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Transferable Digital Literacy Knowledge

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"Schoology, SmartAmp, SmartBoard, Quizzlet, Kahoot, Mentimeter, Microsoft 365, Go Formative... We were bombarded with a lot of new this year, and for someone who, like me is comfortable with technology, I felt overwhelmed. It was a lot to take in" -Ms. Vale, May 2017

A recent influx of funding earmarked for technology integration in New York State's public schools has rapidly changed the educational landscape. Just a few years ago, the digital tools to which teachers had access depended largely on factors related to funding and individual teachers' interests or savvy. But as more and more school districts in New York State purchase hardware and improve connectivity and digital infrastructure, the ubiquity of digital teaching and learning practices increases faster than many of us can keep up (Greene, 2018). I argue that as a result, teachers stand at a crossroads when it comes to teaching vital digital literacy skills: they can either focus instructional experiences on new tools, platforms, and devices, *or* on digital literacy knowledge with which they can fluidly move between and within various tools, platforms, and devices. In light of the rapidly shifting digital expectations of teachers' daily work today, this article offers a commentary on lessons learned from teachers during the current wave of technology integration in New York State. In the following pages, I 1) situate the current landscape of digital literacy in New York in the context of recent technology integration policy, 2) report on lessons recently learned from teachers as they explore tools for teaching digital literacy, and 3) make concrete recommendations for navigating necessary digital literacy knowledge in these rapidly changing times.

Landscape of New York State's Digital Literacy

Until recently, the daily digital expectations of teachers depended largely on the individual capacity of the classroom, school, or teacher herself. I distinctly remember my experience of learning about wifi and its capcacity in the classroom in the 2004-2005 school year

as paradoxical: our school building was wired for wireless internet, and a wireless network had been set up, but teachers were not given the password to get online. Further, while almost all of our classrooms were outfitted with at least two computer monitors, many of them would not boot up or were so outdated that they could not connect to the internet. Several of my colleagues and I were ready and willing to take our in-class teaching and learning experiences to the next digital level 14 years ago, but the reality of our daily circumstances (e.g., not having the password to access the wireless network, or lacking working hardware) prevented us from doing so. Today, there exists a similar disconnect between policy and practice when it comes to anything digital in the classroom. Some schools have moved to a 1:1 program, in which every student has their own device, and most teaching and learning practices are conducted online, while some schools are not yet wired for the internet. (I point out this wide spectrum of access to the internet in schools to demonstrate the vast array of circumstances facing New York State teachers and students, *not* to comment on the merits of digital learning and whether or not, for instance, a 1:1 program is "better.") In an effort to level the digital playing field and "improve learning and opportunity for students throughout the State" (New York State Education Department, 2017a), the Smart Schools Bond Act has undoubtedly increased access to technology for teachers and students in New York, but in practice, its implementation has varied, and has exposed the need to develop a common language, framework, or set of ideas when it comes to teacher's digital literacy knowledge.

Smart Schools Bond Act

Approved by a statewide vote in November 2014, the $2 billion Smart Schools Bond Act (SSBA) provides every New York State public school district funding for purchases and infrastructure improvements related to technology integration, as well as an additional $5 million

appropriation for special education schools (NYSED, 2017b). Purchases and improvements must fall into specific categories outlined by the New York State Education Department, and are not automatic: districts must first complete and submit a Smart Schools Investment Plan (SSIP) for approval, outlining in detail how they expect to use allocated funds. Although districts are required to outline how they intend to offer professional development to teachers and staff in light of SSBA purchases, SSBA money cannot be used to fund professional development. Once SSIPs are approved by the state-convened review board, districts can begin implementation and request reimbursement from the state. Districts can submit multiple SSIPs, as there are no restrictions on when they must utilize allocated funds.

At the time I initially drafted this manuscript, SSIPs for 321 of the 732 public school districts in New York had been approved for funding for a total of over $396M, which amounts to nearly 20% of the total money allocated for SSBA (NYSED, 2017b). As of December 2017, funds have been approved across the state as follows:

Category	**Amount**
School Connectivity	$135,829,835
Community Connectivity	$41,309
Classroom Learning Technology	$194,956,567
Pre-Kindergarten Classrooms	$8,882,741
Transportable Classroom Units	$548,795
High-Tech Security	$56,140,536
Total	**$396,399,783**

The Classroom Learning Technology category accounts for 49% of the total allocation to date, which covers hardware purchases for classrooms, such as interactive whiteboards and displays, laptops, desktops, tablets, and servers. Given that SSBA funding cannot be used to support

teachers' professional development of these new purchases, school districts have often had to creatively determine how to ensure that teachers are properly trained for utilizing new technology.

The rapidly-ratcheting-up expectations for teachers to learn new tech at such a fast space leaves little time left over for exploration, application, and evaluation of any given tool before being expected to learn something new. Therefore, close attention is paid in this article to concepts and ideas that contribute to teachers' fluency with digital literacy across tools, devices, and platforms.

View from the Classroom

The long-term impact of SSBA has yet to be seen, but in the short-term, the legislation has arguably changed the digital landscape of teaching and learning in New York State. During the 2016-2017 school year, I periodically shadowed three elementary school teachers—one 1st-grade and two 5th-grade—engaged in ongoing teaching and professional development activities related to SSBA rollout in a mid-sized, rural public school in New York's Hudson Valley. From September through June, I spent at least one day per month as a participant-observer in the school, working with teachers as they used new technologies—both hardware *and* software. I also attended professional development activities alongside teachers on two occasions, and served as a no-fee consultant whenever necessary, both virtually and in person, to help troubleshoot various technology integration challenges and devise workarounds for integrating software and hardware in teaching and learning activities. This experience confirmed that teachers not only have specific, individualized needs and wants when it comes to integrating technology in their classrooms, they also need ample time to learn and play with new technologies *before* being expected to implement them in the classroom. I also learned that

teachers need a common digital literacy framework or language that allows them to move between and within a variety of different digital tools, platforms, and devices. I elaborate on lessons learned from this experience in the "Lessons from Teachers" section below.

Digital Literacy

Digital literacy is not a new concept (Marsh, Hannon, Lewis & Ritchie, 2017; Terras, 2017; Thorne, 2013), but rather one that has stood the test of time, as "literacy has always been tied to technology" (Thorne, 2013, p. 2). In an age when more multimodal texts exist on the Internet than "in all the world's libraries combined," there exists a heightened need for teachers to acquire and maintain the ability to engage with and move between digital texts, platforms, and devices (Thorne, 2013, p. 6). It has arguably never been more important for teachers to understand and, as appropriate, employ, digital literacy knowledge than in today's increasingly digital society.

What is Digital Literacy?

Despite the fact that many of us would like a clearer guideline on what, exactly, digital literacy is, one thing many researchers agree on is that no set of finite skills defines the concept (Meyers, Erickson & Small, 2013, p. 356; Lankshear & Knobel, 2015; Terras, 2015; de Oliveira & Knobel, 2017). Rather, digital literacy is a dynamic, moving target of competencies that "evolve over time and vary across contexts" (Terras, 2015, p. 4). As Gruszczynsky and Pountney (2013) posit, defining digital literacies as a discrete skill set serves to disempower teachers in an atmosphere in which their skill sets *may* pale in comparison to that of their students. Therefore, as schools continue to integrate modernized technology into everyday classroom practices, teachers must increasingly adopt the necessary skills to move "within and between" various "digital ecologies" (Terras, 2015, p. 3), rather than those that are tied to specific proprietary

technologies. In other words, more than being able to "operate [specific] digital tools," teachers must also understand how and why they work (Hafner, 2013, p. 830) in order to apply that knowledge across devices, programs, and platforms (Meyers, Erickson & Small, 2013). In sum, teaching and learning practices today are arguably determined by teachers' digital literacy knowledge, and their ability to move between various digital ecosystems and devices depends on it.

Teachers and Digital Literacy

Myers, Erickson & Small (2013) define a digitally literate individual as someone who "knows when and how to effectively employ digital resources to resolve an information need" as well as "how to evaluate digital documents (p. 358). Our increasingly digital education system requires that teachers not only consume digital texts, but also engage "in the activity of digital information creation" (Meyers, Erickson & Small, 2013, p. 362) as critical thinkers and digital text producers (Howard, 2014; Terras, 2015). Yet, teachers' instructional moves in the digital realm today are largely determined by individual teachers' past experiences and available professional development offerings (Hafner, 2015). Therefore, teacher educators and professional development facilitators must incorporate digital literacy learning experiences in all that they do so that educators may continually "engage in meaningful literacy practices in a variety of social contexts" (Rosaen & Terpstra, 2012, p. 37).

The acquisition of digital literacy skills (not just for teachers, but for everyone) is not just about consuming multimodal texts in the ether, but about being able to function in an increasingly digital society beyond the walls of the classroom (deOliveira & Knobel, 2017). In the process of learning to 'read' the Internet, students "need to develop a host of information management strategies: how to find texts online, evaluate those texts, distinguish genuine from

fake websites, and so on" (Hafner, 2015, p. 1). Further, composition as a communicative act is no longer just about constructing texts, but about increasingly being able to "facilitate a more textured and complex approach...that is not a linear process, but reflexive, multimodal, interactive, and multidimensional" (Howard, 2014, p. 36).

Researchers agree that teachers—as well as teacher educators—need ongoing, connected opportunities "to engage with digital literacies" (Gruszczynska, Merchan & Pountney, 2013, p. 195). Not only must teacher educators prepare teachers for consuming and producing existing digital and print media, but also for that of future media forms and formats that do not yet exist (Rosaen & Terpstra, 2012). While digital literacy was once perceived as English Language Arts plus technology on the side (Howard, 2014), the border between print texts and their digital counterparts is increasingly blurred.

Digital Literacy as Transferable Teacher Knowledge

Despite the rapid rate of change in expectations for digital literacy knowledge, and the lack of current, clear mandates for digital literacy competencies, teachers are expected to substantially incorporate technology into their everyday instructional practice. It is simply not enough to know how to use a specific app or device; rather, in order for such knowledge to make an impact on teaching and learning practices, it must be transferable across contexts (Haugerud, 2011). Therefore, digital literacies are increasingly defined as "multilingual, multimodal, and multimedia communicative acts" (Marsh, Hannon, Lewis & Ritchie, 2017, p. 59), rather than skills that are tied to specific apps, platforms, or devices. In the next section, I share some multimodal, digital-literacy-related lessons from teachers about what this all looks like (or *could* look like) in practice.

Lessons from Teachers

Given how much there is to learn when it comes to fluently teaching with digital literacy knowledge, and how little time in which to learn it, many teachers require a system of shortcuts just to make it through the day. That's where the need for developing a digital literacy framework for everyday teaching and learning practices comes in. While this article does not provide such a framework, it serves in part as a call to action for developing one that can expand and contract, based on teachers' teaching and learning needs in an increasingly digital classroom. And in the meantime, it offers a handful of concrete, fundamental ideas for integrating digital literacy concepts in the classroom.

Accessibility of Digital Texts

One afternoon, Ms. Vale, a 5th-grade teacher, was stumped—she really wanted to share students' writing work with parents in a digital format, but the school district's installations of Office 365 and Google Docs are locked down. In other words, the sharing features of the school's version of both, which truly make both ecosystems unique for document sharing in these digital times, are incompatible with the outside world due to school-based privacy regulations.

After discussing a few possible options, which all required creating a viewable site external to the school's ecosystems, we decided to build a WordPress site on wordpress.com to share student work with parents via email. I showed Ms. Vale how to embed Google Doc links in WordPress, and we tested it out. Unfortunately, although parents were able to see the WordPress site and click on the links, they still were unable to view the original Google Docs that housed student work. Ms. Vale then decided to copy-and-paste each student's writing work into a new post on the WordPress site she built. This was cumbersome, but did the trick. She was able to

password-protect the posts so that no one could inadvertently share the link in a public space, which would have violated her school district's privacy policy.

Through this experience, Ms. Vale learned about the levels of privacy in digital ecosystems. She learned that there are essentially three levels to most digital content on the internet:

- *open*: the content is searchable on the internet, and anyone can see it
- *gated*: users need to create an account or possess a specified URL to view the content
- *closed*: content is viewable only by you or people you choose

The following chart maps the terminology across different platforms:

	YouTube	**Google**	**WordPress**
open	public	anyone with the link can edit	public
gated	unlisted	anyone with the link can view	password protected
closed	private	viewable only by you	private

Being aware that digital texts generally fall into one of three categories of accessibility is endlessly useful—most platforms recognize some version of all three. Knowing that content published on the internet doesn't always have to be public, and knowing that you have control over the content that you create, is not only powerful knowledge, but *necessary* knowledge for being able to successfully operate within and between various digital platforms.

Touchscreen Gestures

One afternoon, Ms. Sarcher, a 1st-grade teacher, lamented that she hadn't taken advantage of the iPad cart as of yet. In her school, classroom teachers can reserve a class set of iPads, but many don't because they don't know how to use an iPad, much less teach with it. We

decided I would sit with a small group of students and demonstrate how guided exploration can expand students' (and teachers') knowledge of new tech.

So I sat in the meeting area with Ms. Sarcher and five of her students, and asked them to turn on the iPads. I then asked them to point to the Home button, swipe, and locate the Photos app. They largely knew how to do these things, and when in doubt, relied on each other to figure it out. I taught them a few tablet-friendly tips—how to search (downward swipe), and quit apps (double click on the home button and swipe upward)—but they required little guidance to get started.

A vocabulary for touchscreen/tablet technology would help Ms. Sarcher and other teachers who aren't sure of how to use iPads and other tablet computers. The gestures I've mentioned are specific to iPad, but every tablet operates on a continuum of similarity. Teachers need to know that the knowledge they already have about how computers and the internet work is transferable to new devices. While the corporations that develop these devices intentionally brand specific gestures to keep users loyal to their brand, the gestures controlling most touchscreen devices have undeniably grown more similar over time (e.g., by virtue of knowing some gestures for using an iPad, you also have some basic knowledge of the gestures required for using a Surface Pro). While no two digital devices are exactly alike, they all have a power button, use swiping gestures, have a home screen, have ways to cut, paste, insert, bold, etc., and can connect to the internet. And yet, while there are undoubtedly similarities across *some* platforms, the pressing (and growing) need for professional development tailored to teachers' digital literacy learning needs cannot be underestimated.

À La Carte and on Demand

In the course of my recent work with the teachers mentioned, who graciously welcomed me into their classrooms and schools, it became clear that every teacher's needs differ when it comes to learning digital literacy and increasing knowledge in the digital domain. The recent and rapid influx of new technology causes what I refer to as *digital whiplash*, or the overwhelm that accompanies the hyper-accelerated adoption of new tech for the classroom (Greene, 2018). In order to mitigate the challenges of digital whiplash—namely, the expectation to do more in less time—teachers require knowledge that bridges the gaps between new programs, platforms, and devices that are occasionally, but not always, intrinsically compatible. However, professional development is generally offered by tool over topic or range of concepts. In other words, teachers are more likely to see workshops on Microsoft 365, Google Classroom, or Schoology than on the foundational skills needed to use learning management systems or digital communication ecosystems.

As anytime, anywhere education grows in popularity and reach as a result of policies to fund technology in K-12 classrooms—as does the unbridled expansion of the education technology industry—so does the necessity for flexibility in teaching and learning practices. Without a common framework or language for moving fluidly between programs, platforms, and devices, students and teachers are wedded to proprietary technologies. Problematically, without more knowledge of the inherent fluidity in digital literacy, proprietary technologies keep users locked into using costly software or programs that are tied to specific devices or operating systems. For instance, interactive, multi-touch books created with iBooks Author can only be viewed on an iPad. Although you can save the texts as PDFs, users lose any embedded interactive content, such as pop-up windows and videos. In spaces of learning where 1:1 programming (a situation in which every student has the same device loaded with a common

suite of software) is not possible, steering clear of proprietary technologies and utilizing open source or no-fee software is a must.

The three teachers I worked with had some overlapping needs, and others that did not overlap at all. It quickly became evident that while working with them, I would need to provide individualized support. Indeed, we *should* be differentiating professional development for teachers as we differentiate instruction for students; however, individualizing instruction for everyone all of the time requires extensive scaffolding (not to mention time and resources that many schools simply do not have). As Web 3.0 advances, and the internet becomes more automated and self-sufficient, users will need to know less by some measures. But until the internet becomes more independent, teachers and students need to be able to hold some basic digital literacy understandings that are *transferable* (able to be applied across technologies), *multimodal* (possible in various modes or formats), and *textual* (pertaining to consumption and production of anything digital).

Conclusion

This article merely scrapes the surface of the possibilities and problems of digital literacy knowledge (or lack thereof) in a teaching and learning context. Further, it suggests that more work can and should be done to support the development of a language, framework, or set of ideas that more consistently supports teachers' movement between various devices, platforms, programs, and ecosystems their schools currently utilize as a result of the SSBA and other federal, state, and local initiatives related to digital literacy. A discussion has been initiated here, and I invite your thoughts, ideas, critiques, and suggestions for expanding on and building a language or framework for more seamlessly integrating digital literacy knowledge and skills in our everyday instructional movements around the classroom—both virtually and IRL.

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