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An Overview of Digital Writing: Learning and Teaching

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Abstract

Digital writing instruction in EFL/ESL/ELL environments has, over the last decade, changed drastically. Following those changes, both in use of digital tools for writing and instruction of writing, it is important to prepare our students for academic, business and social environments outside the university. A move to composing and editing on smartphone screens, use of digital tools like spelling and grammar checkers, writing assistants and even artificial intelligence needs to be taken into account to effectively teach writing to non-native speakers. A move to broaden the focus from traditional essays to more informal and collaborative writing is more in line with what students will encounter after they graduate. We look at digital writing tools like grammar and plagiarism checkers and how to train students to use them most effectively while developing their confidence and capabilities for writing in a foreign language.

Introduction

Writing with digital tools online has changed the practice of writing along with the teaching of writing, especially for language learners. The progress and quantity of tools are accelerating, beginning with word processing, then spell checkers. Speech Recognition (SR) allows for voice input. More recently grammar checkers have gained popularity as they include more functions like plagiarism detectors, style checkers, and a host of other real-time feedback as students write. While many of these tools are designed for native speakers, some have become useful to language learners. Now, with the advent of writing that is assisted by Artificial Intelligence, we are looking at a whole new level of writing support. Preparing students to use these tools has become an essential part of writing instruction so that they may function at doing research in a library, organizing their ideas, drafting and redrafting, editing, and publishing in both an academic and business environment.

Current Writing Instruction

While most writing instruction still uses textbooks, paper, and pens, digital tools are being implemented by the students themselves, and usually later, by writing programs. Most writing focuses on academic forms and is highly structured. If we look at some of the most popular textbooks such as the *Contemporary Topics* series by Kisslinger and published by Pearson, we see writing as an afterthought, part 9 of 9, and only pressed into action to prepare for a

presentation. *Effective Academic Writing* by Savage and Mayer (Level 2, 2nd edition, Oxford) uses rhetorical devices as an organizing principle, like so many others. The process approach includes steps of research, freewriting, grammar, drafting and timed writing. *Writing for IELTS 6.0–7.5* (Diamond-Bayir, Macmillan) follows steps of vocabulary, grammar, chart, reading, organization, technique, ending with a practice test. *Inside Writing* by Adams (Level 3, Oxford) again is organized by rhetorical devices with steps of vocabulary, reading, technique (called Device here), more vocabulary, grammar, solo writing, collaborative writing, independent writing, then revise and edit (focus on grammar). As we see from these examples, there is little variation among the formats and organizational principles. Instruction methods are changing, however, influenced both by new practices and new tools.

Student Needs

Digital writing tools in the nonacademic world are in common use where technology is available. By far the most common are the word processors, most of which include spell-checking as a standard feature. Word processing itself has changed with the advent of online word processing suites such as *Google Docs* (a part of *Google Suite*). Online processing allows for collaborative writing as one of the main improvements. A researcher and columnist for Language Learning & Technology, one of the top journals in the field, recently updated his decade-old article on the state of teaching with technology for L2. He has found that:

> In many work environments, there is an expectation for employees to work together to prepare written documents. That may happen in a variety of ways, including through the use of the *Track Changes* feature in a word processor, such as Microsoft Word. Increasingly, however, users and businesses are choosing to use web-based tools such as Google Docs. (Godwin-Jones, 2018, p. 4)

Along with writing email, which takes an average of 25% of work time, skills for working collaboratively are in high demand in the office environment. Using a school's Learning Management System (LMS) like *Moodle* makes the transition to workplace software like *Slack* much easier.

One significant transition most students and writing programs have not overcome yet is the move to mobile devices for composing, drafting, editing and publishing. Most students do not want to use computers, either at home or in the lab. "The only devices many of the participants wanted to use while at college were their smart phones" (Cunningham, 2019, p 37). Developers are working on creating writing tools that work with the smaller screen size.

Writing Instruction

Purdue University with its Online Writing Lab (OWL) was a pioneer in online instruction of writing. Starting essentially as a collection of advice pages on writing, it has developed over

the last 20 years into a complete set of instructional tools available free to both students and writing programs. It has lead the way with curriculum and other support for native speakers and for language learners.

Over the last decade, digital writing is changing the way writing is taught. University and high schools installed computer laboratories, then moved to individual laptops, and now are in the process of moving to mobile computing.

> The introduction to and encouragement of online collaborative writing are likely to be increasingly important aspects of the instructional strategy for L2 writing. This is both a needed real-world skill and an activity aligning with what second language acquisition (SLA) theory tells us about the effectiveness of social constructivism in language learning. (Godwin-Jones, 2018, p. 2)

For language learners, instruction and the use of digital writing tools are more complicated. The cognitive load of working with software is added to the writing task, and until it becomes automatic, causes friction in the process.

On Transition

A story to consider. Writing instruction was disrupted by a change in writing technology in the 1950s. Twenty years earlier, a Hungarian named Ladislas Biro got tired of his fountain pen leaking in his shirt pocket. He worked on a new delivery method, a small ball instead of a nib. He had to make the ink thicker so it would not run. It took 20 years before the Frenchman with a family name Bich was able to manufacture these ballpoint pens and popularize them. They are alternatively called Biro, Bic, or ballpoint pens.

It was far easier to make the pens than it was to get them accepted in society or the classroom. They suffered from disregard even though commonly used on a daily basis. One of the last places the changeover took effect was in the writing classroom. Many teachers feared that the pens ruined cursive writing because it was much easier to lift the pen and start a new stroke without smearing or leaking, as the fountain pen was wont to do. Indeed, even today, in French schools, fountain pens are still used for writing instruction. Studies have shown that although the specific writing action, with a tendency to create a more print-like (non-cursive) writing, it has not affected thinking during the writing process. Much like keyboard layouts (QWERTY vs DVORAK), there was little change for writers once the new tools were learned. The biggest barrier were the instructors, who were used to classic tools and unwilling to learn the new tools. Like the ballpoint pen, new digital ways of writing are following this process. The limiting factor for mobile entry is not typing, where speeds of up to 38 words per minute are achieved using two thumbs on the smartphone (Sample, 2019). Using speech recognition allows speeds up to 3 times the speed of text entry (Ruan et al., 2016).

Digital Writing Tools

This paper focuses on tools used in the drafting process, such as grammar and plagiarism checkers. Apart from that, there are a plethora of tools that merit mention here. Word processors, of course, are the new ballpoint pens. You can even see new iterations of the word processor in the web-based *Google Suite* of applications, where *Docs* allows for much easier collaboration and revision management than the traditional standalone applications like *Microsoft Word*. Speech recognition pioneered by *Dragon* at Nuance has been overtaken by free speech recognition through Google and applications like *Google Keyboard* and *Speechnotes*. Note repositories such as *Evernote* or *OneNote* allow for the easy and ongoing collection and organization of research materials. Research organizers like *Zotero* and *Mendeley* allow users to assemble articles and books into a single body with reference information that allows for easy integration into publication, along with almost automatic bibliography creation. Ancillary programs like *Hypothes.is* and it's simplified relative *edji.it* allow users to collaboratively comment, evaluate, and discuss web pages in preparation for writing. *kailo-edu.com* assists and manages students in online debate as a way to forge ideas for writing.

Grammar Checkers

Spell checkers were quickly added to word processors, the first real support tools for writers. They improved in accuracy over a decade. Grammar checkers followed, with Microsoft leading the way. *Grammarly*, as a standalone, offered wider access and more usable software for a general audience. Other grammar checkers include *Ginger*, which includes language training and translation features partly because it was developed in Israel. The plagiarism checker *Turnitin* added some grammar checking features. Other academic programs like ETS's *Criterion* and Cambridge's *Write and Improve* give feedback on drafts. *Grammarly* then moved to add plagiarism checking and feedback on style (tone), consistency and readability, as well as supporting the software in *Google Suite*. *Grammarly* focuses its tools on the individual writer, while most of the other applications like *NoRedInk, Revision Assistant, Writing Pal*, and *Quill* are designed to be used in class with a teacher managing and monitoring.

Plagiarism Checkers

Turnitin became the preeminent plagiarism checking software through partnerships with more than half of all US universities. It is important to know that the service itself does not directly detect plagiarism; it only checks a database of published work and previous student papers to return a score of how much of the submission matched the database. It is up to the teacher to determine whether this is plagiarism or not. Some students object to submitting their work to a for-profit enterprise that archives and uses their data to check other student work as they have no choice because it is mandated in the curriculum. Teachers also feel that the

presumption of guilt changes the supportive class environment they are trying to foster. Another criticism of the software is false positives, where student writing is matched to the database, but no actual plagiarism has taken place. Professors at Waseda and Nihon University found that

> Results showed Turnitin found "similar matching" in 99% of papers; however, an analysis eliminating false positives and categorizing actual plagiarism events as *outright, paraphrase* and *patchwork plagiarism*, or *stealing an apt term* showed only 29% featured plagiarized material, and in most cases, evidence suggested no intent to deceive. (Oghigian et al., 2016, p. 1)

The concept of plagiarism has been put into question in our new culture of sharing online. Holding students to a strict standard with draconian consequences may not be warranted in most cases (Mott-Smith, 2017). Patchwork writing, where students mimic style and forms of specific types of writing, is often flagged as plagiarism even though it is a common teaching and learning technique. Oghigian et al. also suggest that "Turnitin might be much more effective if used as a pedagogical rather than a policing tool" (Oghigian et al., 2016, p. 14).

AI Writing: Google *Smart Compose* and *GPT-2*

Using Artificial Intelligence (AI) such as when *Grammarly* makes suggestions has led to a change from a grammar checker to what they now call a *Writing Assistant*. The real-time suggestions are becoming more and more helpful, even for native speakers. But this has been taken to a whole new level with predictive text, in other words, Google's *Smart Compose*. As you type a sentence in Gmail, Google compares what you are typing to its vast database of similar sentences and suggest an ending. In real-time. Just click the tab button to accept the suggestions. This works exceedingly well with formulaic sentences, which will be a boon for Japanese writers when it is available in that language (currently, this is available only in English). The impetus for this article came from an article in the New Yorker, a premier literary magazine, by John Seabrook (2019), about using predictive text and AI to write an article for that magazine. It is about as far-fetched as writing an article with speech recognition a decade ago. AI is accelerating, and with the introduction of *GPT-2*, we can enter a topic or even a topic sentence and the AI engine can make a passable facsimile of a paragraph. Copywriters are using this engine to streamline their work and make first drafts. The full version of *GPT-2* was rolled out to the public over nine months in 2019 because it works too well (OpenAI, 2019). It can write articles that are good enough to pass for "real" and have been custom created, so they do not show up in the plagiarism database. To try *GPT-2*, go to *talktotransformer.com*.

Digital Writing: Learning and Instruction

Adapting a traditional teaching approach to digital writing requires both students and

teachers to go online. As such, there are details like user interface that enter into the syllabus. One such example of the change (Rayens & Ellis, 2018, p. 93) shows that pacing and control of the information to students is important. Opening and closing dates or requirements with a cascade of activities keep students on task. A daily message keeps them informed and motivated. Regularly required responses (i.e. uploading a video clip), and real-time facilitation of discussion, along with peer grading all work to create more agency for the learners.

Feedback: Peer Review

One of the biggest changes in the last 10 years with digital writing instruction is the adoption and use of peer review. This is a result of many studies showing that teacher feedback may not be effective. "Although there is no agreement on a single best approach, there does seem to be a consensus that simply providing the correct form may not lead to deep learner processing or internalization" (Godwin-Jones, 2018, p. 7). Peer review promotes autonomy along with increasing skills of evaluation and commenting as well as an increase in writing abilities. It also reduces the load on the teacher. Combining teacher and peer feedback is one hybrid approach that works.

> The results reveal that the PR＋TF [Peer Review with Teacher Feedback] group outperformed the TF group on all five subscales of English writing. We argue that in the context of a large class with more than 50 college students, the use of a collaborative online writing platform that integrates both TF and PR contributes to the abilities of students. (Tai, 2015, 302)

The type of feedback also matters. AbuSeileek & Abualsha'r (2014) found that "Students in the track-changes group significantly outperformed participants in other conditions in most writing aspects related to both form and content on the writing post-test" (AbuSeileek & Abualsha'r, 2014, p. 89). Student peer review through track changes led to improvements over recast and metalinguistic suggestions by the peer reviewer. By looking at specific changes in the document made by peers as suggestions, students learned more than overt feedback.

Because the school environment in Japan lacks digital components, "students indicated a strong preference for handwritten feedback over e-feedback. . . Furthermore, feedback written directly on their manuscript was much preferred to feedback provided on a separate paper" (Elwood & Bode, 2014, p. 341).

Collaborative Writing

Instead of writing a one-and-done paper for the teacher, students can be encouraged to partake in collaborative writing (Bikowski & Vithange, 2016). This can entail a range of modes. Online discussion or forums, blogging, or even co-authoring enhance skills of participation in writing with other people. This is valuable because the majority of academic research and business correspondence are done collaboratively these days. "Developing collaborative writing

skills is an important prerequisite for the extensive coauthoring that occurs in most academic and career settings" (Yim & Warschauer, 2017, p. 146). Use of extensive informal writing with blogs, wikis, forums, and *Google Docs* can enhance some writing skills, but may not with others. "Compared to the control group, the blog intervention group displayed greater improvement in content and organization, but not in other areas such as vocabulary and grammar" (Yim & Warschauer, 2017, p. 150).

Email and Informal Writing

The five-paragraph argumentative essay is a good place to start writing, but has only indirect application to the needs of non-native writers. They are far more likely to encounter informal writing in their daily and work life. Email leads, along with social media, as informal writing as most common today. Teaching writing through wikis (Hsu & Lo, 2018), for example, increases attention to meaning over form, yet increases the number of grammatically correct sentences (Aydin & Yildiz, 2014). Some suggestions about integrating informal writing into the ESL/EFL classroom:

> It is possible to provide some basic guidelines for teachers who are interested in incorporating these technologies into their teaching.
>
> - **Focus on pedagogy.** It is important to maintain a focus upon the learning objectives. Unfortunately, it can be tempting to be swept away with technological innovation, but teachers should reflect on the purpose for the technological intervention.
> - **Allow classroom practice to mimic authentic communication.** Reflect upon your own use of technology outside the classroom, particularly related to communication. It is likely that there are practices that you already engage in that could inform interesting and innovative practice in the classroom.
> - **Don't wait to be an expert.** Many teachers who are intimidated by technology are inclined to avoid it altogether. The resources and tools mentioned in this article are accessible to everyone. There is no learning curve and no place for fear!
> - **Ease into new practices.** You can't expect everything to perform anything perfectly upon first implementation. Effective integration requires reflection and repeated practice. (Kessler, 2013, p. 629)

Moving Ahead

One of the first and easiest steps is to include informal writing as part of the drafting process. Working ideas out through free writing and saving it to a portfolio is one alternative to the paper-based writing journals. Online forum discussion is another way to get passive feedback from students in the context of exploring new topics. Email exchanges can also serve this purpose, both within the class and outside, using a digital equivalent of a pen-pal. The key

here is the audience. Instead of having students work hard to create something only the teacher sees, then discards, the students get a real audience with real reactions (and teacher feedback on the side).

Moving from *MS Word* to *Google Suite (Docs)* is one way to encourage collaborative writing. The teacher can set up common documents for small groups and include themselves so as to be able to monitor and comment on the group work, encouraging all members to help with the organization and drafting, and then the peer revision.

Moving from desktop and laptop computers to smartphones has become a necessity as total screen time is moving in that direction. Reviewing different approaches to writing, and applying them to mobile devices are important. Each of the eight approaches and models covered in Zaki and Yunus (2015) can and should take into consideration smaller screen sizes. They include approaches like Product, Free-Writing, Paragraph-Pattern, Grammar-Syntax Organization, Communicative, Process, Genre-based and Academic Literacy. Whether using a Skills model or a Socialization model, each of these eight approaches can be adapted to a greater or lesser degree.

Instead of the top-down approach of applications like *Turnitin*, showing students user-based applications like *Grammarly* has significant advantages in that it fosters autonomy and allows the students to use these tools in all situations, not just academic ones. *Grammarly* is simply better than *Turnitin* because of the newer features of checking style (tone) and clarity. It is also more useful because it works on so many different platforms, with the default web-based application as a standard on any device. The plugins for Windows, Word, and all the main browsers integrate *Grammarly* into every conceivable aspect of digital writing, including a beta version for *Google Suite (Docs)*.

Approaching digital writing in the classroom as support for students instead of policing plagiarism is key to developing their writing skills. Following (and leading) students through a step-by-step writing procedure while giving constant feedback means they can break down the difficult writing process into manageable chunks and the teacher can monitor that progress closely so as to give supportive suggestions and feedback.

Another tool for drafting and monitoring writing that works well with *Google Classroom* and *Google Suite (Docs)* is *Draftback*, which counts each revision made by a student in *Google Docs*, collected by *Revision History* (similar to Track Changes in *MS Word*), and plays it back. It also generates a report that can be used to see exactly when and how often a student edits a paper. Initially, this makes it easy to see when students add chunks of text instead of typing it in so as to detect plagiarism from all sources, not just the ones in the *Turnitin* database. But *Draftback* yields other information so the teacher can monitor if the students do last-minute edits or makes changes more often and earlier, as this researcher did. "The data suggests a fairly uncontroversial model of a good writing student—one who edits often, both in terms of sheer numbers of changes and in terms of frequency of editing sessions" (Makino, 2020).

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