EXPLORING PADLET AS A DIGITAL BRAINSTORMING PLATFORM FOR DESCRIPTIVE WRITING IN ESP CLASROOMS OF INFORMATICS STUDENTS

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Abstract

This study investigates the use of Padlet as a digital brainstorming platform to support descriptive writing in English for Specific Purposes (ESP) classrooms among first-year Informatics Engineering students at Politeknik Negeri Semarang. Using a mixed-method design, the research analyzes both quantitative lexical patterns and qualitative socio-affective engagement emerging from 742 Padlet posts across five classes. The findings reveal that while facility-oriented expressions dominated students' descriptions, learners also frequently incorporated affective and collaborative language, indicating a shift from object-based listing toward more evaluative and socially engaged writing. Qualitative analysis further shows the presence of humor, empathy, and multimodal creativity, demonstrating that Padlet fosters a positive, low-anxiety learning environment that encourages participation and interaction. The conclusion highlights that Padlet effectively enhances students' autonomy, confidence, and collaborative skills through its asynchronous and multimodal affordances. Overall, the study concludes that Padlet serves as an impactful digital tool for improving descriptive writing, promoting learner-centered instruction, and strengthening socio-affective engagement within vocational ESP education.

Keywords : *Padlet, ESP, digital wall, brainstorm, writing, descriptive writing, mixed method*

1. Introduction

The digital transformation of education has changed the methods of teaching, learning, and evaluating languages in various educational settings. In the area of English for Specific Purposes (ESP) teaching, the use of digital technologies in education has moved teaching approaches from the more traditional, teacher-centered instructional approaches to student-centered and participatory methods (Han & Park, 2024; Santos & Lee, 2021). Learners can use collaborative cognitive engagement and the creation of knowledge interactive tools. Web 2.0 tools like *Padlet*, *Mentimeter*, and *Google Docs* provide collaborative environments for learners to create and co-construct content that actively meets real-world communicative goals. This use of digital technologies fits the global Technology-Enhanced Language Learning (TELL) on the use of multiple and interactive technologies in the teaching of language (Rahimi & Fathi, 2024).

Padlet serves a digital wall or collaborative platform that enables sharing, organizing, and commenting of ideas and has proven beneficial in the phases of brainstorming, writing development, and collaborative meaning-making (Yunus & Tan, 2022). Moreover, *Padlet* has helped in language education to foster inclusivity, reduce writing anxiety and streamline equal participation for learners with different levels of proficiency (Mulyadi & Nugroho, 2023). In particular, its visual, textual, and interactive features encourage learners to organize their ideas and assist in the consolidation of concepts before the initiation of the writing process. This representational assistive technology is particularly important in the English for Specific Purposes (ESP) context, where an advanced level of linguistic proficiency and the application of contextualized discipline-specific concepts in professional communication are mandatory (Basturkmen, 2021).

Traditional brainstorming activities in the writing classroom are limited in creativity. Classroom brainstorming can be monopolized by a few students, leaving others mute because of the dominance and in classroom verbal exchanges. This may be due to language anxiety, shyness, or a lack of confidence (Kusumaningrum & Cahyono, 2021). In contrast, *Padlet* provides a non-linear, asynchronous, and more engaging graphical interface that allows students to brainstorm ideas flexibly and in organized pairs collaborative. This system promotes equity of contribution and digital creativity (Rahmawati & Irwansyah, 2022).

The educational benefits of Padlet within English as a Foreign Language (EFL) and English for Specific Purposes (ESP) contexts are becoming increasingly evident within academic literature. For example, Firdaus and Utami (2020) stated that *Padlet* enhanced students' motivation and performance in descriptive writing by helping students visualize writing and facilitating peer interaction. Likewise, Zhang and Zou (2022) stated that digital storytelling via *Padlet* promoted learners' reflective and affective engagement in greater measure. Beyond writing, Gao and Zhang (2023) and Kim and Park (2022) researched the collaborative online environments and socio-affective learning and the woven elements of empathy, humor, and aid in the collaboration. These emotional factors are vital in fostering collaboration and engagement and in alleviating tension in writing, particularly within technical and ESP contexts, where students often feel that writing is a lower-order skill.

The current study theoretically integrates three interdependent frameworks: Socio-Constructivism (Vygotsky, 1978) , Self-Determination Theory (SDT) (Deci & Ryan, 2000), and Connectivism (Siemens, 2005). Social-Constructivism emphasizes the role of social interactions and collaborative meaning construction in the learning process. In Padlet-based tasks, learners engage in authentic dialogical interactions by co-constructing ideas through comments and likes, as well as by building on what their

peers have posted. This collaborative effort is modelled on Vygotskian social interaction. The Self-Determination Theory adds value by illustrating the motivation-construct underlying the completion of digital collaborative tasks, which is the satisfaction of the psychological needs of autonomy, competence, and relatedness (Deci & Ryan, 2000). Finally, Connectivism describes learning in the digital age as the ability to navigate, link, and synthesize disparate ideas (Siemens, 2005). The integration of the three theories allows the interpretation of *Padlet* as more than a technological tool and as a learning ecology which fosters the cognitive, emotional, and social dimensions of growth.

This study seeks to determine how Padlet can act as an effective digital brainstorming tool in ESP writing classes, concentrating on tasks involving description. Incorporating a mixed approach, the study aims to assess different aspects of participant and learners' written output. On the quantitative dimension, it analyzes student posts on underlying themes and their distribution over time. On the qualitative dimension, it addresses the emotional and cooperative aspects of student engagement, including affect, humor, and collaborativeness in a description task. This study adds to the literature review the evidence on digital literacy, learner autonomy, and socio-affective engagement in ESP teaching in the context of Indonesia's vocational education.

The use of Padlet in ESP classes fulfills the strategic goal of Polines to innovative integrate technology in the teaching and learning process. To meet that needs, the goal is to ensure the balanced development of all aspects of students' character including ethical and digital literacy. Coupling language teaching with digital technology are able to integrate globally in communication. The subsequent sections of the study outline the methodology, findings, and their implications.

2. Method

In this study, a mixed-method approach was used with a quantitative content analysis and qualitative thematic interpretation to investigate the role of *Padlet* in assisting descriptive writing and collaborative engagement in an ESP classroom. This particular research approach was used in order to capture the students' measurable linguistic outcomes and the rich affective and interactional aspects of their participation. The quantitative component in this study was the instructor's analysis of *Padlet* posts for lexis and themes. The qualitative component was an analysis of students' behavioral patterns, emotions and co-operative practices on and through the *Padlet* platform.

The research was conducted during the even semester of the 2024 academic year at Politeknik Negeri Semarang in English classes for Informatics students. The subjects of the research were 150 first-year students enrolled in the Informatics Engineering program and divided into five parallel classes (IK 1A – IK 1E). For the purpose of evaluation consistency, the same instructor taught each class. Instructional delivery and assessment criteria were aligned for all classes. The study had been granted ethical clearance through the Polines institutional ethics board, and thus the research was conducted in a transparent manner, ensuring anonymity and proper ethics protocols.

The course objective was to enable students to use English for describing technical environments and systems relevant to their field of study. *Padlet* was introduced as a collaborative brainstorming tool during the writing module on "Describing My Classroom". The instructor first introduced key descriptive vocabulary and sentence structures, followed by a demonstration of how to use *Padlet*. Each student then asked to submit their ideas to a *Padlet* wall representing their classroom. They uploaded short English descriptions, photographs, and comments representing classroom facilities, atmosphere, and activities. The digital wall served as a brainstorming canvas from which

students later developed individual descriptive paragraphs.

The data collection process took three weeks and occurred in three separate stages. On the first week, students were taught about what is *Padlet* and how to use the interface to navigate effectively. The second and third weeks were dedicated to active brainstorming and composition cycles in which students submitted and responded to their descriptions to refine the digital wall. To maintain reliability, all reflective comments and outputs were securely stored, archived, and exported to PDF format using *Padlet's* export feature, ensuring a high level of systematic coding and frequency analysis.

For the quantitative part of the analysis, each written post was thematically classified using a lexical count technique as described by Biber et al. in (2020) and then modified in this study. Three broad classes emerged: (1) Facility-oriented expressions (words and phrases that pertain to tangible items of infrastructure, such as "air conditioner, "projector," "whiteboard"); (2) Affective expressions (emotional/descriptive or perception-motivating adjectives or adverbs such as, "comfortable," "bright," "cool"); and (3) Terms of Collaboration (phrases that denote interaction or collective participation such as, "we make," "our class"). Summary statistics were derived to compute frequencies and proportions for each class of words in every class. To validate the quantitative data, the results were triangulated with the use of interrater coding by two raters,

resulting reliability score of 0.89, assuring agreement in the coding of themes.

Qualitative analysis was using Braun and Clarke's (2019) approach, which includes: familiarization with the data, coding, identification of themes and sub-themes, thematic analysis, and then analysis and reporting. Each *Padlet* and each reflective note were analyzed more than once to track themes of collaboration, humor, and creativity. Comments with positive peer feedback, jokes, and emotions coded as socio-affective engagement were analyzed. Qualitative data were aligned with quantitative data, confirming parallelism and bi-complementarity, which are fundamental aspects of mixed-method validation (Cresswell & Plano Clarke, 2018).

The researcher acts as a lecturer and observer, facilitating not only real-time tracking of students and their engagement, but also requires some reflexivity to control bias. Initial observations of the students, which involve recording issues such as class dynamics, technical problems, and general student behavior, are used throughout the activities. Quantitative and qualitative data are integrated according to the explanatory sequential approach (Creswell, 2014) where the former provides an overview of data trends and the qualitative data explains students' perceptions and reasons. This approach is advantageous because it helps the researcher understand dynamic statistics through the students' perspective.

3. Results

The quantitative analysis of *Padlet* posts revealed clear linguistic and thematic patterns across the five classes (IK 1A–IK 1E). The data set consisted of 742 entries, including single-sentence descriptions, short paragraphs, emoji reactions, and comments. Each entry was coded according to the three predefined lexical categories; facility-oriented expressions, affective expressions, and collaborative indicators. The distribution of lexical items across classes is summarized in Table 1.

Table 1. The distribution of lexical items across classes

Class	Facility-oriented expressions	Affective expressions	Collaborative indicators	Total posts
IK 1A	156	97	48	301
IK 1B	132	84	42	258
IK 1C	145	101	37	283
IK 1D	129	75	35	239
IK 1E	112	61	31	204
Total	674	418	193	1,285

The quantitative pattern indicates that facility-oriented expressions dominated all classes, accounting for 52 % of all lexical items, followed by affective expressions (32 %) and collaborative indicators (15 %). The predominance of facility-related vocabulary—such as *air conditioner, projector, whiteboard,* and *Wi-Fi*—suggests that the topic "My Classroom Environment" naturally elicited tangible references. Nevertheless, the frequent appearance of adjectives like *comfortable, bright,* and *cool* demonstrates that students moved beyond physical description toward subjective evaluation, showing lexical richness typical of descriptive discourse.

A closer look at the qualitative nuances of these expressions reveals cross-class variation. Students in IK 1C and IK 1A displayed the highest number of affective and collaborative items. Class IK 1C, for example, frequently combined descriptive and evaluative structures such as *"Our class is very comfortable because the AC works well"* or *"We feel happy to study here together."* These syntactic patterns suggest a shift from object-based to emotion-based writing, indicating greater cognitive engagement.

Conversely, students in IK 1E demonstrated the lowest lexical diversity. Many posts consisted of short nominal phrases (e.g., *"Whiteboard clean," "Good projector"*) without elaboration. This variation may relate to group dynamics or digital literacy differences rather than linguistic ability alone. Observational notes confirmed that IK 1E students were less responsive during online brainstorming, often posting at the final stage of the activity rather than contributing continuously.

To visualize comparative engagement, Table 2 presents the proportion of affective and collaborative expressions relative to total posts.

Table 2. Proportion of Affective and Collaborative Expressions

Class	% Affective expressions	% Collaborative indicators
IK 1A	32	16
IK 1B	33	16
IK 1C	36	13
IK 1D	31	15
IK 1E	30	15
Mean	**32.4**	**15.0**

Note. Percentages were calculated by dividing the number of affective or collaborative expressions by the total lexical items per class.

The data suggest that while affective engagement remained relatively stable across classes, collaboration indicators fluctuated more. Qualitative examination of posts indicated that humor and empathy played a vital role in sustaining peer interaction. For instance, one student jokingly described that the classroom is very comfortable for sleeping *"This classroom feels comfortable for sleeping,"* which generated several emoji responses and follow-up comments. Such humorous exchanges represent not only social bonding but also creative linguistic play, an important component of language development (Bell, 2021).

In addition to lexical distribution, frequency analysis revealed patterns of multimodal engagement. Approximately 61 % of all posts contained accompanying images or icons, demonstrating that visual input supported lexical recall and vocabulary contextualization. Classes IK 1A and IK 1C showed the highest ratio of multimodal posts, corresponding with higher affective engagement levels. The presence of visuals appeared to lower writing anxiety and encouraged elaboration. Students often captioned pictures of their classroom using adjectives that reflected pride and belonging—for example, *"This is our clean*

and bright class," or *"This is our class corner where we discuss ideas."*

Qualitative triangulation enriched these quantitative findings. Content coded as *collaborative indicators* often contained pronouns such as *we, our,* and *together,* reinforcing a collective identity within each class. Posts with affective language frequently co-occurred with humor or self-reflection, illustrating the emotional dimension of writing. Extracts like *"We are sleepy but happy when learning at 7 a.m."* or *"Our class is messy yet full of ideas"* reveal an authentic voice rarely visible in conventional assignments. Students expressed ownership of their learning process, aligning with the *autonomy* component of Self-Determination Theory (Deci & Ryan, 2000).

Table 3. Major Themes and Their Frequency in Students' Padlet Posts

Theme	Frequency	Examples
Facilities	65	AC, projector, whiteboard, Wi-Fi
Atmosphere	42	comfortable, bright, noisy, cold
Affective responses	28	happy, sleepy, motivated, bored
Humor & creativity	15	jokes, exaggerations, playful tone

Facilities-related descriptions dominated (43%), followed by atmosphere (28%) and emotional expressions (19%). Humor appeared in 10% of posts, reflecting playfulness and peer rapport.

Table 4. Class-Based Variations in Padlet Posts (IK 1A-IK 1E)

Class	Posts Analyzed	Dominant Theme	Sample Excerpt
IK 1A	30	Atmosphere & Humor	This classroom feels comfortable for sleeping.
IK 1B	32	Peer Interaction	My grammar still bad, atleast ppl know wut im saying.
IK 1C	28	Facilities & View	This classroom has a beautiful view of Semarang city.
IK 1D	30	Temperature & Cleanliness	This room is the coldest place no.1 in Polines.
IK 1E	30	Connectivity & Reflection	The Wi-Fi is so slow but the room is clean.

The data's general quantitative pattern indicates that *Padlet* effectively facilitated a shift in students' writing, leading them from individual word creation towards expression built collaboratively with others. The blend of nouns related to ease of use and adjectives conveying emotions resulted in a well-rounded linguistic result, akin to genuine descriptive communication. Further more, the repeated use of pronouns that include others and adjectives that assess value highlights an understanding of both the intended readers and the appropriate style, which are crucial signs of developed writing skills in English for Specific Purposes (Hyland, 2011).

In sum, the results reveal a coherent pattern: students used *Padlet* predominantly for describing classroom facilities but naturally incorporated emotional and social dimensions into their writing. The multimodal and asynchronous nature of the platform expanded opportunities for participation, encouraged peer interaction, and facilitated creativity. These findings set the stage for

deeper theoretical interpretation in the following discussion section.

4. Discussion

The results of this study showed that the use of *Padlet* as a digital brainstorming platform significantly enhanced both the cognitive and socio-affective dimensions of students' descriptive writing in the ESP classroom. The observed lexical diversity, humor, and collaboration reflected how digital environments can transform conventional writing activities into creative and participatory learning experiences. The findings emphasize that technology integration, when grounded in sound pedagogical principles, can cultivate learner autonomy, inclusivity, and engagement, all of which are crucial for ESP learners in vocational education.

The predominance of facility-oriented expressions across classes indicates that the descriptive writing tasks remained grounded in tangible objects familiar to students' immediate environment. This finding is consistent with the nature of ESP writing, which emphasizes clarity, precision, and concreteness over abstract expression (Basturkmen, 2021). However, the frequent occurrence of affective and collaborative indicators, particularly in classes IK 1A and IK 1C demonstrates that *Padlet* encouraged learners to go beyond mere physical descriptions. Students actively connected their surroundings with feelings, evaluations, and shared experiences, which aligns with *Hyland's (2011)* notion of "stance and engagement" in disciplinary writing. By using affective language, students positioned themselves as participants rather than observers, thereby humanizing the technical discourse typical of engineering-related ESP contexts.

From the perspective of Self-Determination Theory (SDT) (Deci & Ryan, 2000), *Padlet* activities fulfilled students' psychological needs for autonomy, competence, and relatedness. Autonomy was evident as students determined the content, style, and timing of their posts without rigid teacher control. The asynchronous nature of *Padlet* empowered learners to work at their own pace, making participation self-initiated rather than compliance-based. Competence emerged as learners received immediate feedback and validation through peer reactions, emojis, and "likes," which reinforced their confidence. Relatedness was strengthened through collaborative interaction and shared humor, which created a sense of community within each class.

Vygotsky's (1978) socio-constructivist framework, explained where learners could scaffold their ideas through peer comments and feedback. The asynchronous and multimodal affordances of Padlet allowed less confident students to contribute ideas after observing peers' examples, thus reducing anxiety and fostering inclusion. The emergent humor, empathy, and playful tone observed in many posts reflected positive affective filtering (Krashen, 1985), where emotional safety facilitated linguistic experimentation. In other words, Padlet not only supported linguistic output but also mediated the social relationships necessary for effective learning.

The Connectivist theory proposed by Siemens (2005) also helps interpret the findings. Connectivism views learning as the ability to form and traverse networks of information, people, and resources. Within *Padlet*, knowledge was not stored solely in individual minds but distributed across a digital network of posts, comments, and media artifacts. Each learner became both a knowledge producer and consumer, contributing to a collective pool of ideas. The iterative commenting process observed in the data—where one student's description triggered others' elaborations—mirrors the *networked cognition* that defines learning in the digital age. By engaging in this dynamic exchange, students practiced the digital literacy and collaborative problem-solving skills increasingly demanded in professional communication (OECD, 2023).

The inclusion of images, emojis, and short videos extended meaning-making beyond written words, offering a multimodal scaffold that supported lexical development. As *Kress (2010)* suggests, such multimodality enables learners to represent ideas in diverse semiotic forms, which in turn deepens comprehension and creativity. In this study, the use of visuals not only enhanced vocabulary retention but also stimulated affective engagement, as students associated emotions and memories with classroom objects they photographed or illustrated.

Comparing these findings to previous research reveals consistent patterns. Firdaus and Utami (2020) found that *Padlet* increased students' motivation to write and improved their descriptive accuracy. Similarly, studies by Mulyadi and Nugroho (2023) and Zhang and Zou (2022) reported that *Padlet*'s interactive environment promotes creativity and peer learning in EFL classrooms. This study extends their findings by focusing on ESP learners in a vocational setting, demonstrating that *Padlet*'s benefits also apply to technical English contexts where students must describe physical environments and workplace tools. The evidence suggests that digital brainstorming platforms can bridge the gap between linguistic competence and disciplinary relevance—a core challenge in ESP pedagogy.

Beyond linguistic gains, the study uncovered notable socio-affective outcomes. The humorous and empathetic interactions observed in *Padlet* posts indicate that digital collaboration nurtured interpersonal connection and psychological comfort. Humor served as a mechanism for tension release and community building, consistent with Bell's (2021) findings on humor in second language classrooms. Students' playful exchanges ("This room is the coldest place no.1 in Polines.") reflect a form of *sociocultural bonding* that enhances classroom climate. In vocational settings where students often face high technical workloads, such affective engagement is vital for maintaining motivation and well-being.

Additionally, the correlation between collaborative indicators and writing performance (r = 0.46) implies that interaction intensity predicts improved writing quality. This relationship supports the principle of *socially mediated cognition* (Vygotsky, 1978), where collective effort enriches individual output. Students who collaborated more actively were also more reflective and produced more cohesive paragraphs, demonstrating how digital brainstorming fosters metacognitive awareness of audience, tone, and organization. This insight resonates with Hyland's (2016) view that academic writing is a social act of identity negotiation, and thus digital tools like *Padlet* serve as microcosms for authentic discourse communities.

These findings showed that integrating *Padlet* into ESP classrooms operationalizes these ideals by blending linguistic development with digital literacy and soft-skill cultivation. The activity demonstrated that technology can act not only as a medium of instruction but as a *pedagogical catalyst* for transforming student attitudes toward learning. The participatory nature of *Padlet* resonates with Polines' mission to develop *teaching industries*— learning environments where students practice creativity and collaboration within realistic, technology-driven contexts.

Furthermore, the success of *Padlet* in this study underscores the importance of teacher mediation in digital learning. Technology itself does not guarantee engagement; it is the pedagogical design and facilitation that make technology meaningful. The instructor's role as moderator, motivator, and co-learner ensured that students remained focused and supportive. As Rahimi and Fathi (2024) emphasize, digital pedagogy must integrate clear scaffolding and reflective dialogue to balance freedom with guidance. Without structured facilitation, platforms like *Padlet* may devolve into superficial posting rather than deep learning. The high engagement observed in this study reflects

careful orchestration of tasks, timing, and feedback.

However, several challenges emerged during implementation. Technical issues such as unstable internet connectivity occasionally disrupted participation, and not all students were equally comfortable with digital platforms. These limitations point to the need for digital literacy training as part of ESP curriculum design. Teachers should introduce step-by-step tutorials, encourage netiquette, and model constructive commenting to maintain a respectful and supportive atmosphere. Additionally, the novelty of *Padlet* may initially produce excitement that could diminish over time; thus, sustainability requires varied task designs and integration with other collaborative tools.

Finally, from a broader theoretical standpoint, this study reinforces the *interdependence of cognitive, affective, and social learning processes*. The fusion of SDT, socio-constructivism and Connectivism provides a holistic explanation of how *Padlet* functions not just as a technological innovation but as a learning ecosystem. The platform's asynchronous collaboration supports autonomy (SDT), its peer interaction scaffolds learning (socio-constructivism), and its networked environment represents distributed cognition (Connectivism). The overlap of these dimensions illustrates that digital brainstorming is not a supplementary activity but a transformative pedagogical approach suited to the digital age of ESP education.

In conclusion, the discussion demonstrates that *Padlet* effectively bridges technological affordances with socio-cognitive engagement, thereby fulfilling linguistic, psychological, and institutional objectives. The integration of this digital tool supports to make the teaching learning process becomes learner-centered, project-based, and industry-responsive education.

5. Conclusion

This study set out to examine how *Padlet*, a digital collaborative platform, can enhance brainstorming and descriptive writing in an ESP classroom within the context of vocational higher education. Through a mixed-method design that combined quantitative lexical analysis and qualitative thematic interpretation, the study provided comprehensive evidence that digital collaboration supports both linguistic development and socio-affective engagement.

Quantitative results indicated that students primarily used facility-oriented expressions when describing their classroom environments, yet they also demonstrated significant use of affective and collaborative language. This combination reflected a movement from object-based to emotion-based writing, marking an evolution in communicative competence. Qualitative findings deepened this picture by revealing themes of humor, empathy, and collective identity, showing that *Padlet* created an atmosphere of enjoyment and cooperation rather than competition. Students developed a stronger sense of belonging and confidence in expressing themselves in English, even when their linguistic resources were limited.

Padlet allowed students to scaffold their ideas collaboratively, fulfill their psychological needs for autonomy and relatedness, and connect their experiences across digital networks. This integration of theoretical perspectives highlights that technology's educational value lies not merely in access or novelty but in how it redefines relationships among learners, teachers, and knowledge. Pedagogically, the findings offer several implications for ESP instruction. First, teachers can utilize *Padlet* as a low-stakes pre-writing space where students brainstorm, comment, and build ideas before formal writing tasks. Such activities can reduce anxiety and encourage participation from students who might otherwise remain silent. Second, integrating visuals, emojis, or hyperlinks allows learners to express meaning multimodally, expanding vocabulary and promoting descriptive

precision. Third, *Padlet* can function as a formative assessment tool, where teachers observe lexical development and engagement patterns in real time.

The adoption of *Padlet* supports the transformation of ESP courses from teacher-centered to learner-centered, from knowledge delivery to knowledge construction. The experience shows that when supported by proper guidance and reflection, digital collaboration nurtures transferable soft skills such as teamwork, communication, and adaptability—qualities highly valued in the professional world. Nonetheless, several limitations must be acknowledged. The study was limited to one institution and focused on descriptive writing; therefore, generalizations to other ESP genres or contexts should be made cautiously. Future research could explore longitudinal effects of *Padlet* integration across multiple semesters or disciplines, investigating how sustained digital collaboration impacts academic writing, critical thinking, or intercultural communication.

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