It Work for Professional Writing?

Author(s):

Mary Godwin

Publication History:
The Writing Instructor, May 2010

Disruptive Technology: What Is It? How Can It Work for Professional Writing?

> Not my classroom, not ever. My kids are on their own in class, not propped up by gadgets. And don't tell me they're a tech-literate generation: they're quite helpless, even at age 20 unable to change a single-spaced document to a double-spaced one, and unwilling to pursue any question or issue beyond the first screen of its Wikipedia entry.
> --Real Teacher, Bloomington, IN, from comments posted to "Industry Makes Pitch That Smartphones Belong in Classroom" [28] (Richtell and Stone, NYTimes February 2009).

Writing in 1995 for the *Harvard Business Review* audience of executive managers, Harvard business professor Clayton Christensen coined the term 'disruptive technologies' to describe innovations that improve a product, service, or operation in ways wholly unanticipated by leaders of existing markets.[1] Business-as-usual is often threatened when intrusive innovations gain a foothold by meeting an immediate need – lowering costs, improving efficiency, conserving resources – or by moving up-market as a result of better performance or service. In contrast, 'sustaining technologies' revitalize existing markets without disrupting the status quo; these maintain existing distributions of authority and innovate only to entrench or extend currently dominant models. Inevitably, then, existing businesses resist innovation, even if reluctantly, because to embrace new ideas requires them to abandon currently profitable models – manifestly, a conflict between what works today and what will work tomorrow.

Christensen's economic theory offers a launch point to discuss 'technology' as a disruptive force in professional writing pedagogy today. Though technological utility can move us, innovation scares us; where utility sustains and conserves familiar resources, innovation tends to stress already limited supplies of time, money, and expertise. Nevertheless, in the workplace today, professional writing requires a whole new set of skills that push writers to bring a heightened critical awareness to work, writing within and for digital environments. *The New York Times* recently noted, for example, that 84% of Americans now check online reviews before making purchases, a fact that alone demonstrates the need for greater attention paid to managing online reputations.[2] Today, word-of-mouth has morphed (think Twitter) into digital mini-posts and status updates turning the tide on political revolutions half way around the world[3] or driving traffic to the changing location of a San Francisco crème brûlée cart.[4]

While we may no longer see email and word processing as intrusive technologies disrupting our work as writing instructors, most of us sense (if we have not already been directly confronted by) the threat of disruptive technologies and the "entrenched player's dilemma"[5] – knowing the need to adapt but being stymied by fear, celebratory oversimplifications of the challenge, or a general lack of resources needed to pull off a paradigm shift. The question then becomes, how might instructors appropriate the force of disruptive technologies to renew their own teaching, and what response might be formulated for both instructors and students to manage the unwelcome intrusion of technology? In sum, how might professional writing pedagogies adopt genres gaining relevance in the workplace today while sustaining value for the human element within the learning environment we mean to create? In response to these questions, I spin a positive view of disruptive energies – first with a glace toward past 'technologies' and then by situating emerging technologies within the adopted language practices of current business and student practice. I close with a turn toward the pragmatic, appropriating and extending the C3T project-based model offered by Johndan Johnson-Eilola and Stuart A. Selber and outlining a series of interactive projects collectively productive under the rubric of service learning – all this inviting the employment of disruptive innovation without causing the pain of a total pedagogical overhaul.

This essay resists utopian urgings and pedagogical renditions of "if you build it, they will come"; instead, I argue for a pragmatic cooperation with current student computing practices and an anticipatory confidence that the learning outcomes will surprise us. I situate the writing

instructor's role as demonstrating the persistently rhetorical nature of writing – regardless the form or tools employed – and guiding students to the work of more and more intentionally crafting their language patterns to effect the purpose, message, and medium-specific outcome(s) desired. I see this conversation navigating generally between two polar and reductive views of technology – one glamorizing a digital utopia and the other casting teachers as police agents preventing electronic villainy, both overlooking the value of writing as an essentially human activity and both failing to utilize emerging technologies as the next iteration of 'tools' engendered by the culture they inscribe. Presuming the situatedness of writing, I aim any insights offered here at praxis and invite readers to challenge cultural assumptions about the disruptive nature of technology. My purpose is to argue for the value mobile, cellular, and cloud computing contributes to professional writing pedagogies and to open a dialogue with instructors willing to explore the productive potential of disruptive technologies for creating and protecting a space of critical reflection. I approach these ideas as an experiment with openness – openness to a 'language' so commonly spoken among students and now increasingly in the workplace that it makes too little sense to outlaw it anymore.

If It Solves a Problem, It's "Technology"

By definition, technology refers to the many methods and tools a society develop to solve its practical problems. In this light all information and communication devices are 'technologies' – paper, pencils, and chalkboards once no less disruptive than digital technologies today, which inevitably confront the status quo and, at one time or another, must be learned to be productively employed. Consider the book as 'technology' (see Figure 1)

Figure 1: "Medieval Help Desk" parodies the difficulty presented by the new technology of the book.

or the dial-up telephone, both once needing instructions for use (see Figure 2),

Figure 2: In 1927 the introduction of the rotary dial telephone called for specific and targeted instruction.

and before these, individual desks and school bells, too.[6] Anxiety rises among instructors today as advocates increasingly press institutions to adopt cellular and digital devices for classroom use; at the same time, we can no longer afford students who have been trained to solve new problems with only the tools we were given. Students must navigate a world that is their future and cannot do so effectively if we continue to outlaw technologies best suited to the task. Educational researcher Alan November critiques American schools as "reality free zones" and argues, "If we could get past our fear of the unknown and embrace the very tools we are blocking (which are also essential tools for the global economy), then we could build much more motivating and rigorous learning environments. We would also have an opportunity to teach the ethics and the social responsibility that accompany the use of such powerful tools." He reasons further that rapidly developing "information and communication containers" – the mobile phones, iPods, blogs, computers, instant messaging, video games students prefer – are no less valid tools than those used in past generations, just as old technologies are no less vehicles of potential 'problems' than the electronic technologies used today.

In 1842 William A. Alcott (yes, one of those Alcotts) wrote a series of articles [29] directing teachers across America to use the then newest educational technology - blackboards and student slates (70). Though these technologies weren't really new - West Point had been using them since 1820, mainstream educators were slow to adopt the disruptive technology. Alcott's reasoning reflects interesting parallels to much of the thinking that meets resistance to digital technologies today. New technologies scare and confuse people comforted by established practices. They threaten and disrupt school systems and administrators. David Tyack and Larry Cuban, who research the introduction of new educational technologies, foreground a slightly less obvious reason why some solutions find greater acceptance and success than others – chalkboards, for example: "[R]eliable improvements like the chalkboard ... enhance what teachers already do. Teachers regularly use technologies to enhance their instruction but rarely to trans-form their teaching" (122). In other words, technology is welcome when it enhances accepted practices but rarely embraced when it altogether transforms pedagogy.

The situatedness of use is important here: the nature of technology is to solve problems and where paper and pencils will solve a problem, we should use them; where text messaging or Internet searching effectively solves problems, we can profit by using these technologies as well, even when "wildly idiosyncratic" methods may seek a welcome. Johnson-Eilola reminds us that technologies seeming to encroach upon the classroom today "are not simply dropped from the sky to dramatically and deterministically reshape our lives. Instead we integrate them into our specific, local situations. We create, import, use, and misuse them in wildly idiosyncratic ways – often for purposes their inventors never intended" (18). Technologies – compositional tools of all manner and type – advance first for their value to solve problems and evolve over time to become the pedagogical presumption that using these tools, applications, programs, and devices is as much about becoming a contributing citizen as about structuring a writing curriculum. Indeed, campus support systems are as likely now to offer workshops and training sessions to teach web site building, photo editing, and project presentation tools as they are to

teach good study habits and organizational skills. Johnson-Eilola writing with Stuart A. Selber marks technological skill acquisition as part of the initial phase of any student project and foregrounds the often intuitive discernment students employ to assess the value-added by various tools against desired project outcomes (32).

When undergoing change, cultural and educational systems demonstrate an interesting mix of hold-over mindsets often outliving effectiveness and lacking relevance for stakeholders and constituents. Many instructors still operating technologically behind the curve must contend additionally with resistance of an ideological, political, or intellectual nature – this from forces external as well as internal. Work-based learning researchers Gunther Kress and Norbert Pachler note that a "fetishisation of technology" often fuels its fast-paced development. I suggest further that this notion contributes to an undercurrent of technological aversion common among academics. Kress and Pachler write, "The intensity of interest in digital technologies is to a large extent motivated by a certain fascination with, even fetishisation of technology by parts of society, in particular policy-makers. Perpetual developments in technology coupled with its continued reduction in size have resulted in an unabated integration of technology into social and cultural practices" (11). Examples reach beyond accruing status and cultural currency (owning the next 'hot' cell phone) to securing cost-cutting, high-speed access and always-on connection to community and information. "Good enough" solutions replace single, right answers in a world awash with information. Steven Krause observes, "Too often, those of us comfortable in computers and writing easily assume that if we give teachers ample access to computers and technical support, they will be willing to change the way they teach … As the history of the chalkboard in American schools suggests, however, it is pedagogy that motivates the use of improved technologies, not the technologies that motivate improvements in pedagogy" (14). Many writing instructors still do not incorporate the use of digital technology into course outcomes and goals because they do not know how current and emerging devices, applications, and capabilities might be employed to enrich teaching, learning, and curricular environments for professional writing students. The solution to this problem may reside in the clouds.

Cloud Computing: Handhelds, Cell Phones, and Mobility

What is 'cloud computing'? Basically, a mushy term for utilizing computing resources — processing, storage, messaging, databases — available outside the four walls defining your physical computing space and paying (if a cost is attached) only for what you use. Everyday more and more people compute in the clouds, many without even realizing it. Whenever you engage a social network (Facebook, LinkedIn, or Twitter), an online word processor or spreadsheet (Google or Zoho), a Gmail or Yahoo email account, or a photo-storage service (Flickr or Picassa), you are creating or manipulating data on a secure Internet server somewhere beyond the boundary of your own hard drive. Businesses, too, increasingly take advantage of cloud resources to target external markets or networks. They are equally as apt, however, to structure gated clouds – closed and networked communities sharing server space for storage, intra-office collaboration, or cooperatively purchased software facilitating security and increased productivity. Some businesses go yet further and extend limited internal computing capacity via pay-as-you-you grid or utility services, riding almost limitless supplies of storage and processing available in the cloud through corporate conglomerates such as Amazon or Ebay.[7] Clearly, students familiar, if not fluent, within these 'language communities' and able to realize the productive value of networked services will have an advantage in today's professional marketplace.

Mobility – here reflecting the nature of information, learning, and users – defines contemporary socio-economic and technological reality and increasingly characterizes the lived world students occupy. Smart phones, for example, both access the cloud and exceed it by riding their own fiber optic networks. Students equipped with a cell phone (which of them isn't?) hold the world's greatest library in the palms of their hand and with it the ability to ask any question or to collaborate globally at any time.[8] Kress and Pachler measure the value of digital technologies, particularly in educational contexts, five characteristics underwriting effectiveness: portability, nonlinearity, multifunctionality, multimodality, and interactive potential (14-15). Where once an array of separate devices were needed to translate messages across into various media, today an expanding range of new devices do it all – music, photos, video, contact and scheduling services, and countless applications all in real time, on the move, and in the clouds. Content is suddenly and synchronously multifunctional and multimodal; barriers once nearly insurmountable are now easily overcome – text to speech readers, for example, make any webpage accessible to individuals who are visually challenged; imposed linearity is relieved and connecting becomes possible in unprecedented ways: real-time negotiations, shared resources, concurrent and multi-directional exchange writing, editing, and critique. Where mobility defines the lived experience for students today and learning environments are information fluid, contingent, and connected, what is really at stake? What exactly is being "disrupted"?

A Closer Look at "Disruption"

Disruption is an unavoidable condition of curricular reconfigurations, yet disruptive technologies promise great returns, especially when new users put them to work in novel or unexpected ways. Johnson-Eilola and Selber report impressive returns when their "C3T" project-based approach (context, change, content, and tools, which guides the service learning project I outline below), especially where mobile computing and digital collaboration are incorporated. Recalling Christensen's principle, however, we are reminded that the rest of the story can play out differently where anticipated outcomes and comfort zones collide: speed can impede critical thinking, and technology does not always drive improvement. Though I argue overall for a positive view of disruption, I recognize nonetheless that discontinuity, fragmentation, and 'breakdowns' can profoundly unsettle instructor confidence and authority – this when discomfort, dispossession, and dis(place)ment are the more realized experience of disruption.

As discomfort

The implicit cost of embracing disruptive technologies lies in the transition from a possessed knowledge-world produced by and reinforcing current hegemonies to an unbridled world of knowledge in flux. The former might be thought immobile in contrast to the highly mobile world our students occupy. The current conceptual shift taking place from writing to designing documents provides just one example; previously authoritative texts now hold use-value more akin to the status of a "resource" students may or may not consult as they inhabit a learning environment. Kress and Pachler observe, "A world of stability has given way to a world of fluidity; a world of the power of the author has given way to a world of collaborative text-making; and a world of canonicity – whether of knowledge or of text – has given way to a world of provisionality" (26). Instructors all too often know the discomforting loss of authority in the classroom and, today, may too hastily identify 'technology' as an easy target for blame. Maintaining the status quo becomes an act of survival, particularly when pedagogical shifts threaten to dismantle even the images we carry of teacher, classroom, and school. Teddi Fishman and Kathleen Blake Yancey capture the essence of the emotional experience in their critique of mobile learning: "To be fair, many faculty are at least as frightened as they are affronted, and not without reason. A genuine concern is located in the question 'If wireless is part of the new pedagogical landscape and can supply all of the answers, why will students continue to come to class? In fact, why should I? (36).

As dispossession

Comfort is further eroded when disruption dispossesses instructors of what Johnson-Eilola and Selber call "our treasured genres," decentralizes resources, and distributes expertise to the collaborative authority of Wikipedia or the top ten returns of a Google search. You might conceptualize this loss of control as a disruption of the other – the unintended class attendee(s) who accompanies an open embrace of anytime, anywhere technology. Again, Fishman and Yancey reflect the commonly held regard that "[t]hose connections – the ones we don't invite, control, or even welcome – are typically perceived by faculty as at best a nuisance, at worst a breach of classroom decorum and an affront to education itself" (36). Embrace disruptive technologies and the other as intruder comes along for the ride via text messages, tweets, email, or cell phone calls that threaten classroom continuity even if meeting students on familiar ground to facilitate planning, research, and document production. Traditionally closed conversations expand, and instructors face a challenge to academic autonomy that, as a result, demands they work even harder to legitimize knowledge development, possession, and transmission. Shared knowledge production and real-time collaboration are reconfiguring institutional boundaries. "For the first time, instructors must decide how important it is (if it is important at all?) that these discussions remain anchored in the classroom? And for what purpose, limiting or extending the conversation?" (Fishman and Yancey 40)

As displacement

Social networks and a host of conferencing tools – whether in the cloud, on university servers, or via cell phones – now easily disrupt conventional mandates for f2f (face-to-face) classroom instruction and regimented meeting times. Where learning environments escape the limitation of physical space, the boundary between academic and real lives can easily blur and leave both teachers and students at risk of exploitation in a 24/7, on-demand world. When technologies disrupt with equal parts innovation and intrusion, personal management skills to handle due dates, team meetings, classroom instruction, peer review, collaboration, and office hours – all standard academic practices – must be restructured and remediated, sometimes without ever setting foot on campus. "Being there," as Fishman and Yancey point out, is now be purpose driven – "to help, to contribute, to share – in short, to do rather than simply be" (38). This displacement erodes comforting routines and challenges the architecture of authority by

(re)moving the instructor's place at the front of the class and the top of the heap. In a less apparent way, emerging technologies can undermine the formation of community as well. However, where Fishman and Yancey confirm this notion (45), I see more a range of expanding possibilities, especially when 'the classroom' moves off campus to include local business leaders, as it often does within a service learning approach. Where community has liberty to merge organically with more broadly configured spaces of information and authority, results are often surprisingly productive and unexpectedly innovative.

The New Student: Utility, Relevance, and the "Cool" Factor

The way we live has changed, and she is a courageous teacher who willingly explores the powerful, if disruptive, tools advancing that change. This teacher empowers her students to actively shape a world yet beyond her imagination. Johnson-Eilola marks the current epoch of excess information as a new place for habitation. "We have come to work with information as both a primary environment and resource. Whereas the industrial age focused on the production of concrete objects, the information age focuses on the production of information. In this epoch, information workers do not merely use information, they inhabit it" (3). Curricula relevant to professional writing students today must be anchored in utlity and underwrite value-added to the economic and social worlds they inhabit. Kress and Pachler shape an understanding of learning within this environment as an engagement with "meaning-resources" to produce conceptual change (16). For students writing in an information age, three issues come to the fore: whose agenda is at work, what resources are available, and what is the measure of a successful outcome. 'Mobile' and 'fluid' describe more than technology; these terms describe the contemporary learning envirnoment and the students who occupy it. As teachers, we want the information and skills we teach to provide professionally relevant answers to potentially real-world problems; we want our students to trust what they learn will help them become successful now and in the future. The new breed of students we now encounter think in terms community based, flexible, open-ended, and comfortable with common-property outcomes. These digital citizens trust communities to act more effectively than a closed team of experts; they shift roles as need drives purpose throughout project development, recognize the evolutionary and iterative nature of their work, and find reward more in status assigned for individual merit than in property ownership. They both create rules and reconfigure them whenever circumstances merit ; they find advantage in diversity, and privilege utility over genius. Johnson-Eilola cites the rising value of students who are technologically and informationally fluent, characterizing practiced individuals as able to "identify, rearrange, circulate, abstract, and broker information in response to specific, concrete situations. They work with information and symbols to produce reports, plans, and proposals. They also tend to work online, either communicating with peers (they rarely have a direct organizational supervisor) or manipulating symbols" (R. Reich qtd. in Datacloud 28). Instructors who recognize the changed nature of students realize an immediate need for technologically permissive learning environments fundamentally project based, situated, and fluid – in short, pedagogies willing to disrupt cherished forms.

Of course, disrupting expectations makes room for the "cool factor" – an edgy, out-of-the norm, yet adoptable use of technology. Because classroom instruction rarely offers students a first-encounter experience with new technology or online applications, teachers among the first to technologically open learning environments cash in on 'cool' while offering students an opportunity to acquire a measure of social and academic currency of their own and hone an information fashion sense suited to their personal liking. Project-based, service learning approaches to professional writing step up the 'cool' game for all players by engaging relevant writing experiences where current tools, new applications, links, and breaking news – all likely to disrupt planned agendas and calendars – make sense. More, discovery and exploration of emerging digital technologies keeps the instructional focus on higher level writing processes – engagement, analysis, research, synthesis, and application, and where some teachers may be behind the technology curve, added advantage goes to the instructor who demonstrates that teachers remain teachable. The new game in town is engagement, open-endedness, and (re)iteration.

Here, writing remains central to the broad and varying range of textual expression. Given the impressive fluidity now required of most writing – the presumption that a document will need to live in image, video, online, or presentation modes as well as in print, effective writing instruction focuses increasingly on rhetorical analysis (research), inflection, and conventions specific to the discourse community where the document will go to work. Embracing disruptive technologies from this pedagogical stance tends to validate the knowledge and skills students already possess and legitimate the instructor's expertise in matters of rhetoric, research, and document design. Johnson-Eilola and Selber remind us that "[s]tudents write all the time, probably more than they did twenty years ago. It's just that we're only now starting to recognize what they do as writing – or more broadly, as important forms of communication" (17). Professional writing teachers must guide their students toward realizing that the writing they do 'all the time' actually

is writing that can benefit from instruction given to improve skills and cause the message to work more effectively.

Service learning overtly values the most productive tools for collaborative planning, document design, media specificity, and targeted research – this pointedly configured for success measured against real-world standards. Consider, for example, how field research, data compilation, archiving, or reporting might benefit from applications available via smart phone technology or the suite of tools available free via AdobeExpress online. Because digitally enabled planning, drafting, and document negotiation need not be required, students are free to use the full range of available tools only as they have need – unscripted, context-driven, and constrained only by desired outcomes. The demand on teachers shifts from a knowledge of software or online applications to expressed expertise in the rhetorical nature of writing they were trained to deliver. Instruction centers more on learning and less on teaching when disruptive technologies go to work inside project-based pedagogies; teachers let go the job of legislating classroom behavior to make better students and provide instead learning opportunities that make better human beings. The result is an education geared toward helping students reach their own life-goals and potential – outcomes often defined more by skills valued outside the academy. The inevitable miscalculations, missteps, wrong turns, and failed attempts no more than mime real-world negotiations with technology where contingency certainly underwrites the changed world our students inhabit, but 'plan B' successes provide teachers opportunity to value skills acquisition, professional maturity, self-reflection, and teamwork.

Project-Based and Service Learning: "May the Force Be with You"

In a George Lucas, fictional Star Wars universe, the 'force' is a binding and ubiquitous power that enhances natural human abilities. By invoking the Lucas incantation here, I both gesture toward the force of a technological, cultural energy able to revitalize stagnating pedagogies and offer salutation eager to see professional writing instructors positioned advantageously for an inevitable confrontation with disruptive technologies – "may the force be with you." The pedagogical method I outline below rolls with "the force" while it extends the C3T model Johnson-Eilola and Selber formulate to deal with complex writing contexts and changing technologies like those you encounter with service learning. They synthesize decades of previous research in computers and writing (Baron, 1999; Kemp 1992; Yancey 2003; among others) to offer a framework foregrounding the rhetorical skills students use to select and strategically employ texts and technologies against the shifting demands of real-world writing and information excess. Briefly, C3T provides the writing instructor a method to externalize aspects of the writing process easily lost to familiarity, to situate the student as both reader and writer, and to facilitate greater awareness of those rhetorical influences (as well as compositional skills) always already active in the work of writing. Context indicates the micro and macro, multi-faceted considerations of culture and its institutions; change refers to the exigent motivation for writing, the composition's purpose where effectiveness might be tested by asking what the document is supposed to do and how its work will be measured; content is the commonsense information presented – screen words, graphic presentations, provided databases; and, tools refers to both the concrete and conceptual technologies shaping textual structure and delivery (20-21). I work from this model to configure an escalatory series of course projects promising broadly productive outcomes for invested students while preparing them to confront the complex writing contexts Johnson-Eilola and Selber anticipate – each component further equipping students to successfully complete the 6-week, summative service learning project.

Here's how it works: each of three preparatory course components calls for completion of a 'document' that prioritizes "value-added" (utility) to a real life situation students anticipate outside the classroom. Students are encouraged to shape the writing situation to reflect needs arising for other classes, volunteer organizations, or hometown concerns. Component documents are designated as 1) print-based, 2) promotional, and 3) online presentation management. Assignments invite students to work individually or in small groups (teamwork and project management receive prepared instruction) and to maximize the project's value by strategizing for immediate and multiple document use – in other words, 'double-dipping' and repurposing is both encouraged and rewarded. Students might compose a promotional portfolio for their senior-seminar showcase or initiate a LinkedIn network to anticipate the job market. One student launches a blog to promote his writing in physics while a small group nearby designs a kick-ass tee for women interested in engineering; a third student collaborates with a hometown nonprofit to compose its first-ever newsletter. In every case, learning is driven by strategic exploration, discovered expertise, experimentation, and document distribution. Configured in these terms, professional writing pedagogies welcome the liberal use of disruptive technologies and rearticulate traditional notions of active learning so as to communicate across multiple channels, organize and circulate information quickly, and solve problems creatively. Projects are designed to bridge between what students already know, what works for them, and the materials I hope they will learn. In practice, greater weight falls to learning how to learn than to using newly

available tools. Learning, as Fishman and Yancey point out, increasingly depends upon context: “In the day of the classroom box, the text was what mattered, that and the instructor’s interpretation … now, in both popular and high culture, context belongs to us all” (43). The importance of context is nowhere more felt than when the classroom moves off campus and into relationship with real-world clients. The core of this professional writing pedagogy comes into focus as it moves ‘the classroom’ off campus through service learning.

Service learning is more pedagogical methodology than an act of volunteerism when it connects undergraduate students with area partner/clients seeking to benefit from professionally composed business documents. I begin this project by encouraging interested students to apply for ‘employment’ as team leaders. Selected leaders in turn advertise for and ‘hire’ 3-4 additional team members and prepare to select a potential business partner from clients attending an opening orientation/reception. Team work launches with desk research targeting the client’s business environment and product or service (context) before moving to onsite field research, selected document analyses, a culminating report of findings, and a presentation of document recommendations. Finally, students contract with clients to draft, revise, and deliver professional document(s) along with a user’s manual for repeating and maintaining delivered work (content). Classroom instruction is limited and meetings with the teacher supportive yet surgical – primarily to track the series of reports guiding teams to a successful outcome: previewing required components, evaluating rhetorical situations, and targeting documents types to both satisfying course requirements and meet client needs (newsletters, brochures, digital representations, promotional materials, portfolios, and more).[9] Though client need (change) ultimately defines project outcomes, contracted work must reinforce course goals to improve collaborative writing, raise appreciation for audience complexity, and expand the use of electronic and digital technologies for virtual task management and decision-making (tools). The project kick-off defines what an “A” project might look like, marks the calendar for in-class meetings, and then largely transfers responsibility for project pacing to the teams themselves.

In application, this C3T adaptation quickly breaks free from any apparent linearity to realize and value the recursive nature of writing – a recursivity clearly in play when the client’s will, institutional requirements, and stakeholder schedules must coordinate to meet the inherently broad spectrum of demands. Habituated writing practices are both challenged and enriched by successful outcomes, which often require innovative thinking about new media. As various project documents evolve, content moves from one medium to another among team members working collaboratively to craft, clarify, repurpose, and accommodate industry standards, client needs, and audience expectations – a complex negotiation of the writing process made generally more approachable using emerging (and disruptive) technologies. “One does not have to look far to see the old guard lamenting the rise of SMS and the related technology of instant messaging, characterizing the medium as the home of sloppy thinking skills, poor sentence construction, and misspellings,” note Johnson-Eilola and Selber, “But on closer examination, we begin to notice that the conventions of the medium emerge relatively organically from the types of communication and the contexts in which it is used” (26-27). In other words, students reliably locate and adopt medium-appropriate conventions when given liberty to navigate the writing process using tools native to their own language environments. Available technologies and online applications enable coordinated discovery, planning, and participation through an exciting synergy that layers diverse contributions and acquired expertise all to the benefit of a productive project outcome.

Clearly I applaud the C3T methodology Johnson-Eilola and Selber offer, but in practice within my own professional writing instruction, I find need to expand the conceptual framework to include a greater focus on convention and document testing – a fourth ‘C’ and a second ‘T’ directing instruction intentionally toward researching industry standards governing applied technologies, business practices, and client preferences within the target discourse community and toward effectiveness testing, gauging the likely success of a finished project. In the messy and too often contingent environment of service-learning, research to discover applicable conventions bears fruit in client document adoption, team management (skills assessment and task distribution), and audience use as well as substantiating team member ethos. Though Johnson-Eilola and Selber externalize attention to convention as part of context, I find students more likely to design edgy and dynamic documents when classroom instruction intentionally addresses research targeting the client’s specific discourse community. In addition, where Johnson-Eilola and Selber sweep lightly over the notion of document effectiveness, I find project outcomes noticeably improved when deliverables require a method for “testing” document effectiveness to assure that documents actually do the work they are designed to accomplish. Testing might include heuristic examination for compliance with best practices, field-testing, or a rigorous peer review in addition to instructor and client comments. These modifications fine-tune the C3T method for use in the professional writing classroom and further insure the quality of student work displayed for a last-day-of-class showcase reception.

Conclusion

My aim in this writing was to think through the challenge confronting writing instructors today – namely, the digital tsunami of disruptive technologies, to articulate the sense-making potential and inevitability of encroaching devices, to discover what 'it' is that makes so many of us uncomfortable with new technologies, and to offer one approach to teaching professional writing that (almost painlessly) supports a learning environment able to benefit from the productive inclusion of mobile, cloud, and cellular computing. Johnson-Eilola notes the inevitable and exciting forthcoming of an information world when he writes, "These new structures and processes hold within them the potential to remake our worlds in positive and exciting ways. That remaking, that rearticulation, seems inevitable; we need to decide whether we want to use the opportunity to participate in that remaking or if we want to flail helplessly in its midst" (Datacloud 31). I advocate participation. By extending a welcome to otherwise disruptive devices and forms of writing, thinking, archiving, socializing, and more, I mean to reinforce student initiative, validate peer teaching, and multiply the content available for learning – to replace a roomful of passive recipients with a community of active learners. The best classes are always those where content intersects real life, students contribute relevant information, and learning is a mutually rewarding event.

Notes

[1] The concept first appeared in the 1995 article co-written with Joseph Bower but is often credited as first appearing in Christensen's 1997 best-seller The Innovator's Dilemma.

[2] Pattison, Kermit. "Managing Your Online Reputation." [30] *The New York Times* 29 July 2009.

[3] Twitter was deemed so instrumental in the aftermath of the 2009 Iranian presidential election that the US government intervened to delay scheduled maintenance of the site ("US asked Twitter to stay online after Iran vote." ABC News 17 June 2009).

[4] Curtis Kimball noticed a stranger among a small gathering of regular customers one day and who had located his traveling crème brûlée cart via a Twitter post. Kimball signed up for his own account, and within a few weeks generated a following of over 5,400 people ("Marketing Small Businesses with Twitter," NYT July 2009). Listen to the multimedia report here: "Claire Cain Miller on Twitter and Small Businesses" (Summer, July 2009).

[5] A rephrasing of Christensen's concept popularized in 2007 by Techcrunch co-editor Michael Arrington. ("The Entrenched Player Dilemma/Opportunity")

[6] It is interesting to note that chalkboards, sand tables, wall charts, and individual slates were all introduced to American classrooms as Lancasterian innovations designed to save money by minimizing the use of paper, pens, and books – a move eerily prescient when taken in light of current efforts to reduce costs via electronic resources. Many of us recognize Lancaster's recommended 1:250 teacher-student ratio as yet familiar in university lecture halls where a single teacher and a series of whiteboards is often "enough." For more on this subject, see Krause

[7] Interested readers may find these articles from *The New York Times* helpful: "Cloud Computing Gains Steam With New I.B.M. Gear" (Lohr, April 2008), "Google's Chrome OS: Reaching for the Cloud" (Helft, July 2009), "Marketing Small Businesses With Twitter" (Miller, July 2009), and "Lost in the Cloud" (Zittrain, July 2009).

[8] Most cell phones today deliver content via text, allow intra-classroom communication, provide sophisticated calculations, take photos, document experiments, record, play back pre-recorded lessons, support language acquisition, encourage writing, and, where Internet connection is available, provide access to search and archival materials.

[9] Handout packets can be made available to those interesting in giving this project a try in their own classrooms. Contact me via email to view sample project notebooks and/or receive electronic document files. A six-step planning guide adapted from Shelly Billig's eight "Service-Learning Standards for Quality Practice" will also be included. For further reading, see Felicia L. Wilczenski and Susan M. Coomey's Practical Guide to Service Learning.

Works Cited

Alcott, William. "Slate and Black Board Exercises for Common Schools." *The Connecticut Common School Journa*l (1842): 68-84.

Arrington, Michael. "The Entrenched Player Dilemma/Opportunity." 17 January 2007. *Techcrunc*h. 10 July 2009 http://www.techcrunch.com/2007/01/17/the-entrenched-player-dilemma/ [31].

Bower, Joseph L. and Clayton M. Christensen. "Disruptive Technologies: Catching the Wave." *Harvard Business Review* (1995).

Fishman, Teddi and Kathleen Blake Yancey. "Learning Unplugged." *Going Wireless: A Critical Exploration of Wireless and Mobile Technologies for Composition Teachers and Researchers.* Ed. Amy Kimme Hea. Cresskill, NJ: Hampton, 2009. 35-49.

JimGroom. How to Use the Dial Phone (1927). 02 July 2007. 15 August 2009 http://www.youtube.com/watch?v=Et_u7JLoUjY [32].

Johnson-Eilola, Johndan and Stuart A. Selber. "The Changing Shapes of Writing."*Going Wireless: A Critical Exploration of Wireless and Mobile Technologies for Composition Teachers and Researchers.* Ed. Amy Kimme Hea. Cresskill, NJ: Hampton Press, 2009. 15-34.

Johnson-Eilola, Johndan. *Datacloud: Toward a New Theory of Online Work*. Cresskill, NJ: Hampton Press, 2005.

Krause, Steven D. ""Among the Greatest Benefactors of Mankind": What the Success of Chalkboards Tells Us." *The Journal of the Midwest Modern Language Association* 33 (2000): 6-16.

Kress, Gunther and Norbert Pachler. "Thinking about the 'M' in M-Learning." *Mobile Learning: Toward a Research Agenda* (2007): 7-32.

November, Alan. "Banning Student 'Containers'." 15 June 2007. *Tech and Learning*. 14 July 2009 http://www.techlearning.com/article/7468 [33].

Richtell, Matt and Brad Stone. "Industry Makes Pitch That Smartphones Belong in the Classroom." 15 February 2009. *New York Time*s. 16 February 2009 http://www.nytimes.com/2009/02/16/technology/16phone.html?_r=1 [34].

Sharpshooter07. *Field of Dreams* Trailer. 25 September 2007. 20 August 2009 http://www.youtube.com/watch?v=sHTsQ9qePrQ [35].

Stone, Brad. "Amazon Erases Orwell Books from Kindle." *New York Times* 15 July 2009.

TeacherTube. Introducing the Book. 13 August 2009. 15 August 2009 http://www.teachertube.com/viewVideo.php?video_id=6433 [36].

Tyack, David and Larry Cuban. *Tinkering Toward Utopia: A Century of Public School Reform*. Cambridge: Harvard University Press, 1995. Print.

Provenance:

Citation Format: Godwin, Mary. "Disruptive Technology: What Is It? How Can It Work for Professional Writing?" *The Writing Instructor.* May 2010. http://www.writinginstructor.com/godwin2 [5] (Date Accessed).

Review Process: Mary Godwin's essay was accepted for publication following blind, peer review.