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Learning paragraph writing electronically: An insight into impact of blended learning strategies on ESL learners in Pakistan

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ABSTRACT: A comprehensive teaching plan, mindful practices and effective use of technology can boost the writing skills of Second Language Learners by improving spontaneity, naturalness, and accuracy. A vibrant learning community, strongly connected through on-site and online mediums, is ideal for enhancing the skills of foreign language students. This research focuses on enhancing students' paragraph writing skills by blending traditional and modern technology tools in a hybrid form of instruction. The participants of the study were divided into experimental and control groups; they were students of English as a Second Language (ESL) learners at a private university in Pakistan. After the pre-test, both groups were taught the same curriculum through different pedagogy for six weeks. The experimental group received instructions in a blended mode with the help of technology tools. The results were analyzed at pre and post-research levels by applying a t-test. The results showed a noticeable improvement in the skills of the experimental group. The same course taught with a traditional pedagogy could not produce the desirable results in the control group. The analysis includes vocabulary, reflective thinking, adherence to language mechanics, and grammar to boost the students' creative writing ability for paragraph composition.

KEYWORDS: blended Learning; ESL learners; paragraph writing; t-test; multi-modal

1. Introduction

Integrating innovative technologies such as smartphones, interactive smart boards, and online platforms in learning environments underscores the imperative need for digital tools to enhance teaching and learning experiences. This burgeoning trend has garnered positive recognition from numerous researchers (Ade-Ojo, 2012; Markowski et al., 2022). It aligns with the VARK framework by Fleming (2012), accommodating diverse learner preferences such as visual, auditory, reading, and kinesthetic. Smith et al. (2021) affirmed that a blended approach optimally facilitates student learning by merging traditional and digital teaching methods.

Unlike their first language, EFL learners interact with limited language exposure in their surroundings (Ahmed, 2020). This deficiency highlights the necessity for enhanced technological support in language acquisition. Foreign language teachers generally exhibit positive inclinations toward integrating novel Information Communication Technologies (ICTs) into language courses, irrespective of the teaching medium employed (Mei et al., 2018). However, the challenges foreign language learners face, encompassing vocabulary limitations and compositional cohesion, persist (Urzúa et al., 2023).

The integration of technology in education, acknowledged unanimously by Chapelle (2001), Gunduz (2005), Hubbard (2009), and Timucxin (2006), bears substantial implications for language development. However, the pivotal aspect lies in adopting technology and its strategic incorporation into educational practices (Chapelle, 2001). Teo's study (2006) emphasizes the crucial role played by learners' attitudes and acceptance of technological tools in this blended approach.

Teaching English as a foreign language to students with limited exposure poses explicit challenges (Chapelle, 2001), necessitating exploring varied improvement avenues. Equally significant is the need for students to develop a proficient writing style, which often needs to be developed due to traditional teaching approaches emphasizing rote learning over immersive language experiences (Rear, 2017).

Institutions often overlook the cultivation of higher-order skills, encompassing critical analysis and coherent expression in writing (Ballard and Clanchy, 1991; Davies, 2013). This deficit becomes palpable when students are tasked with independent analytical work requiring well-structured compositions and vocabulary proficiency (Carter and Nunan, 2001).

Addressing this deficiency is critical, as language learning hinges on vocabulary acquisition, a formidable challenge for second language learners (eCelce-Murcia, 2002, cited in Barani, 2013). Moreover, technology-assisted learning supports feedback mechanisms and enhances assessment opportunities (Graham et al., 2015; Kellogg and Whiteford, 2009; Philippakos and MacArthur, 2016). It accelerates the feedback loop and fosters connectivity between instructors and learners, fostering a conducive learning environment.

This research aims to enrich writing styles by concentrating on paragraph writing skills. Blended teaching techniques, having demonstrated their efficacy in essay and paragraph writing due to their demand for in-depth topic elaboration (Cooper et al., 1984; Kellogg and Whiteford, 2009), stand as a focal point of this study. However, while there is extensive literature on the efficacy of blended learning, empirical data analysis post-direct experience necessitates further exploration, a void this research endeavours to address.

The amin research questions are:

1) How far can empirical data after a direct experience help understand the impact of blended teaching in ESL?
2) How far do blended teaching techniques improve paragraph writing skills?

2. Blended learning and paragraph writing

Blended learning is "a combination of physical or face-to-face modes of instruction with online modes of learning, drawing on technology-mediated instruction, where all participants in the learning process are separated by distance some of the time." (G. Siemens et al., 2015). In the broadest terms, it is an amalgam of on-site and online teaching (Markowski et al., 2022). It combines computers with traditional learning processes as a strategy and relies on ICTs in instructional design. According to Malcevschi et al. (2011), blended learning is the combination of multiple approaches to learning. These methods may also include face-to-face classrooms, self-paced learning and online classrooms. Boddy et al. (2013) define blended learning as a combination of best online and face-to-face instructions to improve outcomes and increase access cost-effectively. Blended learning is the "thoughtful integration of classroom face-to-face learning experience with online learning experiences" (Klink, 2006).

Despite the multitude of available tools for blended learning, computers remain at the forefront. Canals (2021) contends that digital aids, offering multi-modality, are paramount in foreign language

education, extending the essence of learning beyond traditional confines. Beaty (2002) defines blended learning as a process wherein learners employ computers, resulting in improved language skills. Technology-assisted pedagogy significantly supports their learning journey, particularly for learners of English as a Foreign Language (EFL) (Aggrawan, 2020).

While acknowledging the extensive utility of technology in language learning, the current research strives to delve deeper into the impact of blended learning, specifically on ESL (English as a Second Language) learners' writing skills. However, as per feedback, the logical progression from the broader literature to the specific research topic requires refinement to underscore the significance of this study's focus on blended learning's impact on writing skills.

A prevalent strategy of this type of teaching and learning is the flip classroom, where students are asked to research and analyse before formally teaching the topic (Ozdamli, 2011). It is also termed inquiry-based learning (Ernst, 2017). Blended learning is a more efficient and innovative way of learning; it broadens the possibilities and transcends the boundaries of time and space. Other famous strategies applied are podcasts, instructional simulations, videos, online quizzes, games, writing assignments and debates (Manjot, 2013). In addition, Information Communication Technologies (ICTs) is a broad term for virtual resources and mediums, including all communication technologies such as the internet, cell phones, any wireless network, software, videos, social networking, etc. (Hoven, 1999).

This research-centred approach asserts blended learning as the best pedagogy for ESL learners. Haerazi et al. (2020) explored the efficacy of mobile-assisted language learning. Their mixed method (qualitative and quantitative) research is directed towards pre-service teachers. This research is equally beneficial for all ESL learners struggling with writing skills concerning critical thinking ability. Their findings reasserted the effectiveness of the mobile-assisted learning mode as 58 pre-service teachers showed a considerable improvement in their writing skills and critical thinking ability.

There is no doubt that writing a paragraph is a crucial skill. It is the most challenging for ESL learners of all the language skills. Writing skill assesses the writer's level of understanding, as it involves an author's contemplative ability, language proficiency, and qualified memory (Kellogg, 2008).

2.1. Recent studies

Recently, numerous studies have delved into the impact of incorporating blended learning on students' academic performance. However, only some of these studies have delved deeply into how such learning methods enhance students' writing skills. Several researchers have highlighted that structuring a blended course tends to elevate students' scores, indicating a positive reception among students for this approach (Boyle, 2003; Dowling, 2003; Dziuban, 2004).

O'Toole and Absalom (2003) argued that uploading educational material online significantly enhances students' achievement levels. Their research revealed that students who accessed online resources alongside traditional in-class lectures performed notably better in quizzes than those relying solely on in-class instruction. Other studies, such as Singh's (2003), noted that students engaged in blended courses outperformed their counterparts enrolled in traditionally taught sections by approximately 10%.

Conversely, studies like Carroll's comparative analysis (2003) assessed learning outcomes between courses taught traditionally and those supplemented with online instruction. Surprisingly, the results indicated no significant disparities in outcomes, demonstrating equivalent learning achievements in both

sections. Moreover, Cameron (2003) emphasized that employing diverse materials, such as interactive learning tools in an online setting, notably enhances student motivation to learn.

Research conducted by Reasons (2005) observed students' performance in face-to-face, blended, and fully online business courses. Remarkably, students in the online course displayed superior performance despite similar pedagogical teaching approaches across all sections.

Previous studies suggest that continuous exposure to material remains a fundamental solution, particularly in second language teaching, to address writing challenges. Researchers such as Smith (2003) highlighted that a significant portion of learned material is forgotten within a day. Hence, blended learning emerges as a crucial model offering additional activities to reinforce learning. Online activities and real-life situation videos facilitate the application of English reading and writing skills (Al-Jarf, 2006), fostering independent learning. The accessibility of online materials round the clock and face-to-face interaction pr5ovides students ample practice opportunities, deemed crucial in enhancing writing skills.

Moreover, blended learning allows students to review their peers' writing, aiding them in adopting correct writing styles. Additionally, the flexibility to revisit lectures multiple times has been highlighted as beneficial (Garrison, 2003).

2.2. Components of paragraph

There is a need to understand the most significant components of paragraph writing, including topic sentences, hook sentences, support sentences, necessary details, coherence, cohesion, linking words, punctuation, and grammatical aspects for a well-formed paragraph. Furthermore, as writing is a skill like any other creative skill, a writer has to write several rough drafts before reaching the best version (Chatta and Haque, 2020)

A paragraph is a collection of sentences disseminating a single main idea or topic. It is composed of three essential components. The first component is called a topic sentence. The topic sentence describes the topic or subject of the whole paragraph. The second part of the paragraph is supporting sentences. These are the arguments that the author writes to support his topic sentence or main idea. In other words, the function of a support sentence is to give details of the topic sentence. The third and last part is the concluding sentence, summarising the whole paragraph (Zemach and Rumisek, 2003).

Writing is a skill that requires specialized knowledge of different aspects of writing. Jacobs et al. (1981) describe five writing features to be mastered by learners apart from the components of a paragraph described above. Aldera (2016) has explained the process of writing a paragraph in detail, which covers all aspects, from thought to writing. It is a skill that needs to be mastered. Hence, the assessment format for the paragraph writing as devised by the researcher is adapted from Weigle's scoring model (content, grammar, organization, vocabulary) (2002) with a small amount of modification of mechanics as a separate area. These five features are as follows:

Organization is the logical arrangement of ideas that stick together to make the content a whole. Organizing ideas in a paragraph or text is also known as coherence. A paragraph is organized into an introduction, body, and conclusion.

Content is the information that is to be communicated in writing. It is seen in the topic sentence (the main idea), support sentences, and concluding sentences.

Grammar is the use of correct rules, forms, and syntactic structures. The grammatical elements are checked in the sentences that make a paragraph.

Vocabulary is the selection of the words that best suit the ideas expressed. The word choice and diction are used to convey ideas in a paragraph.

Mechanics is the use of graphical conventions of the language, e.g., the use of spelling, punctuation, and capitalization in the paragraph (Powers, 1989).

2.3. Theoretical and conceptual framework

Educational research has extensively explored various aspects of learning, delving into the factors influencing human learning and practical learning methods. This exploration has given rise to numerous perspectives on how people learn best.

Modern learning theories, notably the connective approach advocated by theorists like A. Siemens (2005) and Mayer (2005), propose that today's learners require an inclusive, open, and non-hierarchical learning environment. It stands in contrast to traditional instruction, which often involves one-way knowledge transmission from teacher to student, likened to a "depository" approach (Bruner, 1996).

The shift toward student-centred instruction aims to move from passive listening to fostering active learning experiences. Such an approach aims to challenge students, motivating them intrinsically to engage more deeply in learning (Wilson and Corpus, 2005).

Connectivist theory, as characterized by Siemens, emphasizes principles such as the diversity of opinions, the process of connecting information sources, and the significance of maintaining connections for continuous learning. This theory heavily relies on technology-based education and the Internet, allowing students to access materials at their convenience (Barker and Kemp, 1990; Wang and Gearhart, 2006).

In contrast, constructivist theory, supported by theorists like Smith (2001), Brophy (1991), and A. Siemens (2005), emphasizes that individuals construct their understanding by interacting with information and experiences. Active learning, problem-solving, and engagement are pivotal in this approach, where learners actively explore and interpret information instead of passively receiving it.

Constructivist learning theory highlights the importance of a socially relevant and engaging learning environment. It emphasizes the learner's active construction of meaning in a social context and encourages linking information across contexts. Learning programs aligned with this theory stress active participation, contextual material, and learner-centric assessments (Rogers,1994; A. Siemens, 2005).

As proposed by Mayer (2005), the cognitive theory of multimedia learning underscores the idea that people learn more deeply when presented with words and images compared to words alone. This theory is rooted in cognitive science principles and emphasizes how learners process information from visual and auditory channels.

The study's conceptual framework relies on constructivist learning methods (Haile Michael, 1993; Neo, 2003) and the integration of computer and Internet resources. Blended Learning (BL) encompasses various motivating teaching and learning elements: theoretical, methodical, and media. The theoretical aspect merges diverse learning theories proposed by constructivists, cognitivists, and behaviourists (Michael, 1993; Smith, 2001).

At the methodological level, motivation combines independent learning with guidance, individual learning with group collaboration, and passive learning with active exploration (Brophy, 1991). The media aspect oscillates between face-to-face interactions and online communication elements,

strategically chosen to fulfil specific learning activities, aligning with the perspectives of connective approaches (Dailey, 1991).

The relationship between teachers and students takes on a different dynamic in this blended learning setting. Teachers now have a multifaceted role: managing the learning environment, delivering instruction, guiding learning activities, tracking feedback and progress, and evaluating learner performance. Conversely, students assume an active role, taking responsibility for their learning journey. They actively seek information, build knowledge from past experiences, and engage with peers, instructors, and learning materials to enrich their learning experience.

Technology is a facilitator, offering ample resources to create a thriving learning environment (A. Siemens, 2005; Mapuva, 2010). Mapuva emphasized transitioning from traditional approaches to the blended learning model, as depicted in **Figure 1**.

Traditional Model of Teaching Language

Teacher	Media	Student
Acts as a dispenser of knowledge through mere lecturing	Face-2-face, books, articles, notes	Passive listeners, less responsible for learning

Blended Learning Model

Teacher	Media	Student
Facilitates learning and knowledge creation	Face-2-face, Computer-based using internet, videos and audios usage	Active participants, autonomous and responsible for learning and knowledge creation

Figure 1. Blended Learning Model adapted from Mapuva, 2010.

3. Materials and method

The experimental and control groups for this research were the two population groups. The experimental group received instructions per the suggested approach, whereas the control group was taught traditionally. The syllabus, course content, success criteria and student learning objectives (SLOs) remained the same for both groups. There were no differences in teaching/learning hours between the experimental and controlled groups over the six weeks; moreover, the topics were the same and grading criteria were consistent during the pre-test and post-test.

3.1. Participants

From a population of ESL students at a private university, a random sample of 100 students was selected. This sample was further divided into subgroups of 50 each (experimental and controlled) for a better insight into the effects of teaching strategies. This random sample was based neither on the voluntary participation of the students nor on students in the control group who were more inclined towards the traditional teaching style. The initial interaction with the students revealed that both groups were equally neutral towards both teaching methodologies. Though gender was not a variable of the

study, 50 male and 50 female students were aged between 16 and 18 years. They all belonged to middle-class families; their linguistic background was multilingualism (speaking Punjabi in an informal context and Urdu and English in a formal context). Moreover, the students were enrolled in the same department and had many F2F (face-to-face) sessions.

3.2. Data collection

The data collection procedure was systemized by forming experimental and control groups. Both groups were taught the syllabus approved by the University Academic Council for ESL English. The control group was taught the same paragraph writing skills using the traditional classroom teaching method. Students of the experimental group were provided with instruction on paragraph writing skills using a merger of traditional and technology-oriented teaching methods to improve overall performance. Two lectures were conducted online via Google Classroom. The experimental group students were given some resources, such as video lectures and some exemplars (essays on similar topics), to maximize their exposure. Both activities could also be conducted in an F2F session; however, the researcher used online resources and sessions (**Table A1**) to make the teaching material more approachable. Video clips were used as a starter activity and more for exploring and explaining ideas. However, the links were mainly shared with the students to be explored online and as resources for flip classrooms. Online quizzes and games were incorporated as formative assessment tools. These form an overall approach where the prime objective is to address the diverse needs of the students. Hence, the overall teaching pedagogy became an amalgam of online and on-site teaching: a blended approach (**Table A1**). After six weeks, their paragraph writing skill was assessed. Both groups had to achieve the same benchmark or success criteria.

Another teaching plan was formed for the control group to conduct the research procedure on a broader scale (**Table A2**). Initially, this group had almost the same capacity as the experimental group but was taught with the traditional approaches. Hence, the pedagogy is different. The time remains the same: six weeks of teaching for the control group. Nevertheless, their learning time decreased because they were taught only F2F sessions and not outside the classroom (**Table A2**). However, they were encouraged to use resources on their own.

3.3. Data analysis procedure

A pre-test was conducted to assess the students' paragraph writing skills of both groups before inducing the blended learning technique in the experimental group. Then, students were taught the paragraph writing skills for the next three months and were assessed in a post-test. The teaching/learning and the testing environment remained the same during the post-test; the control group was not allowed to use computers to learn paragraph writing skills. Instead, they were only provided with written notes and lectures in the class. To assess the paragraph writing skills of the learners in the post-test, they were asked to write a paragraph on the topic "Advantages and Disadvantages of Social Media" in 200–300 words.

The paragraphs written by the students were assessed in the following components: organization, content, grammar, vocabulary, and mechanics on a scale of 1–3, where 3 points are the maximum. For example, the organization component includes an introduction, body, and conclusion. The student who performed well on these three elements in the paragraph secured a three score. The same was applied to the other components. Moreover, the normal distribution of students' scores was calculated; t-tests were run on the calculated scores to compare both groups. T-test is a statistical analysis technique developed by Dealy (1908). It compares the values of two groups or situations to know the variance. In the present research, the t-test was first applied to assess the performance of controlled and experimental groups in a

pre-test; after two months, the same groups' assessment was again compared in a t-test to examine the difference between traditional and blended learning approaches. There was no visible difference in students' scores in the pre-test, but the post-test results showed a significant improvement in the experimental group. The variance achieved after the t-test of each component in pre- and post-test scenarios implied the method's success. This improvement and the factors involved are discussed in detail in the results and analysis part.

4. Results

4.1. Understanding the role of blended teaching through empirical data

Answering the first research question, following the interpretation of the pre-and post-test data, helped the researchers understand the benefits of blended methodology in teaching paragraph writing to ESL learners.

Table 1 displays the pre-test results for Group 1, an experimental group. It details the number of students receiving different score levels (ranging from 0 to 3) across various assessment components and statistical measures, including mean, variance, and standard deviation for each component. The organization shows a Mean score of 2.34, a variance of 0.66 and a standard deviation of 0.82. Content displays a Mean score of 1.06, variance of 1.02 and standard deviation of 1.01; Grammar indicates a Mean score of 1.58, variance of 0.40 and standard deviation of 0.64; vocabulary shows a Mean score of 1.90, variance of 0.57 and standard deviation of 0.75; mechanics indicates a Mean score of 1.46, variance 0.45 and standard deviation 0.67.

Table 1. Pre-test results for the experimental group.

Pre-test Results Group 1 (experimental)							
Component	**Number of students who got 3 marks**	**Number of students who got 2 marks**	**Number of students who got 1 mark**	**Number of students who got 0 marks**	**Mean $\bar{X}$**	**Variance**	**Standard deviation**
Organization	28	11	11	0	2.34	0.66	0.82
Content	6	9	17	18	1.06	1.02	1.01
Grammar	4	21	25	0	1.58	0.40	0.64
Vocabulary	12	21	17	0	1.90	0.57	0.75
Mechanics	3	19	26	2	1.46	0.45	0.67

Table 2 is an interpretation of the pre-test results for Group 2 (control), which also shows the number of students obtaining different score levels (ranging from 0 to 3) across various components of assessment, along with statistical measures like mean, variance, and standard deviation for each component: Organization shows Mean score 2.32, variance 0.62 and standard deviation 0.79. Content displays a Mean score of 1.24, variance of 1.10 and standard deviation of 1.05; Grammar indicates a Mean score of 1.56, variance of 0.45 and standard deviation of 0.67; vocabulary shows a Mean score of 1.86, variance of 0.52 and standard deviation of 0.72; mechanics indicates a Mean score of 1.52, variance 0.45 and standard deviation 0.67.

Table 2. Pre-test results for the controlled group.

Pre-test Results Group 2 (control)							
Component	**Number of students who got 3 marks**	**Number of students who got 2 marks**	**Number of students who got 1 mark**	**Number of students who got 0 marks**	**Mean $\bar{X}$**	**Variance**	**Standard deviation**
Organization	26	14	10	0	2.32	0.62	0.79
Content	8	11	16	15	1.24	1.10	1.05
Grammar	5	23	22	0	1.56	0.45	0.67
Vocabulary	10	23	17	0	1.86	0.52	0.72
Mechanics	4	19	26	1	1.52	0.45	0.67

The post-test results for Group 1 (experimental group, **Table 3**) showcase the number of students achieving different score levels (ranging from 0 to 3) across various components of assessment, along with statistical measures such as mean, variance, and standard deviation for each component: Organization shows Mean score 2.86, variance 0.12 and standard deviation 0.35. Content displays a Mean score of 2.44, variance of 0.57 and standard deviation of 0.75; Grammar indicates a Mean score of 2.42, variance of 0.48 and standard deviation of 0.70; vocabulary shows a Mean score of 2.36, variance of 0.39 and standard deviation of 0.62; mechanics indicates a Mean score of 2.02, variance 0.62 and standard deviation 0.79.

Table 3. Post test results for the experimental group.

Post Test Results of Group 1 (experimental group)							
Component	**Number of students who got 3 marks**	**Number of students who got 2 marks**	**Number of students who got 1 mark**	**Number of students who got 0 marks**	**Mean $\bar{X}$**	**Variance**	**Standard deviation**
Organization	43	7	0	0	2.86	0.12	0.35
Content	30	12	8	0	2.44	0.57	0.75
Grammar	27	17	6	0	2.42	0.48	0.70
Vocabulary	22	24	4	0	2.36	0.39	0.62
Mechanics	16	19	15	0	2.02	0.62	0.79

The interpretation of the post-test results for Group 2 (control group, **Table 4**) displays the count of students achieving different score levels (ranging from 0 to 3) across various components of assessment, along with statistical measures like mean, variance, and standard deviation for each component: Organization shows Mean score 2.16, variance 0.48 and standard deviation 0.69. Content displays a Mean score of 1.92, variance of 0.87 and standard deviation of 0.93; Grammar indicates a Mean score of 1.92, variance of 0.55 and standard deviation of 0.74; vocabulary shows a Mean score of 1.98, variance of 0.50 and standard deviation of 0.71; mechanics indicates a Mean score of 1.78, variance 0.53 and standard deviation 0.73.

Table 4. Post test results for the controlled group.

Post Test Results of Group 2 (control group)							
Component	**Number of students who got 3 marks**	**Number of students who got 2 marks**	**Number of students who got 1 mark**	**Number of students who got 0 marks**	**Mean $\bar{X}$**	**Variance**	**Standard deviation**
Organization	30	8	2	0	2.16	0.48	0.69
Content	18	12	18	2	1.92	0.87	0.93
Grammar	12	22	16	0	1.92	0.55	0.74
Vocabulary	12	25	13	0	1.98	0.50	0.71
Mechanics	9	21	20	0	1.78	0.53	0.73

4.2. Role of blended teaching techniques in improving paragraph writing

Interpretation of the numerical results comparing controlled and experimental groups indicated the importance of blended teaching techniques in ESL classes.

Table 5 compares the mean scores of the pre-test results for the experimental and control groups across various components. Additionally, it calculates the percentage variation in the pre-test results from the experimental group to the control group for each component. Organization shows mean $\bar{X}$ (experimental): 2.34, mean $\bar{X}$ (control): 2.32, Percentage variation in pre-test result from experimental to control: 0.85%. The content indicates mean $\bar{X}$ (experimental): 1.06, mean $\bar{X}$ (control): 1.24, Percentage variation in pre-test result from experimental to control: −16.98%. Grammar indicates mean $\bar{X}$ (experimental): 1.58, mean $\bar{X}$ (control): 1.56, Percentage variation in pre-test result from experimental to control: 1.27%. Vocabulary shows mean $\bar{X}$ (experimental): 1.90, mean $\bar{X}$ (control): 1.86, Percentage variation in pre-test result from experimental to control: 2.11%. Mechanics presents mean $\bar{X}$ (experimental): 1.46, mean $\bar{X}$ (control): 1.52, Percentage variation in pre-test result from experimental to control: −4.11%.

Table 5. Comparison of pre- and post-test results of experimental and controlled groups.

comparison of Pre-test Results (experimental) to Pre-test Results (control)			
Component	**Mean $\bar{X}$(experimental)**	**Mean $\bar{X}$(control)**	**%age variation in pre test result from experimental to control**
Organization	2.34	2.32	0.85
Content	1.06	1.24	−16.98
Grammar	1.58	1.56	1.27
Vocabulary	1.90	1.86	2.11
Mechanics	1.46	1.52	−4.11

This comparison illustrates the variation in mean scores between the experimental and control groups for each component in the pre-test results, along with the percentage change calculated from the experimental to control groups. It provides insights into the differences in performance levels across these components between the two groups before any interventions or treatments were administered.

Table 6 compares the mean scores of the pre-test results from the experimental group and the post-test results from the control group across various components. Moreover, it calculates the percentage

variation in the post-test results from the experimental and control groups for each component. The organization indicates mean $\bar{X}$ (experimental): 2.86, mean $\bar{X}$ (control): 2.16, Percentage variation in pre-test result from experimental to control: 24.48%. The content indicates mean $\bar{X}$ (experimental): 2.44, mean $\bar{X}$ (control): 1.92, Percentage variation in pre-test result from experimental to control: 21.31%. Grammar indicates mean $\bar{X}$ (experimental): 2.42, mean $\bar{X}$ (control): 1.92, Percentage variation in pre-test result from experimental to control: 20.66%. Vocabulary shows mean $\bar{X}$ (experimental): 2.36, mean $\bar{X}$ (control): 1.98, Percentage variation in pre-test result from experimental to control: 16.10%. Mechanics presents mean $\bar{X}$ (experimental): 2.02, mean $\bar{X}$ (control): 1.78, Percentage variation in pre-test result from experimental to control: −11.88%.

Table 6. Comparison of post-test results of experimental and controlled groups.

comparison of Post-test Results (experimental)to Post-test Results (control)			
Component	**Mean $\bar{X}$ (experimental)**	**Mean $\bar{X}$ (control)**	**%age variation in post test result from experimental to control**
Organization	2.86	2.16	24.48
Content	2.44	1.92	21.31
Grammar	2.42	1.92	20.66
Vocabulary	2.36	1.98	16.10
Mechanics	2.02	1.78	11.88

This comparison highlights the differences in mean scores between the pre-test results from the experimental group and the post-test results from the control group for each component. Furthermore, it provides the percentage change from the experimental group's post-test to the control group's post-test across these components. Top of Form

In **Table 6**, the results show some improvement with the variance in results. Nevertheless, a considerable number of students, 29 out of 50 (58%), are still at the 'fair' and 'below average' level in the component of content (reflective writing). Moreover, improvement in mechanics, grammar and vocabulary is still needed after the teaching process. However, the organization showed better results. So, a comparison of both the groups' post-teaching t-tests is made. In that case, it reveals a very considerable improvement in learning by Group 1 (experimental) in the areas of fair and excellent, with a variance of 0.000925 and 0.001798, whereas, for Group 2 (control), this variance is 0.428527 and 0.01746. These results are further elaborated in the discussion section.

5. Discussion

The study results showed that a blended approach with targeted effort enhances the level of performance in an experimental group of ESL learners (ref. **Tables 5** and **6**: t-test analyses of pre and post-teaching). These findings are based on previous research favouring a blended learning approach, ensuring better exposure (Markowski et al., 2022). The learners are better enabled, and learning increases when provided with online teaching resources, better interaction, and collaboration facilities outside the classrooms through online mediums. For this, the teaching plan was comprehensive, blending online modes of teaching with the on-site set of instructions (**Table A1**: Teaching Plan for Group 1). Language is a social experience and cannot be learned in isolation. In the present scenario, though, the students are enrolled for on-site classes, yet as they form a social group of second language learners and their exposure

to language has culture-bound limitations, the strategy of maximising exposure through a blended approach serves the purpose at its best (Aggrawan, 2020). The approach produces a better result and aligns with many other research projects to address ESL learners' diverse and sometimes complex needs (Chapelle, 2001). Students who learn a second language face many challenges: a limited vocabulary, deficiency in building language structures and adherence to grammar rules, tricky mechanics of writing, and lack of reflective ability and analytical power, mainly due to a traditional teaching mode—the population of this study: Sample groups 1 and 2 struggle in the areas of mechanics, vocabulary and grammar as the pre-test indicates; blending E-techniques with traditional method helps students overcome these challenges.

The pre-test results of both groups (**Tables 1** and **2**) highlight grammar, mechanics, and organisation as the weakest areas. However, on average, vocabulary does not show shallow scores mainly because the paragraph's topic, Advantages and Disadvantages of Social Media, is comparatively familiar. Writing is the most challenging area for an ESL learner as it requires blending thought and knowledge to acquire a unique meaning (Aldera, 2016). Therefore, writing primarily academic writing is one of the least proficient areas for most students (Nesamalar et al., 2001). An analysis of the Pre-test results of both the groups (Ref: **Tables 1** and **2**) makes it clear that content (related to the reflective thinking process) and grammar and mechanics (sentence formation) were the weakest areas; in the experimental group with 35 out of 50 (70% of students) scoring 33% or below. Whereas around 50% of students (27–25 out of 50) were in the danger zone in the components of grammar and mechanics.

Similarly, in the control group, 22 and 26 out of 50 students scored just 1 in grammar and mechanics (44% and 52%), respectively. This result informs of the need to improve grammar structures, yet even more alarming is students' performance in developing content based on students' reflective thinking. This area showed an average of 72% of students in danger for the control group. This result reiterates that essay or paragraph writing skills are particularly deficient in ESL learning groups because they require in-depth elaboration of a given topic with some sound argument (Cooper et al., 1984; Kellogg and Whiteford, 2009). This is a highlighted problem for Asian learners because their education system does not support inquiry-based learning, reflective practices, questioning and discussion. The students are habitual of rote learning and do not foster critical thinking at any stage (Rear, 2017).

Furthermore, writing mechanics and grammar are required to join the idea with a proper organisation to convey meaning and make a paragraph coherent (Aldera, 2016). These findings formed the real challenge for the researcher to hunt for the most suitable teaching strategy. So, the blended approach was adopted, as the researchers have suggested (Haerazi et al., 2020). Another area of concern is vocabulary acquisition, as the Pre-test table shows. The learners, though, perform comparatively better yet are not proficient in this area; 17 out of 50 students (34%) showed a basic vocabulary, 21 (42%) had a fair enough vocabulary (owing to the familiarity of the topic and related vocabulary), only 12 out of 50 (24%) used advanced expressions. In the control group, 17 out of 50 students (34%) were in a danger zone, according to pre-test results (see **Table 2**).

With these findings in mind, a comprehensive teaching plan for the present study on the experimental group was devised (**Table A1**: Teaching Plan for Group 1 based on multi-modal approach and scaffolding), and the outcome was shown in post-teaching (ref, **Table 3**: Post Test results of Group 1). The results are then evaluated through t-test analysis (Ref; **Table 5**): Results of T-test (Variance in Pre and Post Tests of Paragraph Writing). This t-test also analyses different components of paragraph writing: organisation, content, grammar, vocabulary, and mechanics. Each component needs specific instructions

and resources covered through a comprehensive teaching plan with objective-based topics and resources. At every level, scaffolding has been added by incorporating feedback and writing practice tasks.

The results (**Table 5**) analysed the performance level of all five components into four categories of students: excellent, good, fair, and below average; they scored 3, 2, 1, 0 marks in each component. The table shows the maximum level of variance at the "excellent" and "fair" levels, asserting the success of the adopted methodology by leading a maximum number of students to the competence level. It shows that students showed considerable improvement in six weeks of study, especially in the first area of organisation. Hence, this t-test analysis shows an overall improvement in all areas in general.

We adopted a blended learning approach to improve overall performance to achieve the target. Online videos and enactments formed a significant part of the teaching plan to fill the gap for ESL learners. Videos are considered a significant support in an ESL class; hence, these are widely used to teach foreign languages. This audio-visual material aids the teacher and students' thought processes by presenting a virtual reality and giving a real taste of culture (Porta, 2013). With the inclusion of the non-verbal text, the aural input, thus enhancing the level of comprehension, got maximum support (Wagner, 2010).

Meanwhile, the second group (control group) was simultaneously observed and again assigned the same paragraph writing task after six weeks of teaching. The results of this group (Ref: **Table 4**) also show some improvement, as implemented in the analysis part, yet these could be higher with blended learning. The slighter improvement might be due to the six-week teaching period. These do not completely fail, as the t-test analysis shows. However, the outcomes remain lower than the desired benchmark. There are still 4, 39, 16, 15, and 27 students in the danger zone (33% or below), respectively, in organisation, content, grammar, vocabulary and mechanics. A critical review explains the reason. The students performed alarmingly low in the content part, which shows that their reflective thinking and creative writing could not improve. A second primary concern is mechanics, which require an apparent understanding. The low scores in this area prove that adopted pedagogy could not benefit the development of these critical areas in the control group (Ref: **Table 6**; t-test Analysis of Control Group).

These blended teaching pedagogies were influenced by constructivist, connectivist, and cognitivist ideas, shifting from teacher-centred to knowledge-centred approaches, focusing on cognitive and social aspects of learning. They helped collaboration, diverse perspectives, authentic contexts, and active learning experiences.

In essence, learners were given the ownership of their learning to engage in exploration, tackle meaningful real-world tasks, and collaborate with educators. These strategies significantly impact language learning, encouraging independent and active learning through effective instructional methods and technology integration in English as a Second Language education.

This study concluded that the blended learning approach effectively taught paragraph writing. However, this study is limited to only one writing area: paragraph writing. Moreover, the topic was the same for pre and post-test results. This study is significant in reiterating the need to adopt advanced approaches and novel technologies for better outcomes of ESL learning.

6. Conclusion

The study's results support the hypothesis made in the beginning that increased use of technology in a blended form significantly impacts students' learning. This comprehensive approach broadens the horizons for both the instructor and the learners. Another feature of this approach is that it is multi-modal and caters to diverse learners' needs. As the study focuses on advanced skills, writing a paragraph may

be helpful for those researching the best practices for learning foreign languages. As the results imply in both cases, the most evident differences are revealed for more critical areas, language mechanics and reflective practice. This supports a hypothesis established in previous studies that a blended approach supports higher-order thinking better than traditional teaching practices. At this level, this research aspires to offer a guideline for those planning curriculum for English Language learners. It is hoped that the known effectiveness of blended learning is reiterated through this small-scale research and its results.

Author contributions

Conceptualization, HS; methodology, SM; software, HS; validation, HS, SM and FA; formal analysis, HS; resources, FA; writing—original draft preparation, SM, HS and FA; writing—review & editing, SM. All authors have read and agreed to the published version of the manuscript.

Ethical approval

An approval was collected from the research ethical committee of the University of Lahore before starting the data.

Informed consent

Verbal consent of the participants was obtained before starting the data collection. Amongst a population of 100 students a random sample of only fifty students were selected who volunteered to participate in the research activity.

Conflict of interest

The authors declare no conflict of interest.

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Appendix

Table A1. Teaching plan for Group 1 (Experimental Group) based on multi-modal approach and scaffolding.

Hrs. allotted	Topic	Teaching method	Mode	Resources
1 + 1	Organizing a paragraph into an Introduction, body, and Conclusion	Classroom lecture and YouTube video	1 hr online, 1 hr F2F (writing practice on a new topic)	https://youtu.be/L1J9ZPVydrc https://youtu.be/38ygVdNIiGY
8 + 2	Writing the main idea and supporting sentences Using correct paragraph structure (TS, SSs & CS)	Classroom lecture, sample paragraphs from the internet	2 hrs. online (for instructions) and 8 hrs. F2F for writing practice and feedback	https://youtu.be/qQCiXDuq8zU
8 + 2	Writing topic sentences, Writing supporting sentences and details, Writing concluding sentences	Topic sentences, support sentences, and concluding sentences exercises from the internet	2 hrs online for instructions and discussions, 8 hrs. F2F for writing practice, feedback and discussion	Exemplars, ted talks, videos of discussion forums
4 + 1	Use of connectors, Sentence structure and writing different types of sentences	Classroom lecture	1 hr online, 4 hr F2F	https://youtu.be/CpDTxvxuFpM
5 + 1	Present and Past tenses, Use of topic-related vocabulary	Classroom lecture, use of mobile application for tenses' practice	1 hr online, 5 hr F2F (exploring resources, watching videos & practice writing)	https://youtu.be/lsCw0BggTXM https://youtu.be/Z1kE702Fu_Q
4 + 1	Punctuation Rules	Classroom lecture and YouTube video	1 hr online, 1 hr F2F	https://youtu.be/gfYq2ng9s4E

Table A2. Teaching Plan for Group 2 (control group) based on traditional style.

Hrs. allotted	Topic	Teaching method
2	Organizing a paragraph into an Introduction, body, and Conclusion	Classroom lecture and individual writing tasks
8	Writing the main idea and supporting sentences Using correct paragraph structure (TS, SSs & CS)	Classroom lecture, hard copies of sample paragraphs, writing practice in class
7	Writing topic sentences, Writing supporting sentences and details, Writing concluding sentences	Topic sentences, support sentences, and concluding sentences exercises in the class, writing practice
4	Use of connectors, Sentence structure and writing different types of sentences	Classroom lecture
5	Present and Past tenses, Use of topic-related vocabulary	Classroom lecture, worksheets for tenses' practice
4	Punctuation Rules	Classroom lecture and worksheets