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RESEARCH ARTICLE

Teachers as Material Developers: Investigating Strategies for Writing Instruction in a Digital Age

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Abstract: This study explores the strategies employed by English language teachers in developing writing instructional materials within digitally enriched learning environments. Using a qualitative multiple case study design, six teachers from junior high, senior high, and vocational schools were observed and interviewed. Findings reveal that while all teachers perceive themselves as active material developers, their approaches vary based on their digital literacy, pedagogical beliefs, and access to technological infrastructure. A process-based writing approach is commonly applied, with digital tools such as Google Docs, Grammarly, Padlet, and Canva supporting different stages of instruction. Teachers selected tools based on usability, relevance to student needs, and contextual constraints. However, challenges such as limited preparation time, uneven student digital literacy, and lack of institutional support persist. The study affirms the relevance of the Technological Pedagogical Content Knowledge (TPACK) framework. It highlights the need for professional development that equips teachers with skills to design pedagogically meaningful digital writing tasks.

Keywords: Teacher, Material Developers, Strategies, Writing Instruction, Digital Age.

1. Introduction

Over the past few decades, the digital revolution has significantly transformed educational practices, especially in language teaching. The widespread integration of digital tools and online platforms has shifted instructional approaches, moving educators away from static, pre-packaged materials toward more dynamic, adaptive content. Teachers are now increasingly expected to design, modify, and tailor instructional resources to suit the diverse and evolving needs of digital-native learners (Hafner, Chik, & Jones, 2015). This shift not only redefines the teacher's role as a facilitator but also as a content creator, requiring competencies that extend beyond traditional pedagogical knowledge to include digital literacy, technological proficiency, and content creation skills (Godwin-Jones, 2014). As a result, language educators are encouraged to continuously adapt their practices to keep pace with the affordances and demands of 21st-century learning environments.

Among the core skills in language education, writing remains one of the most complex and demanding for both learners and instructors. Effective writing instruction requires attention to grammar, coherence, organization, style, and purpose, skills that often challenge even proficient language users (Hyland, 2003). The rise of digital tools, such as learning management systems (LMS), automated writing evaluation tools (e.g., Grammarly, Criterion), collaborative platforms (e.g., Google Docs, Padlet), and multimodal writing environments,



offers new possibilities for teaching writing (Godwin-Jones, 2018). These tools can enhance student engagement, provide immediate feedback, and support differentiated instruction. However, the pedagogical effectiveness of these tools depends largely on how teachers integrate them into their instructional strategies and materials (Hafner, Chik, & Jones, 2015).

Although many educators appreciate the potential of digital tools to enhance writing instruction, research shows that they frequently encounter obstacles such as inadequate professional development, limited preparation time, and uncertainty about how to effectively incorporate technology into their teaching practices (Howard & Scott, 2017; Kessler, 2018). The task of creating digital writing materials is complex and influenced by multiple interrelated factors. These include institutional frameworks and mandates, the availability and quality of technological infrastructure, learners' varying digital competencies, and teachers' own pedagogical beliefs and attitudes toward writing and educational technology (Tomlinson, 2012; Richards, 2013; Warschauer). If these challenges are not adequately addressed, the use of digital tools in writing instruction tends to be uneven and falls short of its full potential.

The concept of teachers as material developers is not new. Tomlinson (2003) emphasizes that teachers develop materials not only in the form of worksheets or textbooks but also through the adaptation of tasks, design of digital activities, and creation of multimedia content to meet specific learner needs. However, the digital age has expanded this role significantly, requiring a deeper understanding of how content and technology intersect. A concept captured by the Technological Pedagogical Content Knowledge (TPACK) framework (Mishra & Koehler, 2006). Within this framework, teachers must blend technological tools with pedagogical strategies and subject matter knowledge to create effective learning experiences.

While digital pedagogy has received increasing scholarly interest in recent years, there remains a noticeable gap in research regarding the concrete strategies educators employ when creating writing instructional materials for digital environments. Unanswered questions persist about the factors that influence teachers' decision-making processes, the ways they tailor digital resources to accommodate diverse student needs, and the methods they use to evaluate the effectiveness of their instructional materials (Blin & Munro, 2008). These concerns have become even more pressing in the aftermath of the COVID-19 pandemic, as online and hybrid learning formats have become more widespread and, in many cases, permanent fixtures of educational systems (Bozkurt et al., 2020; Trust & Whalen, 2020). Understanding how educators navigate these digital contexts is crucial for informing professional development, policy, and resource design moving forward.

This study aims to address this gap by exploring the strategies employed by English language teachers in developing materials for writing instruction in digitally enriched learning environments. It will investigate how teachers conceptualize their roles, select and adapt content, incorporate digital tools, and respond to learners' writing challenges. Through this investigation, the research seeks to provide practical insights and theoretical contributions to the field of materials development and digital writing pedagogy, ultimately supporting more effective and engaging writing instruction in the digital age.

2. Literature Review

Traditionally, language teachers have been viewed as implementers of pre-designed materials, often relying on commercially produced textbooks. However, the evolving needs of learners, especially in diverse and technologically enriched contexts, have necessitated a shift toward teachers acting as material developers (Tomlinson, 2012). This role includes not only the creation of new materials but also the adaptation, supplementation, and personalization of existing resources to fit the specific needs of their learners and instructional environments. Tomlinson (2012) argues that materials development is both a theoretical and practical process involving consideration of language acquisition principles, learner needs, and contextual factors. Effective materials are those that engage learners cognitively and

emotionally, support language development, and provide opportunities for meaningful communication. Teachers, therefore, must develop an awareness of how learners learn, which influences the design of writing tasks, the sequencing of activities, and the integration of digital tools. Furthermore, Richards (2013) highlights the growing expectation for teachers to modify and supplement textbooks to create more communicative, task-based learning experiences. In digital contexts, this responsibility is amplified, as teachers must also understand digital design principles, student engagement in online settings, and the capabilities of technological platforms.

Writing is widely recognized as one of the most complex language skills, requiring learners to integrate knowledge of grammar, vocabulary, organization, and audience awareness (Hyland, 2003). In EFL/ESL contexts, writing is often underdeveloped due to limited instructional time, lack of authentic practice, and teacher-centre approaches. Research suggests that effective writing instruction involves a process-oriented approach, where students engage in brainstorming, drafting, peer review, and revising (Ferris & Hedgcock, 2014). Genre-based instruction is also considered effective in helping learners understand the structure and purpose of different types of texts (Hyland, 2007). Teachers play a critical role in scaffolding students' writing development through explicit instruction, modelling, and feedback. These pedagogical practices, however, must be adapted when writing instruction occurs in digital environments.

The rise of digital technologies has transformed how writing is taught and learned. Tools such as word processors, collaborative writing platforms (e.g., Google Docs), wikis, blogs, and automated writing evaluation systems (e.g., Grammarly, Write & Improve) provide learners with new ways to plan, produce, and revise written texts (Godwin-Jones, 2018). These tools offer opportunities for collaborative learning, immediate feedback, and multimodal composition, all of which can enrich the writing process. However, the successful integration of such tools depends on the teacher's ability to align technological features with pedagogical goals, a challenge that is captured by the Technological Pedagogical Content Knowledge (TPACK) framework (Mishra & Koehler, 2006). Teachers must have not only content knowledge (e.g., principles of writing instruction) but also the technological know-how and pedagogical strategies to create meaningful digital writing tasks. Research by Hafner, Chik, and Jones (2015) indicates that when digital tools are used strategically, they can foster learner autonomy, digital literacy, and deeper engagement with writing. Nevertheless, studies also show that many teachers feel underprepared to design writing tasks using digital platforms due to a lack of training, time, and institutional support (Howard & Scott, 2017).

The literature emphasizes the central role of teachers in material development and the growing complexity of writing instruction in the digital age. While digital tools offer new pedagogical opportunities, they also demand that teachers adapt their approaches and develop new competencies. This study seeks to contribute to the existing body of knowledge by investigating how teachers operate as material developers for writing instruction in digital settings—an area that remains underexplored despite its increasing relevance.

3. Research Method

3.1. Research Design

This study used qualitative research to investigate strategies, understand teacher behaviour, and explore material development in context. A multiple case study was designed to study how several teachers develop writing instruction materials in a digital age. This design is suitable to look closely at real-world teaching practices and compare strategies across different contexts (e.g., schools, grade levels, tech resources).

3.2. Research Subjects

English or writing teachers, who have experience using or creating digital materials for writing instruction, were selected to become the subjects of the research. There were 6 teachers

selected in which there were 2 junior high school teachers, 2 senior high school teachers, and 2 vocational school teachers. This study employed a purposive sampling technique, a non-probability sampling method commonly used in qualitative research to select participants who can provide rich, relevant, and diverse insights into the phenomenon being investigated (Creswell, 2012). In this case, participants were selected based on their experience with teaching writing, developing instructional materials, and integrating digital tools in their classroom practice. The inclusion criteria for participants were as follows: (a) Currently teaching English writing at the secondary or tertiary level, (b) at least one year of experience in developing or adapting teaching materials, (c) regular use of digital tools or platforms (e.g., Google Docs, LMS, Grammarly) in writing instruction, and (d) willingness to participate in interviews, classroom observations, and share instructional materials.

3.3. *Research Instruments*

To collect in-depth qualitative data, this study employed multiple instruments: (a) primarily semi-structured interviews were conducted with each teacher to explore their experiences, strategies, and perspectives on developing writing materials in digital contexts including open-ended questions aligned with the research objectives, (b) classroom observations were conducted to gain insights into how teachers implement their digital writing materials in practice, and (c) document analysis consisted of instructional materials developed or used by the teachers including lesson plans, worksheets, digital slides, writing prompts, and student writing samples. These instruments were designed to capture the complexities of teachers' practices, beliefs, and decision-making processes in developing digital writing instructional materials. The triangulation of interview, observation, and document analysis ensured a comprehensive understanding of the strategies and contextual factors shaping material development for digital writing instruction.

3.4. *Data Analysis*

The data from interviews, observations, and document analysis were examined using thematic analysis following Braun and Clarke's (2006) approach. After transcribing and familiarizing with the data, initial codes were generated both inductively and deductively, focusing on teachers' strategies, tool usage, challenges, and pedagogical decisions. These codes were then grouped into key themes, such as digital material design, integration of technology with pedagogy (based on the TPACK framework), and adaptation to learner needs. A cross-case analysis was also conducted to identify similarities and differences among junior high, senior high, and vocational school teachers. To ensure trustworthiness, the study used triangulation, and member checking, and maintained a detailed audit trail. This approach enabled a comprehensive understanding of how teachers develop writing instructional materials in digital contexts.

4. Results and Discussion

4.1. *Results*

This section presents findings from six English language teachers (referred to as Teachers A, B, C, D, E, and F) who integrate writing instruction and digital tools while also acting as material developers. The data revealed several common patterns and key differences in how teachers approach material development, the use of digital tools, and their instructional strategies in the writing classroom.

4.1.1. *Teachers' Perceptions of Themselves as Material Developers*

The six participating teachers generally viewed themselves as active agents in developing instructional materials, rather than passive users of textbooks. They saw material development as an essential part of their teaching identity, especially in adapting resources to suit their students' needs, digital tools, and learning contexts. Most teachers felt a sense of ownership and creativity in designing materials, particularly when integrating multimedia, interactive elements, or technology-supported writing tasks. However, their confidence

varied depending on their digital literacy and institutional support. While some embraced the challenge of being content creators in digital environments, others expressed uncertainty due to limited training or lack of time. Nonetheless, all teachers recognized the importance of tailoring materials to enhance student engagement and writing outcomes in the digital age.

Some teachers see material development as an essential part of professional identity, regularly creating genre-based writing materials and tailoring them to student needs. While some adapt textbook activities due to time constraints, using simple modifications to meet digital learning requirements. As teacher A said:

“Saya biasanya mengadaptasi template dari sumber online, tetapi saya mengubahnya agar sesuai dengan minat siswa saya. Saya pikir siswa lebih tertarik jika contohnya bersifat lokal dan akrab bagi mereka.” (I usually adapt templates from online sources, but I change them to suit my students’ interests. I think students engage more when the examples are local and familiar.)

4.1.2. Writing Instruction Strategies in a Digital Context

All six teachers implemented **process-based writing instruction**, but the degree of scaffolding and the use of digital tools at each stage varied. While all emphasized stages such as brainstorming, drafting, revising, and publishing, their approaches reflected differences in pedagogical style, resource availability, and learner needs.

Table 1. Teachers Writing Instruction Strategies

Stage of Writing	Common Strategies	Differences Across Teachers
Pre-Writing	Brainstorming using digital tools like Padlet or Google Jamboard	Teacher C encouraged visual planning using Canva; Teacher F used video prompts to stimulate ideas
Drafting	Collaborative writing via Google Docs or Microsoft Word Online	Teacher B had students work individually using Grammarly; Teacher D integrated voice typing tools
Revising	Peer feedback and teacher comments	Teacher A used Google Docs comments; Teacher E printed drafts for manual feedback; Teacher F used audio comments
Publishing	Uploading final texts to LMS or class blogs	Only Teacher C and Teacher D emphasized publishing to external platforms (e.g., student blogs, school website) with student reflection

Classroom observations revealed that Teacher C’s class was the most student-centred, with learners actively collaborating using digital devices throughout the writing process. In contrast, Teacher B maintained a more controlled environment, guiding students through individual tasks with digital assistance like grammar checkers. These variations underscore how teachers personalize writing instruction in digital contexts while navigating technological tools, learner preferences, and institutional expectations.

4.1.3. Use of Digital Tools in Writing Instruction

All six teachers integrated digital tools into their writing instruction, but their choices and implementation strategies varied based on their level of technological familiarity, the infrastructure available, and the learners’ proficiency level. As teacher B stated that:

“Kadang-kadang saya menggunakan Grammarly sebagai lapisan pertama umpan balik, lalu saya memberikan komentar tertulis. Itu sangat menghemat waktu saya”. (sometimes, I use Grammarly as a first layer of feedback, and then I provide written comments. It saves me a lot of time)

Table 2. The Use of Digital Tools in Writing Instruction

Commonly Used Tools	Google Docs, Grammarly, Padlet, PowerPoint
Teacher	Integration Strategy
Teacher A	Used Google Docs for real-time teacher feedback and peer collaboration.
Teacher B	Relied on Grammarly to support individual revision and foster self-editing skills.

Teacher C	Employed multimedia tools like Canva and student blogs to promote creativity and engagement.
Teacher D	Used Padlet for group brainstorming and PowerPoint for guided writing prompts.
Teacher E	Combined Google Docs with offline tools to accommodate limited internet access.
Teacher F	Integrated audio and video responses in feedback using LMS tools to support diverse learning styles.

This variation in tool usage highlights how digital integration is influenced not just by tool availability, but by each teacher's pedagogical goals, their confidence in using technology, and their responsiveness to students' needs.

4.1.4. *Challenges in Material Development for Digital Writing*

All six teachers reported facing significant challenges in aligning their pedagogical goals with the realities of digital teaching environments. A common issue across all participants was the limited time available to create high-quality instructional materials, which they cited as a major barrier to effective material development. Technical problems such as device shortages and unstable internet connections were noted particularly by Teachers A and C, highlighting the infrastructural gaps in certain schools. Additionally, varying levels of student digital literacy posed challenges in ensuring equal participation, as observed by Teacher B. Another widely shared concern was the lack of institutional support and training in digital pedagogy; all teachers emphasized the need for more professional development opportunities to enhance their ability to design meaningful, technology-integrated writing tasks. As Teacher C expressed; "*Kami diharapkan menggunakan teknologi, tetapi pelatihan tentang bagaimana merancang tugas menulis yang bermakna dengan teknologi masih sangat minim.*" (We're expected to use technology, but there's very little training on how to design meaningful writing tasks using it)

The findings of this study reveal that all six teachers actively take on the role of material developers, though the extent of their involvement varies. A process-based approach to writing instruction is consistently used, with digital tools commonly integrated to support the drafting and revising stages. Tool selection is influenced by factors such as usability, accessibility, and perceived instructional value. Despite their efforts, teachers face significant challenges, particularly in terms of limited time, inadequate infrastructure, and a lack of professional training in digital pedagogy. A cross-case analysis shows areas of convergence—such as shared obstacles and reliance on core digital tools—as well as divergence in the degree of digital integration and innovation across classrooms.

4.2. *Discussions*

The findings of this study align closely with and expand upon key themes in the literature regarding the evolving role of teachers as material developers, the integration of digital tools in writing instruction, and the challenges faced in the digital education landscape.

4.2.1. *Teachers as Material Developers in Practice*

The data confirm Tomlinson's (2012) assertion that teachers are increasingly taking on the role of materials developers, adapting and personalizing content to meet specific student needs. All six teachers demonstrated a clear understanding of the importance of developing or modifying writing materials rather than relying solely on textbooks. This supports Richards' (2013) view that modern teachers are expected to supplement traditional materials to foster more communicative and engaging instruction, especially in writing.

Teachers in this study exercised agency in material creation, reflecting a shift toward more constructivist and learner-centred pedagogies. As seen in Teacher A's adaptation of online templates to include local and familiar contexts, this finding echoes Tomlinson's (2003) emphasis on the importance of contextually relevant materials that connect emotionally and cognitively with learners. However, the variation in teacher confidence and engagement with

digital design also reflects Godwin-Jones' (2014) observation that not all educators are equally prepared for the digital content creation demands of 21st-century classrooms.

4.2.2. *Writing Instruction Strategies in Digital Contexts*

The use of process-based writing instruction by all teachers mirrors best practices advocated in the literature (Hyland, 2003; Ferris & Hedgcock, 2014), including stages such as brainstorming, drafting, and revising. The digital environment, however, added unique dimensions to these practices. For instance, the use of Google Jamboard and Padlet for brainstorming illustrates how teachers integrate digital tools to support pre-writing processes, an approach that aligns with Hafner, Chik, and Jones' (2015) findings on promoting collaboration and engagement through technology.

Differences in the degree of scaffolding and tool use across teachers reflect the flexible application of the TPACK framework (Mishra & Koehler, 2006), where the intersection of technological, pedagogical, and content knowledge varies by teacher. For example, Teacher C's student-centred, multimedia-rich approach exemplifies strong integration across TPACK domains, while Teacher B's more controlled use of grammar tools like Grammarly points to a narrower application, possibly constrained by pedagogical beliefs or digital proficiency. These variations underscore the point made by Blin and Munro (2008) that successful digital pedagogy is highly contextual and teacher-dependent.

4.2.3. *Integration and Selection of Digital Tools*

The findings strongly support Godwin-Jones' (2018) argument that digital tools can enhance writing instruction by facilitating collaboration, feedback, and multimodal composition. The variety of tools used—Google Docs, Padlet, Canva, Grammarly—illustrates how teachers choose platforms based on their instructional goals, infrastructure, and student needs. The adaptive use of tools, such as combining online and offline methods (as with Teacher E), also reflects a practical response to infrastructural limitations, in line with Trust and Whalen's (2020) observation that post-pandemic teaching often blends digital and analogue practices.

Moreover, the findings support Hafner, Chik, and Jones' (2015) insight that when teachers use digital tools strategically, they can foster deeper learner engagement and autonomy. Teacher C's integration of student blogs and reflective writing activities, for example, aligns with calls for more authentic, publicly oriented writing tasks that prepare students for digital literacies beyond the classroom.

4.2.4. *Challenges in Developing Digital Writing Materials*

Consistent with prior studies (Howard & Scott, 2017; Kessler, 2018), all teachers cited time constraints, lack of digital training, and uneven infrastructure as major obstacles to effective material development. These findings reaffirm the need for targeted professional development programs, as emphasized in the literature, to equip teachers with the skills to design meaningful and pedagogically sound digital writing tasks.

The teachers' expressed desire for more training in digital pedagogy supports Godwin-Jones' (2014) and Bozkurt et al.'s (2020) argument that institutional support is crucial in sustaining educational innovation. The variability in digital literacy among students, as reported by Teacher B, also echoes Tomlinson's (2012) observation that materials must be not only pedagogically effective but also accessible and appropriate for learners with diverse digital competencies.

4.2.5. *Cross-Case Insights and the TPACK Framework*

The cross-case findings further validate the TPACK framework as a useful lens for understanding how teachers balance technological choices with pedagogical intentions and writing content goals. Differences in tool usage, from multimedia feedback to publishing on public platforms, demonstrate how each teacher negotiates the affordances and limitations of their teaching context.

Teachers like C and F, who embraced innovative technologies and emphasized student reflection and publication, showed high levels of TPACK integration. In contrast, others, such as Teacher B, demonstrated a more limited overlap, focusing primarily on technological substitution (e.g., using Grammarly as a digital replacement for manual proofreading). This spectrum reflects Warschauer's earlier point that technology alone does not drive educational change; rather, its value is mediated by the pedagogical vision and competencies of the teacher.

5. Conclusion

This study explored how English language teachers act as material developers for writing instruction in digital environments. The findings demonstrate that teachers play an active and adaptive role in designing and modifying instructional materials to align with students' needs, technological resources, and pedagogical goals. A process-based writing approach was consistently implemented, with digital tools strategically integrated into various stages of instruction. However, the extent and sophistication of tool usage varied depending on teachers' technological familiarity, institutional support, and instructional context.

Despite embracing their evolving roles, teachers faced significant challenges, including time constraints, infrastructure limitations, and a lack of professional development focused on digital pedagogy. These obstacles often hindered their ability to fully exploit the potential of digital tools in enhancing writing instruction. The study reinforces the relevance of the TPACK framework in understanding how teachers navigate the intersection of technology, pedagogy, and content. It also highlights the need for systemic support—such as targeted training, policy alignment, and resource provision—to empower teachers in their roles as digital content creators.

Overall, this research contributes to a deeper understanding of teacher agency in material development and underscores the importance of context-sensitive, teacher-driven strategies for effective writing instruction in the digital age. Future studies may extend this inquiry by exploring student perspectives or assessing the impact of teacher-designed digital materials on writing outcomes.

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