496.
[54] Shin, D., Kwon, S., & Lee, Y. (2021). The effect of using online language-support resources on L2 writing performance. *Language Teaching in Asia, 11*(4), 1-23.
[55] Son, J-B., Park, S-S., & Park, M. (2017). Digital literacy of language learners in two different contexts. *The JALT Call Journal, 13*(2), 77-96.
[56] Sutisna, E., & Vonti, L. (2020). Innovation development strategy for hybrid learning based English teaching and learning. *Journal of English Education, 9*(1), 103-114.

[57] Syuhida, W., Rafli, Z., & Lustyantie, N. (2017). The effect of learning model and self-regulated learning towards students' English writing skill. *Studies in English Language Teaching, 5*(2), 203-212.
[58] Ting, Y-L. (2015). Tapping into students' digital literacy and designing negotiated learning to promote learner autonomy. *Internet and Higher Education, 26*, 25–32.
[59] Tohara, A., Shuhidan, S., Bahry, F., & Nordin, M. (2021). Exploring digital literacy strategies for students with special educational needs in the digital age. *Turkish Journal of Computer and Mathematics Education, 12*(9), 3345-3358.
[60] Vonti, L., & Grahadila, L. (2020). Potentials and pitfalls of the implementation of hybrid learning in structure class in relation to the students' digital literacy and learning achievement. *Journal of Humanities and Social Studies, 5*(1), 17-21.
[61] Vuorikari, R., Punie, Y., Carretero, S., & Van Den Brande, L. (2016). *DigComp 2.0: The digital competence framework for citizens*. JRC Science Hub.
[62] White, J. (2015). *Digital literacy skills for FE teachers*. SAGE.
[63] Williams, L., Abraham, L., & Bostelmann, E. (2014). A survey-driven study of the use of digital tools for language learning and teaching. In J. Guikema & L. Williams (Eds.), *Digital literacies in foreign and second language education* (pp. 17–67). Calico.
[64] Yagelski, R. (2018). *The essentials of writing: Ten core concepts* (2nd edition). Cengage Learning.
[65] Zheng, B., Yim, S., & Warschauer, M. (2018). Social media in the writing classroom and beyond. In J. Liontas (Ed.), *The TESOL encyclopedia of English language teaching* (pp. 1–5). John Wiley & Sons, Inc.

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