Assumptions and practices in using digital technologies to teach writing in middle-level classrooms across Canada

Shelley Stagg Peterson and Jill Kedersha McClay

Abstract

Interviews with 216 Grades 4–8 teachers and observations in 21 classrooms show that computers are widely used to teach writing across Canada. Restricted access to computers plays a role in the frequency and types of interactions that students and teachers have with computers in writing classes. Equally influential are assumptions about writing development and effective teaching practice. Many participating teachers believe that spell checkers hamper students’ spelling development. They view computers as tools to extend and support their teaching of mini-lessons.

Key words: writing instruction, digital technology, middle grades

All writing involves some form of technology – from the humble #2 pencil to the most sophisticated, high-powered computer, but a steady supply of usable #2 pencils does not deplete a school budget the way that up-to-date computers do. As is the case in the United Kingdom, many US states and Canadian provinces have Information and Technology programmes of study that require the use of computers. Arguably more important than the access question is the question of what use teachers actually make of digital technologies in their teaching, particularly in the teaching of composition. We conducted a national study of the teaching of writing in Canadian middle-level classrooms, asking broadly about teachers’ practices and their perspectives on teaching writing. (We consider the middle level to include students who are approximately 9–15 years old, in Grades 4–8 of North American schools or Key Stages 2 and 3 in England and Wales.)

We were interested in what pedagogical use teachers make of computers to teach writing. Leander (2009), among other researchers, calls for teachers to adopt a ‘parallel pedagogy’ to integrate newer Web 2.0 perspectives with traditional literacy practices, but there is a dearth of large-scale research to indicate whether such perspectives are being taken up by teachers. As part of this larger study, we asked, “to what extent and in what ways do teachers capitalise on digital technologies in teaching writing?” Canada is a highly ‘wired’ country – both in schools and domestic life (Media Awareness Network, 2005), and there are strong provincial curricular directives supporting the infusion of digital technologies for writing, so we anticipated that teachers would report a strong focus on this aspect of their teaching of writing.

Research and theory on computers and writing

Writing classes might be assumed to be a natural curricular home for the integration of computer technology. Researchers observe that word processing is less painful and laborious than handwriting, that editing is easier because printed misspellings are more readily identifiable than handwritten ones; and that revision does not involve tedious recopying (Moxley et al., 1997). With the expectation that facilitation of the writing process would lead to more and better writing, a large body of research has focused on the number of words produced, students’ motivation to write, and the assessed quality of the writing when examining the use of computers to teach writing (e.g. Berninger et al., 2009; Goldberg et al., 2003; Owston and Wideman, 2001). For the most part, the research shows a positive correlation between composing on computers and writing quality, quantity and motivation to write. This research, together with research and theory examining the new ways of creating, distributing and exchanging texts that have become possible through digital technology, inform our study.

This second body of research is underpinned by a view of writing as an “ideological practice, implicated in power relations and embedded in specific cultural meanings and practices” (Street, 1995, p. 1). Writing practices are shaped by social rules about how to use literacy and how to distribute the meanings to others, who should be distributing and who should have access to those meanings (Barton and Hamilton, 2000). Writers shape messages using the conventions of a particular social context to make their meaning understandable and worthy of the intended audience’s attention. Social intentions, values and assumptions are as
much a part of one’s writing practices as are the physical and material aspects of writing.

Theorists who view literacy as a social practice (e.g., Lankshear and Knobel, 2003, 2006; Merchant, 2008; O’Reilly, 2007), argue that digital multimodal writing transforms social practices and understandings of what constitutes texts and literacy practices. They further contend that the ‘deep grammar’ of schooling encumbers teachers’ efforts to take up the social practices and mindsets of these new literate practices (Lankshear and Knobel, 2003, p. 30). Assumptions grounded in unequal power relationships between teachers and students and a sequential, imposed curriculum are the warp and weft of the deep grammar. According to these theorists, a teacher’s position as the ultimate authority constrains classroom literacy activity to practices that teachers can comfortably and competitently direct. An imposed, sequential curriculum with pre-specified outcomes is unlikely to allow the time or breathing space for students and teachers to bring real-world literacies and social practices associated with new technologies into their classrooms.

Methodology

This research was a mixed-methods study, with a first phase of telephone interviews with participating teachers throughout Canada and a second phase of observations, interviews and document analysis with teachers and students in focus classrooms. Phase One included 216 participating middle-level teachers, from all 10 Canadian provinces and two of the three territories. We conducted telephone interviews with 162 female and 54 male teachers (16–22 teachers in each province). Within each province, four school districts participated – two rural and two urban – whenever possible. (Not all provinces in Canada have more than four school districts.) In Phase Two, we conducted classroom visits with 21 participating teachers across nine provinces (1–3 teachers in each province) to contextualise the portrayals of teaching writing that emerged from the telephone interviews. The classroom visits included observations of teachers’ instruction during regularly scheduled writing classes, informal conversations with five students in each class, analysis of student compositions and audio-recorded interviews with teachers following the observations. These classroom visits helped us to gain a richer understanding of daily routines and resources and the role of computers in writing instruction.

Data from the Phase One telephone interviews were analysed using constant comparison thematic coding (Cresswell, 1998). We developed a codebook and checked for inter-rater reliability at regular intervals, attempting to uncover some of the complexities that are part of a teacher’s daily life in classrooms. Our intention in these two phases of research was to attend both to global and local contexts (Brandt and Clinton, 2002). In Phase Two, we focused on attempting to understand each teacher’s local context as much as possible. The school visits sometimes confirmed the general trend of our Phase One data and sometimes gave us vivid exemplars of the teachers at the leading edge of practices as shown in our large-scale data.

Our analysis of the data shows that computers are taking an increasingly prominent place in writing classrooms, even though access continues to be a problem across the country. A number of assumptions about composing with computers appear to guide teachers’ decisions about using computers to teach writing. We discuss these assumptions, together with previous research on teaching writing using technology, and later draw upon them to propose ways to enhance the teaching of writing using technology.

Grades 4–8 teachers’ use of computers to teach writing

The use of computers in writing classrooms of teachers participating in our research study is now commonplace. Of the 216 participating teachers, 76.4 per cent of Grades 7–8 teachers and 78 per cent of Grades 4–6 teachers use computers to teach writing on a regular basis. A few teachers (17 per cent) require word-processed final copies. Whether word-processed submissions are required or not, in 24 per cent of teachers’ classrooms, students hand in final written assignments that have been word-processed. This fairly extensive use of computers to teach writing has not been indicated in previous surveys of teachers’ writing instruction: less than 25 per cent of teachers surveyed in 1993 (Laframboise and Klesius, 1993), and less than 60 per cent of Grades 1–3 teachers in 2008 (Cutler and Graham, 2008) and Grades 4–6 teachers in 2010 (Gilbert and Graham, 2010) used computers on a regular basis (at least several times monthly) to teach writing.

Observations in nine of the 216 participating teachers’ classrooms provide more information about how computers are actually used. In an urban fifth-grade classroom, students compose poetry by hand in writing notebooks and then go to the computer lab in the library during the next class to type a good copy, complete with clip art. In a fourth-grade urban class, only a student who has a physical disability word-processes all of her writing and uses clip art to illustrate it. She does some of her writing at home. All students take turns composing a weekly newsletter on the one computer in the room that the teacher prints off on Friday afternoons and sends home with students. In three other Grades 4–6 classrooms (which also have only one computer in the classroom), students’ informational reports are word-processed in the computer lab, but all other types of writing are handwritten. In another classroom in which the only student allowed to word-process assignments is a special needs student,
however, the teacher commented that the computer is stigmatised: “The other kids now see the computer as something that only special needs kids get to use, so they don’t ask to use a computer”.

In 11 per cent of participating teachers’ classrooms, students create websites and webcasts and participate in blogs in school, and in another 12 per cent, students use MSN Messenger and e-mail in class. The majority of these teachers teach Grades 7 and 8. In an eighth-grade urban classroom, for example, students carry out open-ended projects, such as a photojournalism assignment where they choose a theme and then take pictures in the community to create a multimedia composition. In this classroom, the teacher brings his own laptop for students to use and has seven computers in the classroom that are in use on an ongoing basis.

As a general rule, the computer serves as a tool for furthering practices associated with a writers’ workshop approach (Graves, 1994) in participating teachers’ classrooms. Teachers provide opportunities for their students to use the Internet to seek more information about their writing topics. Students write multiple drafts using pen and paper, and receive feedback from peers and their teacher before retyping the drafts on computers to create a good copy. Teachers use computers and LCD projectors, as well as SMART boards, in mini-lessons—short whole class instruction activities that address one clear objective to provide direction for improving writing (Davis and Hill, 2003). Participating Canadian teachers’ teaching practices parallel those of nine British teachers who were participants in case study research. Canadian teachers’ objectives focus on students’ writing development, whereas teachers in the British study asked students to type their good copies in writing classes to develop students’ computer skills (Mumtaz and Hammond, 2002).

**Teachers’ assumptions about writing development and writing instruction**

Teachers’ descriptions of the roles that computers play in their writing instruction appear to be based on several assumptions that are grounded in the deep grammar of schooling. A sequential curriculum is implicit, for example, in assumptions about perceived developmental progressions that require students to learn conventional spellings before advancing to a word processor.

**Assumption: students of all ages find it easier to organise and plan writing using paper and pen**

A prevalent view that participating teachers voice is that students should compose drafts by hand because the pen is a more natural, basic tool for composing. According to many participating teachers, the computer places greater demands on students as they compose. Consequently, they believe that students should use computers only for retyping drafts that have been revised and edited, creating a polished-looking good copy. A Grade 8 teacher explains:

> “Actually, most of them prefer to compose on computers and I have to pull them back. So I tell the kids I need you to start writing by hand. Do the rough copy by hand, and the final copy on the computer, fine. The majority of kids just go to the computer, they lose their train of thought and they don’t have the logical order, the coherent links and whatnot, because they just write everything off the top of their head”.

This teacher believes that computers should only be used to retype drafts and create a good copy, even though many of his students bring drafts of their writing to and from school on flash drives and use the track changes feature of MS Word to edit their writing. His students are highly motivated to use computers and, in his words, “they [think] nothing of going on the computer and doing a full-blown multimedia presentation”, yet in their school writing classes, they compose by hand.

From this teacher, known as the ‘techno guy’ in his school, to the least confident computer user, there is near-universal agreement among participating teachers that the initial stages of the writing process should be carried out with pen and paper. Only after ideas are shaped and organised, after words are carefully chosen, and after grammar, spelling and punctuation have been corrected do students use a computer to write. Typically, in participating teachers’ classrooms, a process approach to writing plays out in this way (as described by a Grade 5 teacher):

> “Usually I get them to write their first draft and we do the peer editing and stuff on it. Then they do what they think is a final copy, but after they get it done there is still some work to it. Then we will do the final copy on the computer”.

Assumptions about restricting students’ access to computers for composing conflict with some participating teachers’ observations of their students’ writing. A Grade 7/8 teacher noted that “some students write way more on computers and their grammatical composition and their style is better just because they’re at the computer”. Teachers of the older grades are more likely to make such observations, yet they still hold fast to the assumption that, for the most part, students’ writing development is best supported by composing with pen and paper.

In a number of classrooms, students with learning disabilities compose on computers because they struggle with the motor skills required to hold and manipulate pens. Not only does the computer support these students with the physical activity of writing, as...
a Grades 3–8 teacher explains: “When my struggling writer started writing on the computer, it’s like the computer freed him up a little bit. He’s got more adjectives and adverbs in there. He wrote a little more, and it was certainly better”. It appears that these teachers do not see contradictions in the belief that computers assist their struggling writers with the quality and quantity of their writing, and facilitate their revisions and editing, but somehow are a hindrance for the rest of the class.

Teachers’ insistence that their students should draft their writing by hand and then use computers to write the revised final copy reflects what Merchant (2008) refers to as a sequential model for the development of digital writing. This model “assumes that a certain degree of control over traditional writing processes is desirable or even necessary before the introduction of new technology” (p. 156). Control over writing and control over the keyboard are considered prerequisites to composing on computers. Learning to use computers is viewed as adding an unnecessary complexity to the early stages of writing. This assumption influences even the Grades 7 and 8 teachers’ instruction, in spite of research showing young adolescents’ widespread and extensive use of the Internet outside school and their competence in using computers to communicate with others using social networking tools (Steeves, 2005).

**Assumption: students’ mastery of spelling will be hampered by composing on computers**

Participating teachers are concerned that students will become dependent on digital technology if they do not write initial drafts by hand. Almost all participating teachers believe that spell checkers are a ‘crutch’ for students, making it possible for students to avoid learning to spell words independently. A Grade 6 teacher, for example, said that even though 95 per cent of her students hand in their work typewritten on computers and even though access during the school day is not an issue, she expects students to write the first draft in handwriting and show it to her before typing it out. She is concerned that “students rely on Spell-Check, rather than being able to know the spellings. They need, at this state, to start recognizing the fact: ‘I don’t know how to spell that word, so I’d better find out how to spell it’. The Spell-Check is a horrible thing for a kid to have at that point. They totally rely on it. Even then, they get mixed up because the computer doesn’t always identify words properly”.

Some teachers speak very strongly against their students’ use of computer spell checkers and express deep-seated emotional attachments to traditional methods for teaching spelling. A Grades 7–9 teacher, for example, asserts:

“I do not generally allow them to use word-processors, because they can barely spell, so word-processors just become a crutch. Unfortunately there’s Google, which helps them with their spelling and that ticks me off”.

Only two of the 216 participating teachers explicitly characterise spell checkers as learning tools. One of these teachers said, “Students at the grade 6 level are very much aware of Spell-check. So that is an asset for the students that struggle with spelling”. The other teacher said that he and his Grade 7 students “don’t do a lot of the traditional spelling within our writing. We use the electronic dictionary”. These teachers’ confidence in spelling checkers as aids to increasing students’ awareness of conventional spellings and their propensity to edit their spelling has been borne out in research showing that middle-school students with spelling problems corrected 28 per cent more of their spelling errors when assisted by a spell checker (MacArthur et al., 1996). The typed forms of the words appear to make the errors more readily recognisable to students. Because students did not have to recopy large parts of their compositions to correct the misspelled words, they were more likely to go to the effort to make the corrections.

Taking another approach to the potential for digital technology to enable rather than hinder students’ spelling development, Lankshear and Knobel (2006) point out that in cyberspace, peers can help each other with spelling problems. Asking for and providing assistance and information is a natural part of online participation in wikis, chat groups, weblogs, electronic social networks and bulletin boards. They contend that a mindset of independence and individual intelligence, associated with the deep grammar of schooling, conflicts with the respect for collective intelligence and distributed expertise reflected in these practices.

**Assumption: technology enhances direct instruction in mini-lessons**

Participating teachers often use computers for the direct instructional component of the writers’ workshop – mini-lessons. PowerPoint enables them to carry out shared writing activities and to provide exemplars showing ideal writing characteristics. They view digital technology as a replacement for the overhead projector or blackboard in whole-class direct instruction. A Grade 8 teacher describes the more typical use of PowerPoint to display a model text: “We analyze writing structures, for example, the identification of topic sentences and live couples, and whatever is necessary. We use it basically for modeling”. The common rationale for using computers in this way is expressed by a Grades 7/8 teacher: “Any time I’m modeling writing, I tend to do it in Microsoft Word, just because it’s really easy for me to annotate and erase things or move...
sentences around. On a blackboard I find that more difficult to do, or it just takes more time". For similar reasons, a handful of teachers use SMART boards to demonstrate their thinking processes in mini-lessons. A Grades 4/5 teacher explains: “The SMART Board can do the same things as the overhead projector. It takes the mystique out of the editing ... You can actually talk through your thinking”.

Teachers, like the researchers cited at the beginning of this paper, embrace computer technology as a tool to facilitate and improve upon long-practised teaching methods. Their writing and thinking processes are more visible to all students on the screen and are more readily captured for future use on the computer hard drive than they had been with non-digital teaching tools. In some respects, the use of computers has brought about changes in teachers’ practice. They are more likely to teach mini-lessons that involve demonstrations because they have tools to facilitate the modelling.

The use of computers could change the teacher–student relationship to a greater degree if students were also invited to demonstrate how they have worked through problems in their writing. The knowledge about creating multimodal texts that students bring to classrooms from their use of new technologies outside the classroom plays at best a minimal role in these classroom demonstrations. The demonstrations draw upon the teachers’ knowledge and skills and enable them to ‘transmit’ officially sanctioned information about good writing to students.

Access influences the use of computers

Typically, teachers participating in this cross-Canada study have one computer in their classrooms and a scheduled time to use the school’s computer lab. Like the 1,200 American teachers surveyed by Adelman et al. (2002), teachers are less likely to provide opportunities for students to use computers in labs than they are to use classroom computers because of scheduling difficulties and the inconvenience of moving students to and from the labs. Access is clearly a contributing factor to the practice of using computers only for recopying drafts to create a polished-looking final draft. Writers’ workshop time is generally scheduled for at least three classes each week, yet teachers are often only able to book computer lab time once or twice each week. The opportunity to compose on computers is limited to the scheduled computer lab times.

School–corporate partnerships are often touted as solutions for problems of access. One of our classroom observations afforded an opportunity to consider first-hand the frustrations of some such partnerships. An eighth-grade teacher wrote a successful proposal, in which groups of two to three students would collaborate on a digital movie about the 2010 Olympics, for a classroom set of laptop computers for 4 weeks. The computers arrived 2 weeks late, and a week later the teacher was notified that she was expected to return the computers on the originally scheduled date. Her 4-week project had to be compressed into 2 weeks.

Assigning collaborative projects would help to alleviate the access problem, but possible conflicts between students and a view of writing as a solitary act restrict the number of opportunities that teachers provide for students to write collaboratively using computers. A Grade 5 teacher presented this view:

“The problem with this here is that we have 18 or 19 computers in the computer room, but I have 25 kids in the classroom. So you can’t get one computer per child. If you’re doing composing that limits you because you’ve got so many of your kids working by themselves. And you can’t put two kids together to compose, because they’ve got two different heads and they don’t work the same way. It’s good to pair them up for revising and things, but for the writing part, no”.

Yet, research shows that pairing students up when using the computer for writing would likely change interaction patterns in the classroom and disrupt the deep grammar of schooling. In classrooms where students shared a laptop with a peer and composed on the laptop, for example, Owston and Wideman (2001) observed that teachers engaged in significantly lower levels of direct instruction and small-group activities. Teachers were more likely to work one-on-one with students when composition took place at the computer with two students working together and more classroom time was devoted to students’ composing processes.

Such one-on-one and small-group instruction was a key feature of an eighth-grade classroom in which students were creating digital movies about the Vancouver Olympics. The teacher offered students a choice of three kinds of movies to create: an advertisement, a news report or an ‘I am Canadian’ segment; for each of these choices, she taught mini-lessons relevant to the form. In groups of two or three, students worked with evident enthusiasm and purpose without close supervision while the teacher gave mini-lessons to students doing the other kinds of movie.

Implications and questions arising for teachers and researchers

The findings from our large-scale study provide us with many positive aspects of teachers’ practices in the teaching of writing. The classrooms in which multimodal, digital and collaborative work was routine, for example, provide tantalising glimpses into the opportunities for engagement and strong literacy development. However, we find a number of contradictions
and assumptions that do not allow students and teachers to take full advantage of the affordances of digital technology. Literacy as social practice theorists argue that students’ writing development would be supported if students composed on computers and engaged in collaborative composing because young people are accustomed to helping each other out while interacting online. In agreement, a large body of cognitive research (e.g. Goldberg et al., 2003) shows correlations between composing on computers and improved writing quality and quantity. Yet, there are contradictory research findings showing that Grade 4 students with handwriting difficulties wrote more when using a pen as compared to using a computer (e.g. Berninger et al., 2009).

Curiously, teachers’ assumptions about writing development do not preclude the use of computers altogether in writing classes, as students often retype handwritten drafts to produce a good copy. Is the type-written good copy simply a more presentable form of the writing? The notion of publishing a good copy to be read by a peer, teacher or other audience is consistent with the writers’ workshop approach. It is hoped that by celebrating students’ writing through publishing, teachers will motivate students to draft, revise and edit. It is not clear, though, how this practice contributes to students’ writing development. If the handwritten drafts are essentially unchanged when they are word-processed, how much new thinking and understanding about writing and the writing process are fostered in the retyping process? Does the promise of a polished-looking written product motivate students to carry out the tedious recopying? Whether a writing as social practice or a developmental approach is used to examine the retyping of the good copy practice, it clearly warrants further investigation, given its widespread prevalence across grade levels, and the contradictions between research findings, teachers’ experiences and their assumptions about writing development and writing instruction.

In those classrooms in which we observed teachers and students working on projects that involved digital technologies and newer forms and genres of composition, we were able to observe engaged, lively and highly productive literacy lessons; we were aware that these teachers were, as indicated above, at the leading edge of the participating teachers in our study. These practices are cause for celebration, but we are also aware that the availability of good equipment for classroom use does not come easily: a common thread among a number of innovative teachers has been their willingness to take the initiative to apply for corporate programmes and special provincial funding to provide schools with up-to-date equipment or to support particular projects. If teachers are expected to infuse technology in their teaching, they should not be expected to write grant proposals and applications to gain the necessary tools to meet curricular requirements and to provide engaging projects for their students.

As teachers have explained in interviews, computers extend and support writers’ workshop-oriented practices that have characterised writing instruction for a number of decades. And as Leander (2009) advocates, teachers need to go beyond this in their use of computers to teach writing, using a ‘parallel pedagogy’ that blends traditional and newer forms of literacy and literacy practices. The need for in situ professional learning (Cochran-Smith and Lytle, 2009; McClay, 2006) is clearly indicated, as teachers will require substantial support to disentangle some of their assumptions about the developmental nature of composition and to discover new ways of composing on computers.

References


