

The Roles of Personal Learning Environments and the Teacher-Librarian in Facilitating
21st Century Learning: A Flexible Framework for a High School Learning Environment

by

Wendy Ann Burleson
B.A., University of Victoria, 1991
PDPP, University of Victoria, 1992
Diploma in Educational Technology, Simon Fraser University, 2011

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Abstract

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As the information environment continues to become more vast and complex with mobile computing devices, social media, and online platforms, teachers are challenged to incorporate these tools in pedagogically-sound learning designs. This project explores the personal learning environment as a promising approach for developing critical information literacies and 21st century competencies, both of which are emphasized in British Columbia's forthcoming new curriculum. This paper includes a conceptual review of the pedagogical and technological foundations of PLEs, practical examples from k-12 to post-secondary, and an examination of the roles of the teacher-librarian in a PLE followed by a teacher resource guide that explores the leadership roles of the teacher-librarian. As the PLE represents a relatively new approach with few empirical studies – and an approach with many possible iterations – this resource should be applied as an initial step toward implementation and as a foundation that may support future qualitative studies.

Supervisory Committee

Dr. Valerie Irvine, (Department of Curriculum and Instruction)
Co-Supervisor

Dr. Tim Pelton, (Department of Curriculum and Instruction)
Co-Supervisor

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Dedication

I dedicate this project to advancing the field of teacher-librarianship, inspired by the following quotation:

"Poor libraries simply develop collections; good libraries provide services; great libraries develop communities and challenge preconceptions."

- *Atlas of New Librarianship* (2011), David Lankes

As curriculum changes are implemented provincially and globally, I believe that student learning communities will increasingly become personal learning environments as described in this project – environments which will in turn challenge some preconceptions of a school library as merely a place and space and of research and learning as a contained project. I also believe that teacher-librarians will play a pivotal role in leading these changes.

Chapter One: Project Overview

Rationale for Study

Teaching in British Columbia is a dynamic process, requiring adaptation not only to province-wide and district policies and programs, but also to the changing needs of learners. However, it is arguable that the pace and scope of change has been much greater in the first fifteen years of the 21st century compared to the latter decades of the 20th century. The proliferation of technologies such as mobile computing devices, social media, and *Web 2.0* has greatly impacted teaching and learning – each of which comprises a central element of the *personal learning environment* (PLE).

The ubiquitous presence of Web 2.0 ensures that students will be affected within educational institutions and beyond them. Finger and Lee (2014) note that innovative technologies and transformational thinking have emerged outside the education system, a phenomenon they term as “the consumerization of technology” (p. 65), an observation that suggests that this phenomenon exerts tremendous influence. The impact of Web 2.0 indeed represents another major phase in the evolution of information technology in education including computers (1985-1995) and the World Wide Web (1995-2005), yet it is perhaps even more disruptive. Conradie (2012) argues that “it is irrefutable that education is entering a period of ‘radical discontinuity’ [and that] Web 2.0 will continue to be a major element in enabling learner autonomy” (p. 255). Indeed, within educational institutions, there are numerous examples of teachers and researchers who are integrating information communication technologies (ICTs) with instructional approaches such as *21st century learning*, *project-based learning*, *problem-based learning*, *inquiry-based learning*, and PLEs. Although each approach is unique – an analysis which in itself could comprise a study – all illustrate that the focus of curriculum is

changing. A seminal paper about curriculum (Egan, 2003) hypothesized that “the traditional curriculum question about what should be taught can no longer stand as a distinct question in the face of discovery about individual differences” (p. 14). Over a decade later, discussions in both scholarly and popular sources suggest that many teachers are re-evaluating the balance between content, methods, processes, and habits conducted face-to-face and online through Web 2.0 – in addition to re-evaluating the balance between teachers and students as designers of curriculum.

Shifts in pedagogy will undoubtedly continue to be a transformative influence upon approaches to teaching and learning. The underlying philosophy of the 2015 British Columbia Education Plan (BCEd) suggests that personalized learning and related approaches will be promoted as ubiquitous models throughout k-12 education rather than as sporadic action-research projects throughout various school districts. The BCEd Plan explicitly articulates the need for new learning environments that place each student’s passions as the focal point of curriculum and for developing a broad range of 21st century competencies in a student’s academic and personal school life: critical thinking and problem-solving, collaboration and leadership, communication and digital literacy, personal and social responsibility, creativity and innovation, global and cultural understanding (British Columbia Ministry of Education, 2015, p. 6). One promising framework to address changing technologies and perceptions of education is the PLE, a pedagogical and educational approach that places learners in charge of self-regulating and self-directing their learning using online platforms and social media. Learners direct themselves towards achieving personal educational goals using Web 2.0, communities, and services within an individualized and explicitly shareable framework. (Educause Learning Initiative, 2009, p.1). As PLEs hold great potential for affecting teaching and learning in British Columbia – and globally as some researchers suggest (Dabbagh & Kitsantas, 2012, p. 4) – this

project will explore the literature surrounding PLEs and present an introductory resource to support teachers in their implementation.

Research Context: The Personal Learning Environment (PLE)

Although founded upon several well-established pedagogies and learning models, the PLE is a relatively new framework for teaching and learning that developed during the first decade of the 21st century. PLE principles emerged in 1998 with the Future Learning Environment and in numerous subsequent initiatives during the early 2000s (Panagiotidis, 2012). Early definitions of a PLE were posed at the 2004 JISC/CETIC Conference (Schaffert & Hilzensauer, 2008), and with the studies of Johnson and Liber (2008) and of Dabbagh and Kitsantas (2012). Hicks and Sinkinson (2015) suggest that PLEs emerged from the dissatisfaction of educational technologists and librarians with the limitations of virtual learning environments (VLEs) and information literacy (IL) standards to meet learner and learning needs (p. 3). Regardless of where and with whom the PLE emerged, as of mid-2015 no standard definition of PLEs exists and the research is still thin (Juarros, Ibáñez, & Crosetti, 2014, p.217). Nevertheless, a working definition can be developed by examining the meanings of the elements ‘personal’, ‘learning’, and ‘environments.’

The personal in PLEs refers to a learner-centered approach to a topic, subject, or course in which the interests and needs of the learners help to establish the foundation for learning. In collaboration with their teachers, students set personal goals, derive learning strategies to achieve goals, and select appropriate supporting resources. It is important to note that although PLEs are focused upon the personal needs of the learner, teacher guidance and modelling for students is foundational in each of these processes, and the roles of the teacher and students demand equal participation (Ahmed & Ahmed, 2012).

The learning in a PLE includes both formal and informal contexts. Finger and Lee (2014) characterize formal learning as “command and control” (p. 73) by academic professionals and schools who deliver credentialed courses and programs and informal learning as more implicit and often not assigned status as valued learning. Nevertheless, informal learning is important learning. Decades ago, John Dewey reminded curriculum designers to emphasize and recognize informal learning because many young learners engage in important learning pursuits beyond the classroom: either as an extension of their class experiences or as part of extracurricular interests and activities (Finger & Lee, 2014). Without informal learning, “the material of formal instruction will [become] merely the subject matter of schools, not life experience” (p. 67). In contrast, Cross (2007) suggests moving beyond the curricular-extracurricular dichotomy, describing formal and informal learning as processes on a continuum. Regardless of how researchers may categorize student learning, a PLE supports both formal and informal learning processes since every PLE includes a learner-centered approach at its core (Panagiotidis, 2012) and holds tremendous potential to engage students.

The environment of PLEs includes the broad network of physical and virtual spaces, face-to-face and online communities of learning, and Web 2.0 technologies that include hundreds of existing and emerging online tools which facilitate communication, collaboration, and creation of nodes of knowledge. Unlike Web 1.0, Web 2.0 does not require users to possess technical expertise in programming languages nor to acquire costly subscriptions; most Web 2.0 platforms offer an introductory level of service that is free of charge. Examples include blogs, wikis, forums, Google Docs, social bookmarking tools (e.g., Diigo, Delicious) video and photo-sharing platforms (e.g., YouTube, Flickr) as well as social media platforms (e.g., Facebook, Instagram, Vine and Twitter). Couros (2008) refers to this diverse range of tools as *networked*

learning, and Drexler (2010) places them in context of the *networked student model*. Other studies suggest that the term Web 2.0 is synonymous with the term social media, including all social aspects of the Internet applied as a channel for communication, collaboration and creative expression (Dabbagh & Reo, 2011). From this perspective, Web 2.0 is not only a network of places but it is also an interactive process.

The networked environment distinguishes a PLE from a VLE in that it is neither a specific, discrete place nor an entity governed by an institution. The resources of a PLE may complement or even supplant a textbook, but they do not preclude students from using it (Drexler, 2010). This idea of a network has expanded the concept of both schools and school libraries as physical places and spaces. Schools include VLEs and blended environments combining face-to-face and online communities. Many school libraries are termed *learning commons*, “a common, or shared, learning space that is both physical and virtual [and that] is more a perspective than a ‘place,’ [supporting] a student-centered approach that emphasizes active and collaborative engagement and encourages the co-creation of knowledge by all learners” (Alberta Education, 2015). These networked spaces combine all tools, services, opinions, people, resources, and activities that facilitate different learning processes and technology affordances throughout a student’s life (Humanante-Ramos, Garcia-Penalvo, & Conde-Gonzalez, 2015), not merely during their formal schooling experiences. Given the complexity of this network, educators face significant challenges in teaching students a range of capacities to navigate and use this network effectively.

Although this analysis of the PLE’s basic elements affords a basic understanding of key characteristics, it also poses limitations. First, each element cannot be understood in isolation since a PLE is shaped by the fluid and flexible interactions among each one (Ahmed & Ahmed,

2012). Second, since PLEs developed in direct relation to the evolution of technology and pedagogy, PLEs must be examined epistemologically. Third, as there are many iterations of PLEs as described in the literature, it is essential to examine different examples to ascertain and anticipate potential challenges for different educational contexts. Despite the need for closer examination from each of these perspectives, existing literature suggests that a PLE is fundamentally a network of human and Web 2.0 resources that is developed and shaped by each student based on individual goals and learning needs in collaboration with teachers throughout the learning process. Therefore, each student's PLE will be a unique and distinct network.

Project Design and Goals

Gaps in the literature suggest the need for a resource that supports teacher-librarians and teachers who are considering the adoption of a PLE framework to support an inquiry-based learning approach or any approach where student self-direction and self-regulation are integral as learning outcomes. Although there are different models of the inquiry-based learning framework, this paper cites the model of Kulthau and Maniotes (2012) since these researchers explicitly focus upon the roles of the teacher-librarian.

Although a PLE holds tremendous potential to help students develop 21st century competencies, the process of planning, implementing, and assessing student learning activities implies a complex and time-intensive process for teachers. The wide spectrum of students' individual competencies requires the concurrent planning and managing of both group and individual lessons. Teachers must also invest time in understanding the rudiments of each student's inquiry topic and in helping students gather and assess potential resources. Moreover, since PLEs promote individual representations of learning using Web 2.0, teachers face the complexity of vetting a range of tools before presenting any options to students. These

complexities challenge teachers to consider important questions about PLEs that have not yet been fully explored in k-12 settings:

- To what extent can PLEs help teachers manage inquiry-based learning designs in context of a high school learning environment?
- What support and leadership can the teacher/teacher-librarian provide in the design and implementation of a PLE?
- What perceptions and competencies must educators consider in relation to students and to themselves before implementing PLEs in grades 9-12?

The PLE in this project is developed based upon the need for a PLE as articulated by the goals and challenges expressed by a classroom teacher at the beginning of the school year. Given the uncertainties surrounding PLEs, the pilot PLE is based on the lessons learned as articulated in case studies discussed in chapter two.

The PLE Pilot

This pilot focuses upon PLEs in a grades 9-12 student leadership course. In September 2015, leadership teachers expressed a need for managing the learning activities and reflections of ninety students over two semesters, and met with me, the teacher-librarian, to discuss strategies to support these goals. Specific goals included facilitating student self-management of participation in various leadership activities through tracking of hours, dates, and learning activities, and facilitating student self-evaluation of participation in these activities through ongoing personal reflections. Since one teacher was interested in the possibilities of blogs, and I understood from prior teaching contexts that this platform might suit the goals and teaching context of this course, we decided to pursue blogs as a starting PLE for leadership students. As a

result, I developed a three-lesson framework built around the broader theme of digital leadership in collaboration with my colleagues as follows:

- lesson one, digital communication: Why is a blog useful? What are some blog platform options?
- lesson two, digital identity: How can one maintain a balance between being personal and authentic while maintaining privacy and professionalism?
- lesson three, digital management: How can a blog be used to manage time and activities?

The next meeting focused upon the logistics of implementation, the challenges of managing ninety students for each of these lessons, and addressing privacy concerns. We discussed the best times and dates for lessons, the division of roles and responsibilities, and the privacy levels of student blogs. Leadership teachers managed the logistics of sign-up and communication through their VLE (a web site), and I, as teacher-librarian, developed the lessons and instructional strategies. From the course VLE, I created a menu tab titled Digital Leadership to manage supporting resources and a menu tab titled Student Blogs to contain the students' PLEs. Given that leadership teachers intended these beginner blogs to function as private learning journals, I created a web page containing all hyperlinked student blogs to be accessible only by the teachers and myself.

Following implementation of the lessons and follow-up support sessions for students, I developed a concise yet comprehensive resource guide for teachers and teacher-librarians who might wish to explore the possibilities of a PLE learning design. Having searched for such a resources through libraries and online, it appears as if no such guide is available. Therefore, this guide has been developed as the first volume of an e-magazine to help educators implement a

PLE. Volume one introduces the basics of PLEs, observations from case studies in the literature and the leadership pilot, suggested processes, practices, and resources, and outlines the leadership roles of the teacher-librarian. This e-magazine is also intended to stimulate conversations about the potential of PLEs as an approach to teaching and student learning and to invite future contributions of teacher-librarian colleagues in my professional learning network.

Chapter Two: Literature Review

Searching the Scholarly Literature

Given the relative newness of the PLE concept in theory and practice, it is not surprising that a search for studies using the search string “personal learning environments” initially yielded merely hundreds of results rather than thousands. However, this search was augmented by terminology that captures the elements of PLEs. These elements include networked learning, networked student model, web 2.0, social media, and social software, but exclude VLEs, *personalized learning*, *e-learning*, and *online learning* since the latter lack one or more elements of the PLE. An additional search string included “high school,” OR “secondary education” OR “secondary school” AND “personal learning environment” within Google Scholar and EBSCO databases in varying combinations, yielding studies primarily pertaining to PLEs applied in undergraduate and graduate programs. The few available k-12 examples represent short-term case studies requiring further empirical testing, a limitation acknowledged by the authors of these studies. Given that PLEs are indeed fairly new and developing concept (Rahimi, Van den Berg, & Veen, 2015, p. 235) that are also unknown to most of the education community (Juarros et al., 2015, p. 216), this review of the literature will consider a wide range of studies that represent educational contexts in k-12 as well as in post-secondary programs.

Evolution of the PLE

PLEs develops in relation to the rapid growth of Web 2.0, and to emerging pedagogies including *connectivism*, the *cybernetic model*, *agent-based model (ABM)*, and *pedagogy 2.0*, and to models of self-regulation, self-direction, and *heutagogy*. Web 2.0 enabled teachers to build

PLEs, yet PLEs also supported new pedagogies and learning models. Web 2.0 and pedagogy thus developed symbiotically.

The growth of Web 2.0. There are hundreds of tools available for use with new ones constantly emerging. Most are free, intuitive to use, and facilitate opportunities for communicating, collaborating, creating and sharing. Although specific tools are identified and discussed in several studies (Blaschke, 2014; Mao, 2014; Hamilton, 2012; Drexler, 2010) most researchers focus upon the rationale for teaching and learning using Web 2.0. The latter focus likely relates to the indeterminate shelf life of any Web 2.0 tool; those useful today may be outdated tomorrow. To stay current with potential options, practitioners may consult a range of free online resources such as Twitter, educator-authored blogs and wikis, and MOOCs (massive open online education courses) such as *Powerful Tools for Teaching and Learning: Web 2.0* offered by the University of Houston in 2015.

Web 2.0 blurs the lines between formal and informal learning, challenging theorists and educators to identify how these tools might be used in each context. Both types of learning are intentional pursuits, yet formal learning is distinct in that it involves a social contract between a learner and an educational institute (Song & Lee, 2014). This contract, however, does not negate the value of informal learning. Although the concept of informal learning has been discussed for decades, educational theorists and practitioners have only recently begun paying attention to its benefits, characteristics, and relationship to Web 2.0. Informal learning represents a flexible, dynamic, learner-selected approach to learning, and it plays a fundamental role in the life of all individuals, potentially comprising as much as 80 percent of an adult's learning efforts (Song & Lee, p. 520).

Changing conceptions of knowledge and developing information landscapes.

Since the early 2000s, Web 2.0 has increased the complexity of the information landscape on the Internet by intermixing academic publications hosted on Google Scholar with popular sources, thereby challenging traditional ideas of ‘knowledge’. Historically, individuals possessing formal, credentialed learning or who seemed credible or interesting to publishers were able to publish research and theories in the form of articles, books, databases and ebooks. In the 1980s, the Internet supported Usenet and BBS services which allowed some people to share and discuss ideas. In the 1990s various types of Internet-based publishing tools became available (e.g., Gopher, FTP, then the Web). This development represents a significant milestone in information technology as it democratized the sharing of ideas and information. However, many of these publishing tools posed a barrier to those who did not possess a significant level of technical expertise. In contrast, the Web 2.0 platforms that emerged during the early 2000s were not only free of charge, but also did not require such expertise. Intuitive to navigate, and offering affordances for communication, collaboration, and creation, these platforms became foundational tools for children, adolescents, and non-credentialed adults to publish a wide range of unvetted content.

Nevertheless, the high quality of much of this unvetted content has challenged educators and academics to reshape their understanding of knowledge, authority, and validity. Wikipedia is one example. An online encyclopedia of topics ranging from academia to popular culture, Wikipedia has become a ubiquitous and useful information source for informal and formal learning since its creation in 2002. It thrives and expands from public donations, a small team of editors, and the contributions of a global network non-credentialed and credentialed individuals – regardless of skepticism held by some educators, librarians, and academics. Some institutes of

higher education have begun incorporating Wikipedia as both an information source and instructional strategy. The American Psychological Association (APA) and American Sociological Association (ASA) actively encourage scholars and students to refine the content of Wikipedia as active contributors. The APA asserts that “using Wikipedia as an alternative to traditional course assignments helps develop students’ communication skills for general audiences and teaches them accuracy in scientific writing, logic, strength of argument, flow and clarity of writing, and how to write appropriate citations” (Vandendorpe, 2015). Beyond Wikipedia, academics are beginning to exchange information through blogs, social bookmarking, and tagging (Veletsianos & Kimmons, 2012).

Theorists have challenged the historical paradigm of knowledge before and after the creation of Wikipedia. Talja (1997) defined knowledge as “a mix of scientific and expert knowledge and unconscious, selective, and culture-specific background assumptions (p.73). Hicks and Sinkinson (2015) recently asserted that a mix of knowledge sources is legitimized by communities of practice – valid in some contexts, yet questionable in others (p. 4). Although there is no consensus among academics and scholars regarding the reliability of Wikipedia as an information source, it is indeed part of the *developing information landscape*: intersubjectively created spaces created from human interaction and that establish sediments of knowledge (Lloyd, 2010, p. 9, as cited in Hicks & Sinkinson, 2015). The complexity of these information landscapes challenges educators to reshape their approach to teaching *critical information literacies* (CILs). CILs include the complex set of behaviours, attitudes and interactions adopted by a learner to engage critically in a complex information environment: posing questions, interrogating information systems, and exploring, playing, reflecting and contributing online (Hicks & Sinkinson, 2015, p. 3).

Pedagogies and learning models. PLEs have been shaped by different pedagogies and learning models: some informed purely by theory, others refined by practice. Although connectivism (Siemens, 2005) is most frequently associated with PLEs, additional paradigms and learning models provide useful and unique perspectives that can shape a teacher's development of a PLE.

The connectivist model attempts to conceptualize the learner's interactions with technology and with other learners by situating the PLE in the context of complex, rapidly-changing information-loaded environments. As the availability and possibilities of Web 2.0 applications and participatory technologies develop, theorists attempt to make sense of this complex information network in the context of education. Connectivism is a theory, yet it is also a discrete and distinct pedagogy that focuses on creating and sustaining networks of human and non-human resources for the purpose of synthesizing knowledge distributed throughout this network (Siemens, 2005; Bell, 2011). This pedagogy first emerged with Siemens (2005) and Downes (2005) as an amalgamation of constructivism, cognitivism (Mallon, 2013), and social constructivism (Panagiotidis 2012) by emphasizing a learner-centered approach and social interactions. By 2013, Siemens' discussion of connectivism was referenced 1,603 times in scholarly publications indexed by Google Scholar (Wang, Chen, & Anderson, 2014, p. 123), and soon after initial publication, it influenced educational practice. Early iterations of massive open online education courses termed *connectivist MOOCs* (cMOOCs) were developed to validate Siemens' and Downes' ideas of connectivism (Wang et al., 2014), and subsequent models based upon connectivism include open education resources (OER), remixes, as well as various case-study implementations in k-12 and post-secondary that are explicitly described as 'personal learning environments'.

Regardless of the different contexts in which connectivist pedagogy has been applied, it has distinct features when applied to education. One feature includes the variety of human and virtual nodes including Web 2.0. Web 2.0 comprises a central virtual node as “it would be difficult and impractical to implement a connectivist approach without it” (Conradie, 2014, p. 256). Another feature includes the learning processes that creates connections among these nodes (McLoughlin & Lee, 2012). Connectivist pedagogy relies upon the principle that knowledge is a dynamic commodity – an activity, a process of finding out – rather than as something that is concrete and static (Horvorka & Rees, 2009, p. 92). Although other pedagogies suggest that knowledge and learning occur among both face-to-face and online networked nodes, connectivism suggests that the process of keeping knowledge circulating and developing is the primary goal of education and learning (Wang et al., 2014, p. 133).

Educational theorists propose alternative arguments for implementing a connectivist model. Conradie (2014) asserts that connectivism facilitates aggregation, relation, creation, and sharing – activities that augment student learning and distinguish it from other pedagogies. Wang (2014) proposes a comprehensive three-level model for understanding learner interactions. Each level facilitates a distinct purpose and increases the complexity of the learning environment. In *simple connectivist learning*, the purpose is to find the best processes for accessing information to find a solution; that is, “the pipe is more important than the content within the pipe” (Siemens, 2005, p. 6). In *social networked learning*, the central purpose is to find and bring together individuals with shared learning interests to build knowledge in a pre-created shared space. In *complex connectivist learning*, students create and apply individualized resources to build networks through knowledge creation, decision-making about complex problems, and through the application of technological and pedagogical innovations (Wang et al., 2014, p. 124).

Although this model lacks empirical validation, it provides a useful framework for designing and implementing a PLE.

The cybernetic model represents an early effort to promote PLEs by focusing upon the learner's relationship to technology. Developed by a team from the University of Bolton (2006-2008), this model combines principles of Beer's viable systems model (Beer, 1973) with the technology philosophy of Heidegger (2005) to make two predictions. First, the cybernetic model predicted that VLEs would disappear as adoption of Web 2.0 increased. Second, the model hypothesized that learners would prefer to choose their own technology tools rather than apply those tools mandated by an institution's VLEs.

Applied to educational settings incorporating PLEs, the cybernetic model illustrates gaps between theory and practice. From 2009-2011, many post-secondary institutions migrated their VLEs to new or upgraded learning management systems; comparatively, the adoption of Web 2.0 remained low (Johnson & Sherlock, 2014). Several studies of how adolescent students perceive and use Web 2.0 in formal and informal learning (Finger & Lee, 2014; Clark et al., 2009; Mao, 2012) provide an explanation. Findings concluded that students' use of Web 2.0 tools was confined mainly to informal learning, even when presented with opportunities to apply them in formal learning. In one case study, Johnson and Liber (2007) found that learners did not wish to change technologies or their practices with technologies – even when learners recognized that Web 2.0 alternatives in the PLE would provide greater control over their learning. More recently, Johnson and Sherlock (2014) explain that technological barriers – sites being blocked by institutional firewalls, outdated browsers, and security privileges – represent a few systemic problems that negatively affect teachers' and students' adoption of the PLE. Furthermore, teachers must consider the broader complex social situation of the classroom: human

interventions that are successful in establishing change in practice, and the roles that human relationships play in each student's experience of technology. Johnson and Sherlock suggest that the cybernetic model presented through JISC's PLE project under-theorised the effects of emotions and of communications during interactions with technology, asserting that "without shared experiences, individual learner become 'atomised,' forced into a technological environment where their only means of discussing their experience is through using the technology itself" (p. 163).

The ABM addresses the shortcomings of the cybernetic model. Built on the extensive work Axelrod (1984) and McKelvey (2000), ABM bridges the gap between theory and practice by suggesting that the state of individuals depends upon the communications they forge, which in turn depends upon on the communications they maintain (Johnson & Sherlock, 2014, p. 157). ABM may also prompt teachers to analyze specific technological interventions by considering the extent to which an innovative technology may be implemented without loss of existing, effective practices by teachers and students, and the extent to which the technology enhances the attachment situation between learners and teachers (Johnson & Sherlock, 2014, p. 159). ABM is useful as it reminds teachers to consider the emotional state of learners in relation to the communications and social connections that they forge online.

Pedagogy 2.0 challenges the traditional top-down level of the teacher as unilateral expert. The teacher provides expertise in instructional design, but students contribute to this design through participatory Web 2.0 technologies. Farkas (2012) explains that pedagogy 2.0 facilitates a "flattening of hierarchy between student and instructor that is necessary to unlock the power of these technologies" (p. 92). McLoughlin and Lee (2011) assert that learner choice, self-direction and engagement in flexible, relevant learning tasks and strategies are processes by which this

power can be unlocked (p. 51). Participatory technologies afford opportunities for students to share their ideas with an audience beyond the teacher audience. Students fulfill sharing roles with other learners face-to-face and online, and in this way, are crucial to the success of a pedagogy 2.0 learning design. However, such opportunities do not guarantee that students will be participatory. Farkas (2012) cautions that if a class is structured as a hierarchical model where content from the instructor and instructor perspectives are considered more valuable than student contributions, Web 2.0 will not stimulate vibrant collaboration and meaningful dialogue. Therefore, teachers fulfill specific, essential roles which include developing outcomes, creating opportunities for learners to seek out and respond to each other, introducing divergent perspectives, and structuring learning opportunities that place high value upon student perspectives. McLoughlin and Lee's model of pedagogy 2.0 (2011) conceptualizes the interrelationships among elements central to this pedagogy and describes potential impacts upon teacher practice. These elements include personalization (learner choice, learner agency, customization, self-regulation and management), participation (communication, collaboration, connectivity, and community) and productivity (learner-created content, contribution to knowledge, generativity, creativity and motivation). Changes to teacher practice can include evaluating the innovations of teachers across the globe who are making use of Web 2.0 in innovative, learner-centered ways (p. 53). Examining these examples may influence learning design and interventions.

PLEs are frequently discussed in context of self-regulation and self-direction, inextricably related yet distinct processes. Each represents "an instructional design or method and a personal characteristic" (Conradie, 2014, p. 255) yet differ as processes. Self-regulation is the learner's ability to independently and proactively engage in self-motivating and behavioral

processes for goal attainment (Zimmerman, 2000, p. 5) and self-direction is the range of specific learning activities which are required to meet goals (Conradie, 2010, p. 255).

A related pedagogical approach that aligns with self-regulation and self-direction is heutagogy, which places responsibility for the learning path with the learners (Blaschke, 2014, p. 2). Self-regulation, self-direction, and heutagogy imply that learners assume a high degree of responsibility in managing their learning processes, often utilizing Web 2.0 as management tools. These processes include identifying learning needs, planning learning goals, discovering learning resources, implementing learning strategies, and evaluating learning outcomes (Skiff & Beckendorf, 2009) in collaboration with teachers. Research into the heutagogical approach suggests that learners gain essential skills to navigate and manage complex information environments, support lifelong learning capacity, manage and solve complex problems – and “may well provide the optimal approach to learning in the 21st century” (Blaschke, 2014, p. 2-3). Conradie (2012) explains that learners develop these skills and new knowledge by evaluating and adapting goals and by gaining new insights through explorations of various nodes, including Web. 2.0.

Regardless of terminology distinctions among theorists, self-regulation, self-direction and heutagogy are comparable as educational outcomes yet pose challenges for teachers designing learning activities for diverse learners. Although self-directed learning automatically implies that self-regulated learning takes place, the reverse is not true; “it is possible to have self-regulated learning without self-directed learning” (Conradie, 2012, p. 255). Teachers must devote significant thought and energy into helping students develop clear learning goals.

The PLE in Practice: Opportunities and Challenges, K-12 and Post-Secondary

Iterations of PLEs have been implemented for young adult learners in k-12 schools and for adult learners in post-secondary programs. An overview of studies in both settings can help teachers form a clear and comprehensive perspective of PLEs in practice, a perspective that considers the learners, learning design, teacher roles and teacher competencies.

Scope of studies. In literature conducted within the k-12 context, there are few examples of PLEs from a practitioner's perspective. Through the University of Florida, Drexler conducted research on PLEs implemented by a science teacher with a group of seventh graders, producing a study that describes the pilot project's context and duration, supporting theoretical models and specific Web 2.0 technologies. Hamilton, a practicing teacher-librarian (2012), provides a narrative overview of a PLE implemented with a teaching colleague in context of an inquiry-based learning design for tenth-grade English Honors students. Mao describes a mixed-methods design that surveyed 166 high school students regarding their attitudes, beliefs, and obstacles to using social media both socially and academically. Rahimi (2015) focuses upon a younger cohort of students aged 11-13, proposing and evaluating a four-part pedagogy-driven model of PLE, gathering data inclusive of teacher field notes, artifacts, student and teacher interviews, as well as coded qualitative data that interprets findings.

These studies illustrate gaps in literature pertaining to PLEs. Practitioner-focused studies approach PLEs from a specific and limited lens at the expense of other perspectives. Hamilton (2012), for example, provides a detailed discussion of useful Web 2.0 tools in PLEs, but does not explain how specific tools did or did not impact student learning. Drexler (2010), in contrast, discusses tools and their impact upon student learning in significant detail, but acknowledges that the networked student test case is a work in progress requiring further and extensive research

with a more diverse population of students as in inner city schools and other settings such as virtual schools (p. 15).

A greater number of scholarly studies have been conducted in post-secondary contexts, yet these also illustrate the need for further research into the impact of PLEs. Panagiotidis (2012) explores PLE Web 2.0 tools in context of language learning but acknowledges the need for additional case studies “as most researchers believe that there is no typical PLE” (Chatti, Agustawan, Jarke, & Specht, 2012). Juarros (2014) describes two case studies of institutional personal learning environments for graduate and post-graduate students in educational studies and teaching, noting that the small sample size, short duration of courses, and high level of prior Web 2.0 knowledge limit conclusions. Humanante-Ramos (2015) describes the integration of personal learning environments within an institution’s learning management system but suggests that findings cannot be generalized given the nature of the investigation. Blaschke (2014) describes case study research into social media implementation in a college distance education program over six semesters, discussing end-of-semester survey results pertaining to 300 students and 2 instructors.

Findings suggest inconclusive and mixed results assessing the benefits and challenges of PLEs and the need for examining these results from different perspectives. These perspectives will be discussed in context of learning design and learning environment, the learners and teachers, and the aforementioned pedagogies and learning models.

Findings related to learners. PLEs pose distinct benefits and challenges for learners although these differ for cohorts of students in higher education compared to cohorts in k-12 settings. Although the findings related to the latter are of greater relevance in this paper, conclusions from the following two studies in higher education present important insights.

In higher education, Juarros (2014) reports specific challenges in two case studies. In the first study, many students perceived PLEs as requiring too much time and effort and teachers perceived that few students personalized their PLE space (p. 212). Although the second case study included additional supports of materials, resources, and workshops, these supports did not result in greater student personalization of PLEs. Nevertheless, compared to the first study, students reported positive perceptions of the PLEs; nearly 87% of students perceived it as useful to manage post-secondary learning (p. 213). Juarros (2014) concludes that two strategies influenced these perceptions: training in the use of new environments and pedagogical strategies.

Blaschke (2014) focuses upon student and instructor perceptions of the PLE. Survey findings illustrate generally positive perceptions among students. Over 70% reported perceived gains in constructing new knowledge, reflecting on and better understanding course content, and providing skills applicable in their work environment (p. 10). However, the two instructors in this study relayed mixed perceptions of student growth. Although both concurred that specific PLE tools developed students' critical thinking and knowledge construction, one instructor did not agree that social media facilitated cognitive and metacognitive skills, empathy, creativity, autonomy and understanding of the learning process.

In k-12 settings, Drexler (2010) and Rahimi (2015) provide detailed insights about the impact of PLEs upon student learning of content and processes through field notes, assessment

rubrics, reflective surveys, interviews, and artifacts such as students' PLE web sites. Drexler focused on a group of fifteen high school students (aged 15-18) who implemented individual PLEs as part of a contemporary issues research project over a nine-week term. Rahimi examined a younger cohort (aged 11-13) who were tasked with using a PLE to develop a learning project titled *Designing and Building a Digital Travel Guide* as part of their geography course.

In Drexler's study, students expressed discomfort with a different approach to learning yet reported feeling better prepared to approach future learning endeavours with less teacher guidance. From a management perspective, teachers observed that few interventions were necessary. In discussing Drexler's study, Ash (2013) notes that "[the students] took responsibility for their own learning and took personal responsibility for the culture and environment of the classroom" (p. 2). From a learning perspective, however, teachers commented that students required significant and additional supports in managing time and critical steps in the research process. Rahimi's (2015) findings were similar. Students faced challenges with time management yet demonstrated a high degree of ownership and personal responsibility for personal learning. Additionally, Rahimi's study reported teacher observations about the mixed quality of learning evident in the students' completed research project and in their ongoing reflections. Teachers perceived that most projects lacked accuracy of detail and quality of content and that most personal reflections about the learning process lacked genuine insight.

Although most PLEs include many Web 2.0 options, students will not necessarily utilize them to the fullest potential. Mao's study of high school students' technology affordances and perspectives (2014) observed that the beliefs of students did not align with personal practice in a learning environment. Many students agreed or strongly agreed that social media encourages

sharing and makes learning fun, meaningful and interactive, yet only 42.2% showed positive attitudes about the ways in which social media is being used in classes (Mao, 2014, p. 217).. Anecdotally, a few students commented that social media is distracting, time-consuming, and useful for socializing more so than learning (p. 217). This study also found that students were reluctant to incorporate different Web 2.0 tools, even if they afforded specific advantages over familiar choices.

Findings related to learning design and teacher roles. Drexler (2010) explains that teachers must create a learning design that allows time and opportunity for students to learn different tools incrementally. Building upon these learning experiences “one node at a time” (p. 9) helps to ensure that neither the tools nor learning processes become overwhelming. In Drexler’s study for example, the teacher introduced a single tool per day over a period of two weeks. Other studies corroborate Drexler’s findings. For example, Cicogini, Pettenati and Edirisigha (2011) concluded that learners need support, guidance, and pedagogical interventions to make the best possible use of social media to support their learning goals.

Studies by Tomberg, Laanpere, Ley, and Normak (2013) and by Blaschke (2014) assert that learning design with Web 2.0 requires a delicate balance of student choices and teacher controls. Learner control is an important condition for successful self-regulated learning, and this control must include decision-making on the part of the student as to when and with whom to forge interactions as well as the extent to which these interactions are made visible to the teacher (Tomberg et al., 2013, p. 115). Nevertheless, teacher control over tasks, resources, deadlines, announcements and assignments – “formal learning that is familiar to teachers” (Tomberg et al., 2013, p.114) – is equally essential. Moreover, social media tools represent only a piece of a learning design; it is the course design and delivery together combined with the technology that

will establish an environment facilitating cognitive and metacognitive development (Blaschke, 2014, p. 121).

A learning design that addresses teacher roles in the PLE is the networked student model (Drexler, 2010) which builds upon Couros' model of teacher professional development (2008). This model discusses the theoretical foundation of the network, ways to implement and scaffold Web 2.0 learning, and assessment of the PLE learning process. Absent from this study and others, however, is a detailed discussion of how the technology affected learners. Ash (2013) only briefly mentions a few barriers in Drexler's study including slow Internet connections, web filters, and inadequate hardware.

Findings related to teacher perceptions and competencies. Teacher perceptions of Web 2.0, PLE learning design, and a teacher's individual personal competencies affect student success in a PLE. Drexler (2010) argues that perceptions of technology "may determine effective integration more than traditional forms of professional development" (p. 15), noting that the teacher in her case study had "characteristics and beliefs quite different from many of her teaching peers" (p. 15) with respect to believing strongly in the value of technology as a teaching tool. Personal competencies are also essential, including the ability to troubleshoot technology, gauge students' understanding and progress, and facilitate one-on-one or small group discussions. Ahmed and Ahmed's study (2012), "the first literature review of its kind" (p. 30), also develops a comprehensive list of teacher competencies as follows:

- innovative
- knowledgeable regarding where and how to locate resources
- organization in lecturing skills
- ability to motivate learners to assume ownership and control of their learning

- “versatile personality, ranging from sharp critic to enthusiastic coach” (Ahmed & Ahmed, 2012, p. 28).

Although studies of the nature and complexity of the teaching tasks are one of several variables meriting further examination, both Drexler (2010) and Ahmed and Ahmed (2012) suggest that a student’s experience in a PLE is dependent upon the teacher. That is, although the pedagogies underlying PLEs each emphasize learner control and self-regulation – learners need the explicit strategic guidance of a strong instructional leadership possessing a range of competencies.

The extent to which teachers will be motivated to adopt PLEs as a learning design is open to challenge. Drexler (2010) suggests that “adopting a networked learning approach would require considerable teacher professional development and a philosophy different from that of most current educators,” an approach that would greatly affect school policy, hiring practice, and pre-service teacher education (p. 140). This approach also affects a teacher’s time: learning a new approach, new technologies, implementing changes to one’s existing instructional design – and additional time challenges in assessing students. Blaschke’s study of PLEs in post-secondary (2014) reported that both instructors found that the large amounts of time were required for tracking each student’s social media handles. System-level supports are necessary for developing teacher perceptions and competencies in ways that support the successful implementation of PLEs. Nevertheless, current literature suggests that individual teachers can exert tremendous influence over the implementation process.

Directions for Further Research: The Leadership Roles of the Teacher-Librarian

As of August 2015, few peer-reviewed journal articles examine the roles of the teacher-

librarian in leading and managing PLEs in k-12 settings. Existing articles describe PLEs from narrative or case-study perspectives. For example, Hamilton (2012) and Loertscher and Koechlin (2011) explain the relationship between PLEs and developing students' information-literacy skills. Hamilton (2012) describes PLEs as “driven by a need to make sense of the vast world of information and ideas and take advantage of technologies and tools available” (p. 24), asserting that conversations with learners about information literacy can be facilitated through social media. Social media usage can facilitate ethical and informed information-seeking behaviour as well as build students' *info-tention* – knowing how to assimilate intelligence dashboards (RSS feeds), news radars, and information filters from online tools (p. 24). Loertscher and Koechlin (2011) describe the design of a PLE program through the school library, where the teacher-librarian worked as a mentor with students and colleagues in the implementation and assessment phases.

Given the limited availability of teacher-librarian authored studies of PLEs in k-12 settings, the roles of the teacher-librarian merit further exploration. As Kulthau and Maniotes (2012) assert, the teacher-librarian fulfills the role of “principal information coach in the school” (p. 25) by providing “leadership in transforming schools into information-age learning communities by taking on the essential roles of information-learning specialist” (p. 175). Perhaps Hamilton (2012) best sums up the unrealized potential of teacher-librarian leadership by suggesting that student research, content creation, and evaluation of information would be more “seamless and authentic” if more school librarians were embedded in a team of classroom teachers by grade level or discipline (p. 26). This literature review suggests a need for further studies that investigate this potential.

Chapter Three: A Teacher Resource for Building a PLE

This teacher resource provides an overview of PLE basics, a description of a PLE pilot in grades 9-12 student leadership, suggested best practices, and an outline of the leadership roles of the teacher-librarian. This resource is presented as an e-magazine available in both online and print format.

Link to the e-magazine: Volume 1, December 2015 Building the Personal Learning Environment (PLE) published by The Tenacious Teacher-Librarian available at

<https://thetenacioustl.wordpress.com/my-creations-2/>

<http://www.blurb.ca/b/6691389-building-the-personal-learning-environment-ple>

http://issuu.com/wbvichigh/docs/dec._2_chapter_3_final_wendy_burles

Print edition, full-size professional magazine layout: please contact the author at

wburleson@sd61learn.ca or via Twitter [@wendyburleson_5](https://twitter.com/wendyburleson_5)

The Tenacious Teacher-Librarian

Building the Personal Learning Environment (PLE)

An effective blueprint for 21st century learning?

.....

PLE BASICS

.....

FEATURE: THE PLE IN PRACTICE

a pilot project in grades 9-12 Student Leadership

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THE ROLES OF THE TEACHER-LIBRARIAN &
BEST PRACTICES

VOLUME 1 DECEMBER 2015

Enzu Architecture Wallpaper [Digital image].
(2014, January 8). Retrieved November 17,

THE TENACIOUS TEACHER-LIBRARIAN
connecting and collaborating with my learning community

The Tenacious Teacher-Librarian

VOLUME 1, DECEMBER 2015

EDITOR'S NOTE

What are the possibilities of the PLE for enhancing student learning? What are the roles of the Teacher-Librarian in the PLE?

CONTACT ME

TWITTER

[@wendyburleson_5](https://twitter.com/wendyburleson_5)

BLOG

<http://thetenacioustl.wordpress.com>

EMAIL/LINKED IN

wburleson@sd61.bc.ca

GOOGLE FOLDER:

TEACHER RESOURCES APPLIED IN THE PILOT PLE



TEACHER-LIBRARIANS
SUPPORTING INQUIRY-BASED
LEARNING



It is irrefutable that education is entering a period of radical discontinuity . . .that Web 2.0 will continue to be a major element in enabling learner autonomy."

(Conradie, 2014, p.255)

In my 14 years as a high school teacher-librarian,

I've observed the increasing influence of online technologies upon student learning. Computers, tablets, and mobile devices connect our students to a vast network of information beyond our classrooms, school libraries, and institutional software. This part of the network is Web 2.0 – a major element within the Personal Learning Environment.

Web 2.0 is loosely defined as technologies inclusive of mobile computing devices, social media and online platforms that enable users to communicate, collaborate, and create nodes of knowledge. Web 2.0 generally offers an introductory service level that is free of charge and requires minimal technical expertise. Since the early 2000s, Web 2.0 has expanded from dozens to hundreds of options. Examples include blogs, wikis, forums, Google Docs, social bookmarking (e.g., Diigo, Delicious), photo and video sharing (e.g., Flickr, YouTube) and social media (e.g., Facebook, Instagram, Vine, Twitter).

The impact? Students have more choice and voice -- yet also a complex information landscape to navigate compared to students of even a decade ago. Nevertheless, carefully implemented, Web 2.0 can exert a positive and powerful influence upon student learning, not only formal learning students in classrooms, but also in the informal lifelong learning that extends far beyond school walls and graduation.

Skeptics may dismiss Web 2.0 as yet another trend in the evolution of information technology, pointing out

that no technological innovation applied to date in education has ever supplanted teachers and effective teaching, including films, computers and the internet. Nevertheless, the ubiquitous presence of Web 2.0 and its continuing evolution are challenging long-held ideas about teaching, learning, and the learning environment. No longer are teachers the sage-on-the-stage when students have access to a vast network of knowledge beyond their class and school community. This change has been evolving since the early 2000s – long before at least one researcher asserted that education is entering a period of significant discontinuity, partly as a result of the proliferation of Web 2.0.

Teachers cannot stop this wave, but they can help their learners ride it with skill and balance; teachers are absolutely essential in all aspects of the personal, the learning, and the environment as the frontline individuals who must implement significant changes to curriculum. In British Columbia, for example, an early iteration of the provincial education plan asserts the need for “new learning environments that place each student's passions as the focal point of curriculum” (British Columbia Ministry of Education, 2011) and for developing a broad range of 21st century competencies. These passions and competencies may be harnessed in the Personal Learning Environment, an approach that has been widely discussed in the literature about education since 2005. We, as teachers, need to explore the potential of this environment for student learning -- and we, as teacher-librarians fulfill unique roles for providing leadership.

Wendy Burtleson

"the tenacious teacher-librarian"

In This Issue



MY CONCEPTION OF THE PLE: INDIVIDUALIZED
NODES OF LEARNING THAT CONNECT IN A BROAD &
FLEXIBLY- FRAMED STRUCTURE

[Smith, B. \(2015, March 15\). Architecture \[Digital image\]. Retrieved October 15, 2015, from http://fotonin.com/737595.html](http://fotonin.com/737595.html)Architectural Wallpaper 1920x1200px[URL]

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PLE 101

What is the PLE?



MY CONCEPTION OF THE PLE: A BLUEPRINT WITH THE **PERSONAL** ELEMENT AS THE FOUNDATION FOR LEARNING AND OF A SPECIFIC LEARNING ENVIRONMENT

Enzu Architecture Wallpaper [Digital image]. (2014, January 8). Retrieved November 17, 2015, from

<http://freewallpapers.ga/downloadenzuarchitecturewallpaper.html>

Overview

A PLE includes elements of online learning, virtual learning environments (VLEs), and personalized learning, yet represents a distinct approach that evolved from newer pedagogical models such as Connectivism and from the growth of Web 2.0 in the 2000s.

The term personal learning environment (PLE) emerged in the literature circa 2005. No standard definition exists and the research is still thin, yet a PLE can be understood in terms of its basic elements: personal, learning, and environment, and in context of the roles students and educators play in shaping these elements.

These elements merge in an explicitly-shared online container of the student's learning. It might include a blog, information dashboard, a web site -- or any other online tool that allows a student to manage and share information with a small or large audience, private or public.

The Personal

At its core, the personal element of a PLE places a student in charge of self-regulating and self-directing personal learning. These processes involve choosing a personal topic of interest to research, setting learning goals, selecting appropriate learning strategies, resources and online platform to encapsulate all processes and products of individual learning. The personal element is the foundation in a PLE blueprint as the above graphic suggests. Learning and the environment are built from this foundation.

The Learning

Learning includes the information and information skills developed formally within a school and informally beyond the classroom. A PLE is intended to support learning in both contexts, whether a student is wishing to learn more about a topic within the curriculum or beyond it.

The Environment

The environment includes the locations of the student's formal or informal learning -- the broad network of physical and virtual spaces, learning communities, and Web 2.0 technologies.

Physical spaces include the classroom, school library, public library, museum or any other location connected to the learner's topic of interest.

Learning communities include individuals with expertise on the topic – teachers and other individuals who may serve as resources face-to-face or online.

Web 2.0 includes hundreds of possible free online tools that facilitate communication, collaboration, and sharing of knowledge (see PLE Glossary and Resources on p. 24 for examples). It is not only a network of places – but also a network of interactions between students, their peers, and individuals with topic-area expertise.



Teacher

Student

“Although this model [a PLE] is focused upon the personal needs of the learner, teacher guidance and modelling for students is foundational in each of these processes, and the roles of the teacher and student demand equal participation”
(Ahmed & Ahmed, 2012, as cited in Burlison, p. 3-4).

Roles of the Teacher/TL & Student

A PLE challenges the traditional top-down model of teacher as unilateral expert -- but it also places the teacher as an essential guide in each step of the learning process. As the graphic of a weigh scale suggests, the roles of the teacher and student are balanced in the sense that both fulfill key roles in directing the learning.

Step 1: Build the Personal

Student

- ▶ Choose learning topic.
- ▶ Set learning goals (content to learn, skills to acquire).
- ▶ Choose learning strategies to achieve learning goals.

Teacher/Teacher-Librarian

- ▶ Identify ways of exploring topics and developing sub-topics related to curriculum and extending beyond course resources.
- ▶ Collaborate with colleagues (e.g., teacher-librarian) based on students' topic choices.

- ▶ Introduce and model a range of learning strategies.

Step 2: Manage the Learning

Teacher/Teacher-Librarian

- ▶ Develop learning outcomes.
- ▶ Manage student attitudes and expectations; a PLE will be new and challenging to many students.
- ▶ Create opportunities for learners to seek out and respond to each other.
- ▶ Introduce divergent perspectives.
- ▶ Structure learning that places high value on student perspectives – introducing participatory technologies (blogs, wikis, forums, virtual bulletin boards) for students to share ideas.
- ▶ Introduce students to the full range of potential resources (popular, scholarly, human resources, face-to-face and social media) as appropriate for the learning topic in consultation with the teacher-librarian.

- ▶ Introducing Web 2.0 tools for gathering and managing information (e.g. social bookmarks, Google Docs, information dashboards).

Student

- ▶ Select resources appropriate for the specific learning topic and learning goals (following lessons from the teacher and teacher-librarian).
- ▶ Participate in ongoing sharing with other learners, face-to-face and online.
- ▶ Self-evaluate regularly and explicitly (e.g., blog reflection).

Step 3: Co-create the Learning Environment

Teacher/Teacher-Librarian

- ▶ Motivate learners to assume ownership and control of their own learning.
- ▶ Teach concepts of digital identity, digital citizenship, and digital management -- using Web. 2.0 responsibly and ethically.
- ▶ Scaffold the introduction of Web 2.0 tools so that these do not become overwhelming and overshadow the learning topic itself.

- ▶ Provide lessons, workshops, and tutorials to help students navigate the tools.

- ▶ Pre-select/vet Web 2.0 tools to facilitate managing information, collaboration, and creating the PLE.

- ▶ Establish tone of the learning community – task deadlines and communication protocols/expectations.

Student

- ▶ Choose the Web 2.0 framework(s) for managing information collaborating and sharing.
- ▶ Customize the PLE space (e.g., blog) so that it is personalized in terms of content, visual design, and voice.
- ▶ Reflect upon the learning topic(s), learning goals, and learning growth through ongoing self-evaluation.
- ▶ Choose with whom and when to form interactions for learning – and the extent to which these are made visible to a public audience.

A PLE Glossary

British Columbia Education Plan

(BCEd plan): a 2011 document of this province's Ministry of Education which asserts the need for new learning environments that place each student's passions as the focal point of curriculum and for developing a broad range of 21st century competencies in a student's academic and personal life. This document does not directly reference PLEs but it does indirectly describe the general characteristics of a PLE.

Connectivism: a theory and pedagogy that focuses upon how learners create and sustain networks of humans to human and non-human resources for the purpose of synthesizing the knowledge distributed throughout this network.

Critical Information Literacies

(CILs): the complex set of behaviors, attitudes and interactions adopted by a learner to engage critically in information landscapes. These literacies are developed in a PLE.

Formal vs. Informal learning: the learning that is organized and directed by academic institutions who deliver credentialed courses and programs versus the learning directed by the student. PLEs support both learning contexts.

Heutagogy: self-determined learning that places responsibility for the learning path upon the learners. A PLE draws upon this pedagogy in that the learning environment is built upon student goals.

Information Communication

Technologies (ICTs): tools applied to integrate instructional models such as 21st century learning, project-based learning, and inquiry-based learning. Web 2.0 tools are one example of ICTs.

Networked Learning: A term used to explain that the learning environment of a PLE is built upon vast nodes of knowledge in physical and virtual places.

Pedagogy 2.0: a model that challenges the traditional top-down hierarchy of the teacher as unilateral expert and instructional designer. This model emphasizes the role of the students in contributing to this design through participatory Web 2.0 technologies.

Web 2.0: the full range of online tools that facilitate communication, collaboration and creation of nodes of knowledge. Examples of Web 2.0 tools include blogs, wikis, forums, Google Docs, social bookmarking tools, video and photo-sharing platforms and social media.

Virtual Learning Environment

(VLE): an online learning environment that is created and managed by an educational institution for a specific group of learners. It usually includes course content and features enabling online collaboration. Blackboard Academic Suite, Moodle and institutionally-managed Google Apps for Education (GAPE) are examples. VLEs can function as the larger container that houses individual PLEs.

21st Century Competencies:

Competencies identified in both the BCEd plan and globally in education as essential within a student's academic and personal life, including creativity and innovation, communication and collaboration, research and information fluency, critical thinking, problem solving and decision-making, digital citizenship and technology operation.

PLE Potential:

Lessons from the Literature



- ▶ literature includes mainly academic studies; few from practising teachers
- ▶ lack of empirical research about impact on student self-regulation, learner autonomy, cognitive and metacognitive skills
- ▶ time required to track and assess PLEs
- ▶ time required to invest in learning about continually-evolving Web 2.0 and in vetting possible tool options for students
- ▶ teacher awareness and buy-in; PLEs are fairly new to most of the education community
- ▶ student buy-in; perceiving PLEs as requiring too much time and effort
- ▶ potential for focus shifting from learning design to technology, when emphasis should be upon pedagogy
- ▶ technological barriers(e.g. firewalls, slow network) interfering with the use of Web 2.0.
- ▶ systemic support support needed for successful implementation; administration, teachers, and school culture



“*Adopting a networked learning approach would require considerable teacher professional development and philosophy different from that of most educators . . .an approach that would greatly affect school policy, hiring practice, and pre-service teacher education.*”
(Drexler, 2010, p. 140)

- ▶ model founded upon sound pedagogies
- ▶ flexible approach – many possible iterations for different learners
- ▶ wide choice of free, easy-to-use and accessible tools: PLEs are built upon Web 2.0, not dependent upon institutional subscriptions
- ▶ facilitates student autonomy in terms of self-directing and self-regulating parts of the learning process
- ▶ prepares students to manage and organize complex information landscapes
- ▶ facilitates development of *critical information literacies* (CILs)
- ▶ supports formal and informal learning
- ▶ helps to manage the inquiry process for students and for teachers in an explicit, tangible framework
- ▶ complements the student-centered focus of BC’s new curriculum
- ▶ creates the potential for a rich learning environment since teacher collaboration is foundational to a PLE

The PLE in Practice:

A pilot project in grades 9-12 Student Leadership

Teaching Context & Genesis of the PLE

In my high school, Student Leadership is a full-year course focused upon school, community and global activities. The cohort size and diversity of students poses significant challenges for tracking individual goals, participation, and growth even though the course is facilitated among one administrator and two teachers.

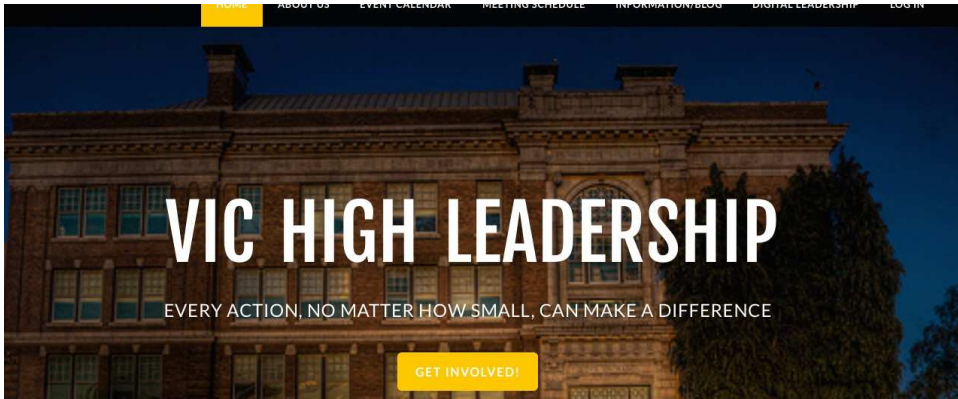
This year's cohort included ninety students from grades 9-12, many of whom are international students and English language learners. This year, the leadership teachers were looking for ways to help students become more individually accountable for their leadership participation and learning growth while streamlining the teacher evaluation process for the large and diverse cohort.

One possibility discussed among the Leadership teachers was a blog – an online journal that could supplant the written journal of previous years. When the blog idea was shared with me, the teacher-librarian, I perceived that it could function as the PLE I had been researching in my Master of Education Program, and that I could play a key role in supporting the implementation.

Collaborative Planning

I met with leadership teachers to establish a clear understanding of their class composition and instructional goals and to communicate my vision for a PLE that included blogs as a starting point. This vision included a three-part lesson sequence for students to establish individual blogs that would document their learning and activities in an explicit yet private way, functioning as journals visible only to their classroom teachers. Following the lesson sequence, once students had firmly established blogging skills and routines, I suggested introducing public PLEs that students could use to promote their leadership activities to a wider audience. Students would learn about a variety of PLE frameworks that facilitate communication and collaboration through Web 2.0 and choose the framework to best further their goals.

Following our meeting, the leadership teachers agreed to allocate three hours of instructional time to be spread throughout a three-week period and held in the school library. We clearly divided our roles and responsibilities for managing the project and built in opportunities for informal meetings as the lessons progressed.



A VLE FOR STUDENT LEADERSHIP, BUILT BY ONE LEADERSHIP TEACHER

Roles of the Leadership Teachers

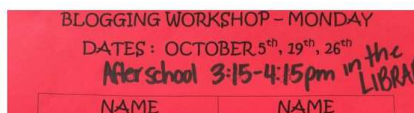
- ▶ creating the VLE for Student Leadership, a web site including an information blog showing the students' sign-up times for each weekly blog lesson.
- ▶ setting the days/times for each week's blogging session: two after-school and one before-school, each one hour in duration.
- ▶ managing and allocating student sign up for one time slot each week, dividing the group of ninety into three manageable groups.
- ▶ sending text reminders to students prior to each blogging session.
- ▶ attending blog sessions and monitoring attendance.
- ▶ monitoring student challenges during the class and providing assistance.
- ▶ creating the prompts for the blog posts.
- ▶ establishing and communicating clear expectations for attendance and credit. In this pilot, Student Leadership teachers made completion and ongoing blog posts mandatory for course credit.



Blogging Schedule

9/30/2015
0 COMMENTS

These workshops are MANDATORY! ALL leadership students need to take part. This means YOU!
The Monday workshop is already overbooked, so please arrive on time to guarantee your seat.



BLOG SCHEDULE CREATED & POSTED BY A LEADERSHIP TEACHER ON THE COURSE VLE BLOG



[A VLE FOR STUDENT LEADERSHIP](#), CREATED BY THE TEACHER-LIBRARIAN

Digital Leadership

Leadership skills and activities can be developed, managed and shared online through a **Personal Learning Environment** such as a **blog**

In a series of three lessons during the month of October, teacher-librarian **Ms. Burleson** will show you how. Slides of each lesson are posted below as visual reminders of key points, but attendance at the lessons is essential for each to make sense.

Roles of the Teacher-Librarian

- ▶ creating the instructional design for the three-part lesson series as follows:
 - establishing goals and learning outcomes related to CILs
 - creating the lesson framework
 - creating and managing lessons and resources through a VLE titled Digital Leadership that was linked to the Student Leadership VLE and to the library web site
- ▶ creating a model blog to ascertain potential students might encounter
- ▶ vetting/testing several possible blogging frameworks – understanding the pros and cons of each framework prior to selecting options for students
- ▶ collecting blog URLs and organizing them on a blog page for the Leadership teachers to view and assess
- ▶ collecting feedback and questions from the students following each blogging session
- ▶ providing initial feedback to students on their blog shell and first post.
- ▶ providing ongoing communication and feedback to Leadership teachers regarding next steps based on strengths and challenges observed in each lesson.



[A SIMPLE MODEL BLOG SHELL FOR STUDENT LEADERSHIP](#), CREATED BY THE TEACHER-LIBRARIAN

Design & Implementation

Lesson #1: Blogging Introduction & Sandbox Session

Lesson #1 Oct. 5-9: Digital Communication -- Why is a blog useful? What are some blog platforms I could use?

Tasks to complete for next week:

- 1) Try the different blog platforms and experiment with them.
- 2) If you have time, write response to this topic in Word (don't worry about putting this into a blog yet)

TOPIC: "This is me. (my goals, hopes, dreams, likes, dislikes)"

[Link to recommended blog platform choices](#)

[Link to slides/lesson from Lesson #1](#)

The first blog lesson introduced students to the possibilities of blogging. Two inquiry questions established focal points: "To what extent can you manage, share, and enjoy your learning in Student Leadership more effectively? To what extent can an online "Personal Learning Environment" such as a blog be a helpful approach?"

Students began by responding to a survey question asking about the kinds of school, community, or global endeavors they wished to explore in Student Leadership. These personal learning goals were subsequently connected to the concept of a PLE and to meaningful, in-depth learning. The blog was introduced as only one possible framework for a PLE, but an essential one that all students would be expected to apply Leadership course.

To illustrate the power of blogging, I showed a video interview with successful teen blogger Tavi Gevinson who launched a globally popular and successful blog titled *Style Rookie* at the age of thirteen. This brief but engaging interview illustrates the

However, an example closer to home afforded a more powerful example. The week I introduced this lesson, I learned that a student in my school had been writing and managing a blog related to her ventures in gardening through the school and beyond. I invited this student to the following week's lesson to show her blog and describe its evolution.

Students then had class time to explore several blogging platforms recommended by the teacher-librarian as shown below. I provided a brief verbal introduction to each platform but let the students explore platforms through the introductory videos I posted and/or through their own experimentation -- hence the term *sandbox session*. They were asked to have a platform selected for the next blogging class.

A FEW POPULAR BLOG PLATFORMS (2015)



Design & Implementation

Lesson #2: Digital Identity

HOME ABOUT US EVENT CALENDAR MEETING SCHEDULE INFORMATION/BLOG DIGITAL LEADERSHIP

Lesson #2 Oct. 19-23: Digital Identity -- How can you maintain a balance between being personal/being yourself, and protecting your privacy when you are posting online? What kinds of safeguards should you use when blogging?

Tasks to complete BEFORE your third and final blog session next week:

- 1) Complete your blog shell by going through the checklist handed out in class (and posted at the link below). Hand in this checklist to Ms. Burlison. Look at the online sample blogs below.
- 2) Review Ms. B's lesson about setting up a Weebly blog at the link below if you need help OR see Ms. Burlison in person for help.
- 3) Complete your first post, "This is me (my goals, hopes, dreams, likes, dislikes)." This MUST be complete BEFORE your class during the week of Oct 26-30.

[Link to sample blogs -- From Ms. B and From Eden](#)

[Link to blog checklist](#)

[Link to slides/lesson From Lesson #2](#)



[Pixabay Public Domain Images \[Digital Footprint\]. \(2013\). Retrieved October 23, 2015, from https://pixabay.com/p-69996/?no_redirect](#)

The second blog lesson focused upon helping students refine or remake their blog shell from the sandbox session of the previous week, and to introduce the concepts of *online identity/online footprint*.

The class began with a student guest who introduced her blog, explained why she began it and provided tips and advice for getting started. This ten-minute introduction served as an effective hook because it represented a personal example from a peer and reinforced the lesson of the previous week.

I then introduced the topic of online identity, emphasizing the importance of guarding privacy around personal identity and personal details, even though these blogs would not be shared publicly. Many students seemed unaware that no online information is truly private -- that this information resides on a server somewhere in the world and is therefore beyond one's personal control. Even if deleted, a blog or any other online communication

never disappears. This is the online footprint.

Although I showed students how to adjust their blog's privacy settings, I posed the following questions as a guideline for posting content and images: "If you ran for politics ten years from now, would you feel comfortable in having your blog posts made public? Would you be comfortable with a prospective employer reading them?"

Students were provided with explicit guidelines for protecting privacy: providing first name only, avoiding school or city name, photos that clearly identify individual faces or might violate a peer's privacy, and posts that reveal information of a highly personal nature. At this point, I distributed a blog checklist and gave students the remainder of the class to edit their blogs against the criteria. Students submitted their checklists and blog URL to me for review and feedback. This checklist is accessible from my online folder of resources (p. 24).

Design & Implementation

Lesson #3: Digital Management

The third blog lesson focused upon helping students self-regulate their activities in student leadership by documenting events in terms of date, description, time, and supporting reflection.

I opened the class by showing a new menu tab I added to my sample blog The Living Library (p. 12) -- a tab titled My Activities that linked to a spreadsheet created with Google Sheets. I emphasized that Google Sheets would be invaluable tracking numerous activities in an organized framework on an ongoing basis, serving as an online portfolio for the course.

After showing my blog, I demonstrated the process of creating a Google Sheet. I demonstrated how to move grid lines, wrap text to compress long lines of information more compactly, use data/numbers to record numbers as decimal points, and apply the sum feature to add numbers. Students were

then given independent work time to develop a Google Sheet for all leadership activities to date including the three introductory blogging sessions, and to get assistance as needed.

The next step entailed demonstrating how to create a blog menu tab titled My Activities, how to link the Google Sheet to this tab, and how to make the Google Sheet viewable to anyone with the link. "Anyone," in this case meant the Leadership teachers and me only since all blogs were posted on a web site page accessible only to these individuals.

The lesson concluded with the return of blog checklists submitted the prior week and an assignment for a second blog post: "Choose one Leadership activity that represents a highlight to date and discuss what you did and what you learned. Next, hyperlink your blog post in the Evidence column of your Google Sheet."

[SAMPLE GOOGLE SHEET DEVELOPED BY THE TEACHER-LIBRARIAN](#) TO ILLUSTRATE THE FUNCTIONS AND LAYOUT OF A GOOGLE SHEET TO TRACKING LEADERSHIP PARTICIPATION.

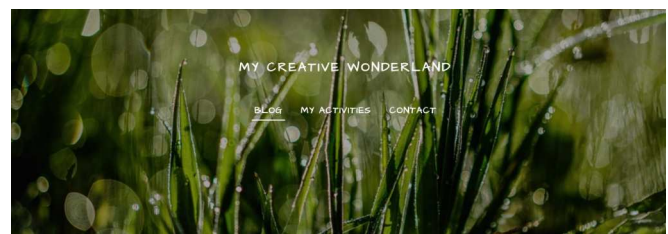
	A	B	C	D
1	Date	What I did	My time	My Evidence (Blog Reflection or other)
2				
3	10/5/2015	attended first blog class	1.00	
4	10/19/2015	attended second blog class and completed first blog post	1.00	http://msbleadershipblog.weebly.com/my-blog/about-me
5	10/26/2015	attended third blog class	1.00	
6				
7		TOTAL	3.00	

Beginner Blogs

These are five examples of student blogs following the second blog session. Students selected a blog platform, banner image, created a brief author statement about themselves, customized their fonts and colors, and wrote a post on the topic, "This is me." Students completed a blog checklist, recorded their URLs and questions/feedback about the lesson.

Initial Guidelines:

- ▶ clean and simple design
- ▶ private (first name only, no identifying information about school or city, blog settings adjusted to make blogs invisible to search engines)
- ▶ personalized: content, images, and visual design tailored to reflect personal interests, personality or concept of leadership.





Personal Reflections on the PLE Pilot

Q. Was a blog a good choice for beginning a PLE?

A. Yes! Most students found the suggested platforms intuitive (the exception being Wordpress) -- especially Weebly which represented the most popular choice in this pilot.

A blog was also familiar to one of the Leadership teachers, and its features fit her goals for the students including creating more opportunities for student self-regulation and self-direction.

Q. What were some of the challenges in getting students to create the blog and first post?

A. The diversity of grade levels, wide range of prior experience blogging, as well as language and comprehension skills. After the first lesson, few blog shells were created -- understandable since this lesson was intended to build buy-in, partly by allowing for experimentation.

Still, after the second lesson, which guided students through blog creation step-by-step and articulated clear expectations through a written checklist, blogs were in various states of completion.

Q. What challenges did the teachers experience?

A. It was challenging to watch students encounter technical challenges, when we as teachers did not have immediate solutions for every issue, particularly for those students who selected a platform other than Weebly. Nevertheless, although it is important to provide starting points (examples, demonstrations and video clips) for students, it is also essential to let them work toward solving some of the issues themselves and with peers since a PLE in its most sophisticated iterations will draw upon a number of technologies, all of which cannot be (nor should be) introduced by the teacher. Trial and error are part of the learning process.

Moreover, teachers must allow time for students to develop the skills and motivation to self-regulate. A blog -- as well as other other PLE frameworks -- isn't merely a product. It is a process that requires time to develop.

Q. What would I do differently?

A. Introduce a student blog from my school during the first lesson since the peer example served as the most powerful hook. More significantly, check the school district's policies and parameters regarding blog options and any other applicable Web 2.0. tools. Some third-party applications may not fit the district's plan to comply with provincial laws for mitigating privacy risks to students.

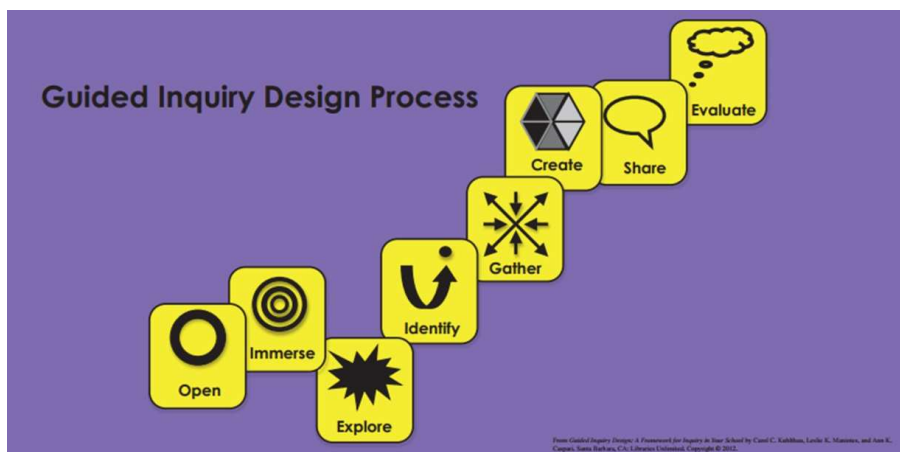
Smart Start: Building a PLE

Proposed Best Practices & The Roles of the TL

1. Build a culture of inquiry

A PLE can be a powerful framework to facilitate inquiry-based learning since its key features naturally interface with this approach. Kulthau et.al (2012), prominent researchers of guided inquiry design, describe it as "a way to rethink learning and transform schools . . .so that all children become prepared for life and work in the information environment [developing] academic competency, career readiness, and life skills" (p. xiii).

Like a PLE, guided inquiry harnesses a broad network of physical and virtual resources, utilizes collaborative processes, builds upon a learner-centered approach to a research problem or question and facilitates a high degree of self-regulation and self-direction. Therefore, building a culture of inquiry – rather than a culture of technology – is the first step in building a PLE. A culture of inquiry can and should be developed through the school library, especially



THE GUIDED INQUIRY DESIGN PROCESS (Kulthau et al., 2012, p.2)

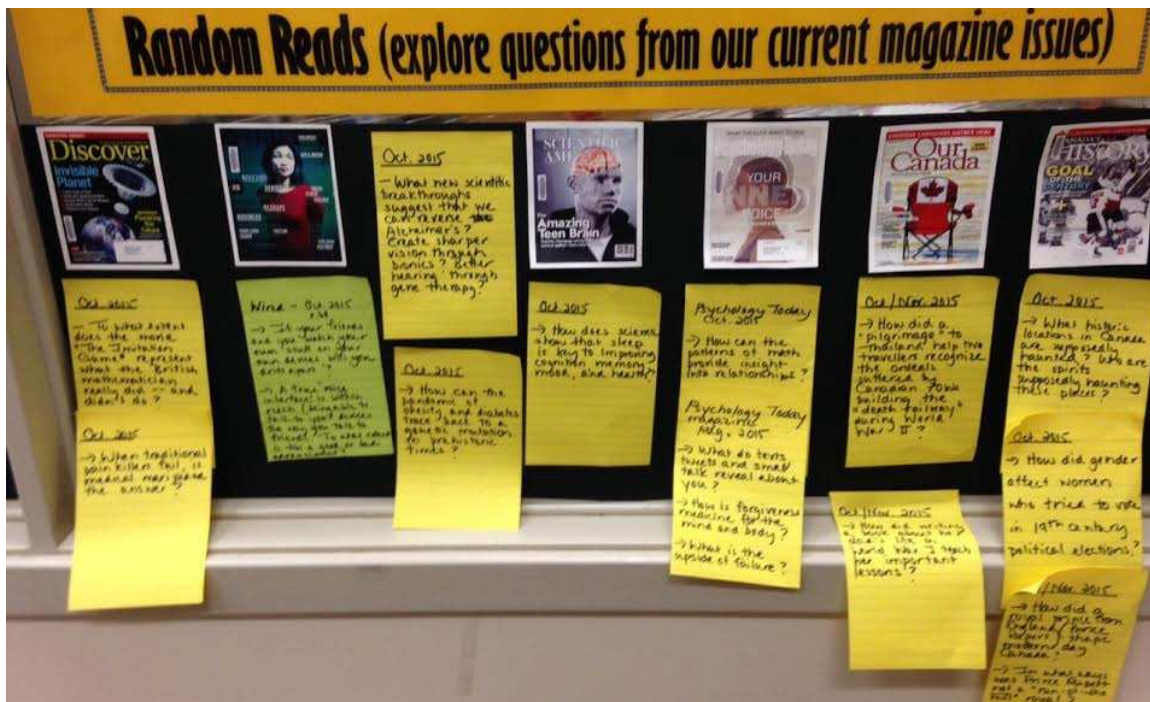
as the teacher-librarian fulfills key leadership roles as an information specialist.

Examples of leadership in my role of teacher-librarian to date includes the following:

- ▶ beginning and leading a professional book club of teacher-librarians focused upon the book *Guided Inquiry Design* (Kulthau & Maniotes, 2012)
- ▶ co-creating, with colleagues, a large Guided Inquiry Design bulletin board display
- ▶ building an ongoing display of inquiry question based on topics in the daily news, and in monthly magazines as a way of stimulating student curiosity
- ▶ publishing these inquiry questions in the library's monthly newsletter to staff as an inspiration for cross-curricular inquiries
- ▶ working with teachers to support students in all aspects of the inquiry process and in different roles as envisioned in the blueprint depicted in this resource (p. 22).



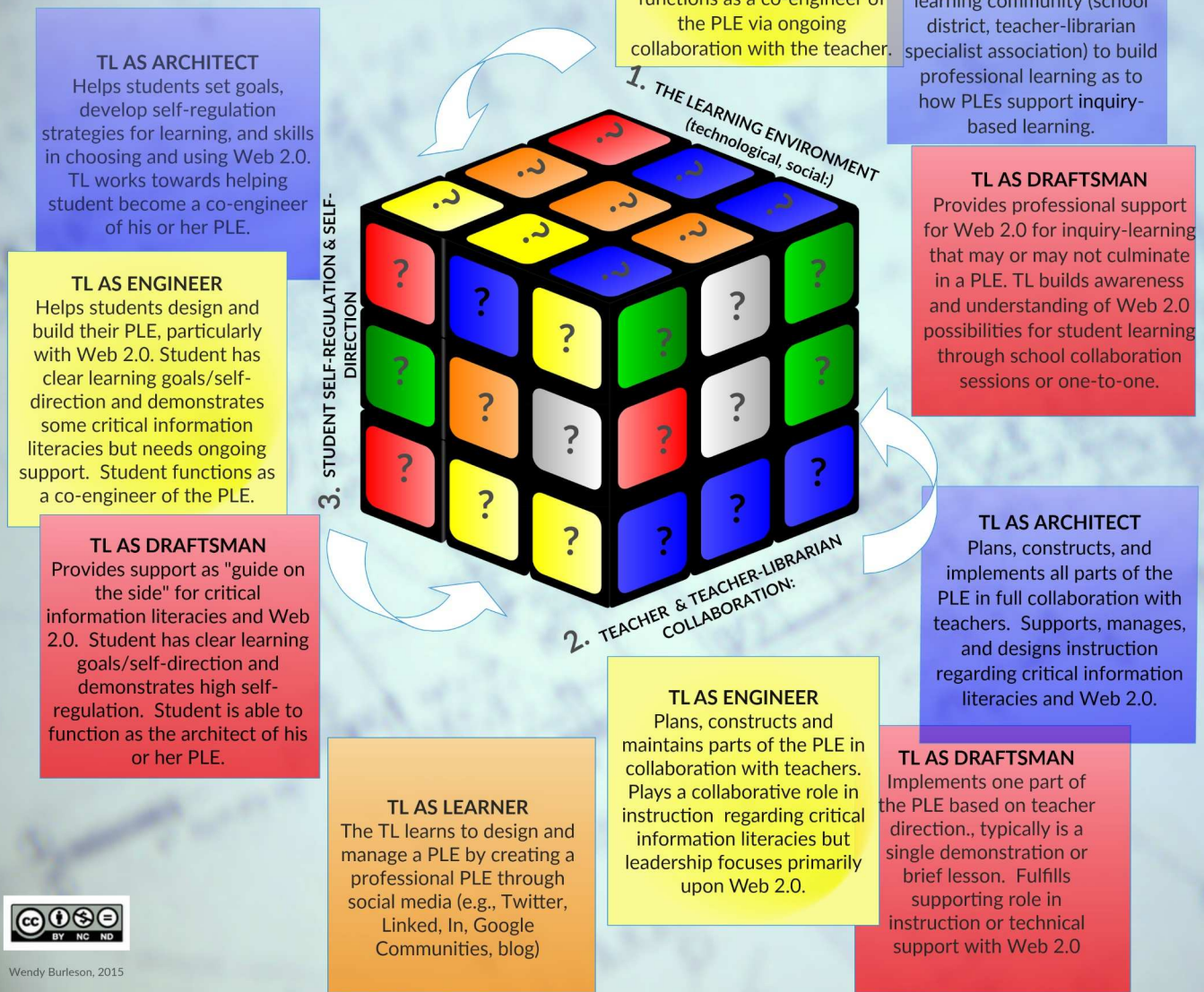
CUSTOM-MADE LIBRARY BULLETIN BOARD DISPLAY OF THE GUIDED INQUIRY PROCESS -- INCLUDING KEY BENEFITS OF THE PROCESS (Kulthau, et. al, 2012) .6 x 5 feet. Display created by a teacher, the teacher-librarian, and library clerk. Original Photo by Wendy Burleson.



CREATING A CULTURE OF INQUIRY: QUESTIONS BASED ON ARTICLES IN MONTHLY MAGAZINES AND THE DAILY NEWSPAPER, AND DISPLAYED AT THE ENTRANCE OF THE SCHOOL LIBRARY. Original photo by Wendy Burleson.

A Blueprint for Teacher-Librarian Leadership in the PLE

BUILDING A BLUEPRINT FOR A PERSONAL LEARNING ENVIRONMENT (PLE) A REPRESENTATION OF TEACHER-LIBRARIAN ROLES & CHALLENGES IN A K-12 SCHOOL SETTING



Wendy Burleson, 2015

[Rubik's Cube \[Pixabay CC0 Public Domain Images\]. \(2012\), Retrieved October 28, 2015, from https://pixabay.com/p-25817/?no_redirect](https://pixabay.com/p-25817/?no_redirect)

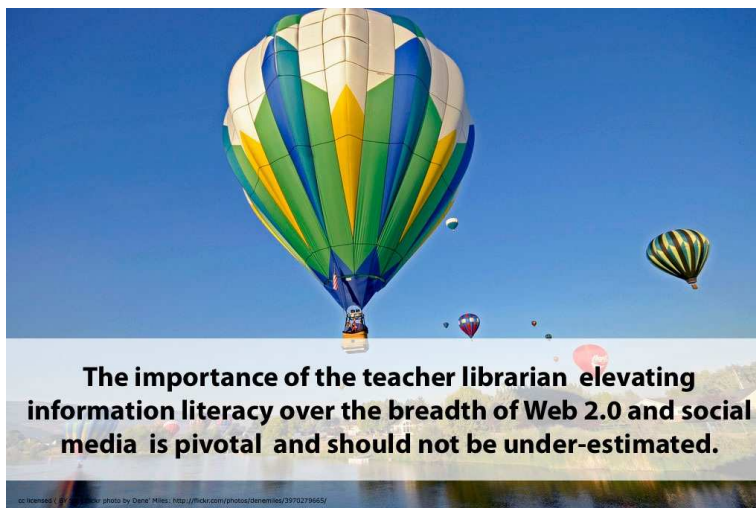
ORIGINAL MODEL & DESIGN BY WENDY BURLESON, CREATED USING [CREATELY.COM](https://www.creately.com)

A Rubik's cube is an apt metaphor for the leadership roles of the teacher-librarian in the PLE.

The three visible sides represent the central dimensions the teacher-librarian must consider before implementing a PLE: students' self-regulation and self-direction, teacher readiness to collaborate, and the technological and social learning environment.

The multi-colored squares with question marks illustrate the variables that will naturally exist among learners and teachers – all of whom will bring unique prior knowledge, perceptions, and experience with CILs and Web 2.0. These variables will be discovered as the teacher-librarian begins to build relationships with teachers and students as well as to develop their skills with Web 2.0.

The primary colors of the squares capture the three central roles a teacher-librarian can fulfill in the PLE implementation process: as a draftsman, engineer, and architect. However, a teacher-librarian may fulfill a different role for teachers than for students depending upon many variables, including those of the learning environment.



[O'Connell, J. \(2011, October 27\). The importance of the teacher-librarian \[Digital image\]. Retrieved October 28, 2015, from https://www.flickr.com/photos/heyjude/6285547874](https://www.flickr.com/photos/heyjude/6285547874)

The arrows represent the dynamic process of creating a PLE – but with a different goal than in the Rubik's cube. The goal is not to create identical sides of colors but instead a multi-colored pattern which represents the unique iteration of students, teachers and the learning environment. The teacher-librarian must assume a participatory role in determining the iteration that best suits a particular learning context..

This role involves planning a PLE, monitoring and evaluating its implementation in each stage. Planning includes collaborating with the classroom teacher to ascertain learning goals and outcomes, and to obtain a general sense of the students' self-direction towards learning goals/ inquiry questions and capacity for self-regulation.

The planning process extends to ongoing team evaluation and implementing modifications to the instructional design by scaffolding lessons around learning goals, learning strategies, Web 2.0, and critical information literacies.

Conceptualizing the PLE as a Rubik's Cube can assist a teacher-librarian in ascertaining the leadership roles they might assume in a particular learning context -- as well as serve as a visual reminder that there is no single model. Nevertheless, every model will function as one building block toward other PLEs across the curriculum -- potentially leading to wider adoption of the PLE framework as a blueprint for 21st century learning.

PLE Resources

SCHOLARLY SOURCES: The Research on PLEs

Ahmed Khoja, S., & Ahmed Shaikh, Z. (2012). Role of teacher in personal learning environments. *Digital Education Review*, (21), 23-32. Retrieved from <http://files.eric.ed.gov/fulltext/EJ972714.pdf>

Burleson, W. (2015). *The roles of personal learning environments and the teacher-librarian in facilitating inquiry-based research: a flexible framework for a high school learning environment*. (Master's thesis, University of Victoria, Victoria, B.C.) Retrieved from <https://dspace.library.uvic.ca:8443/handle/1828/1350>

Conradie, P. W. (2014). Supporting self-directed learning by connectivism and personal learning environments. *International Journal of Information and Education Technology*, 4(3), 254-259. doi:10.7763/IJiet.2014.V4.408

Drexler, W. (2010). The networked student model for construction of personal learning environments: Balancing teacher control and student autonomy. *Australasian Journal of Educational Technology*, 26(3), 369-385. Retrieved from <http://www.ascilite.org.au/ajet/ajet26/drexler.html>

Kuhlthau, C. C., Maniotes, L. K., & Caspari, A. K. (2012). *Guided inquiry design: A framework for inquiry in your school*. Santa Barbara: Libraries Unlimited.

PRACTICAL RESOURCES: Teacher Tools

British Columbia Ministry of Education. (2011). B.C.'s education plan. Victoria, B.C. Retrieved from <http://www.bcedplan.ca> and http://www.bcedplan.ca/assets/pdf/bc_edu_plan.pdf

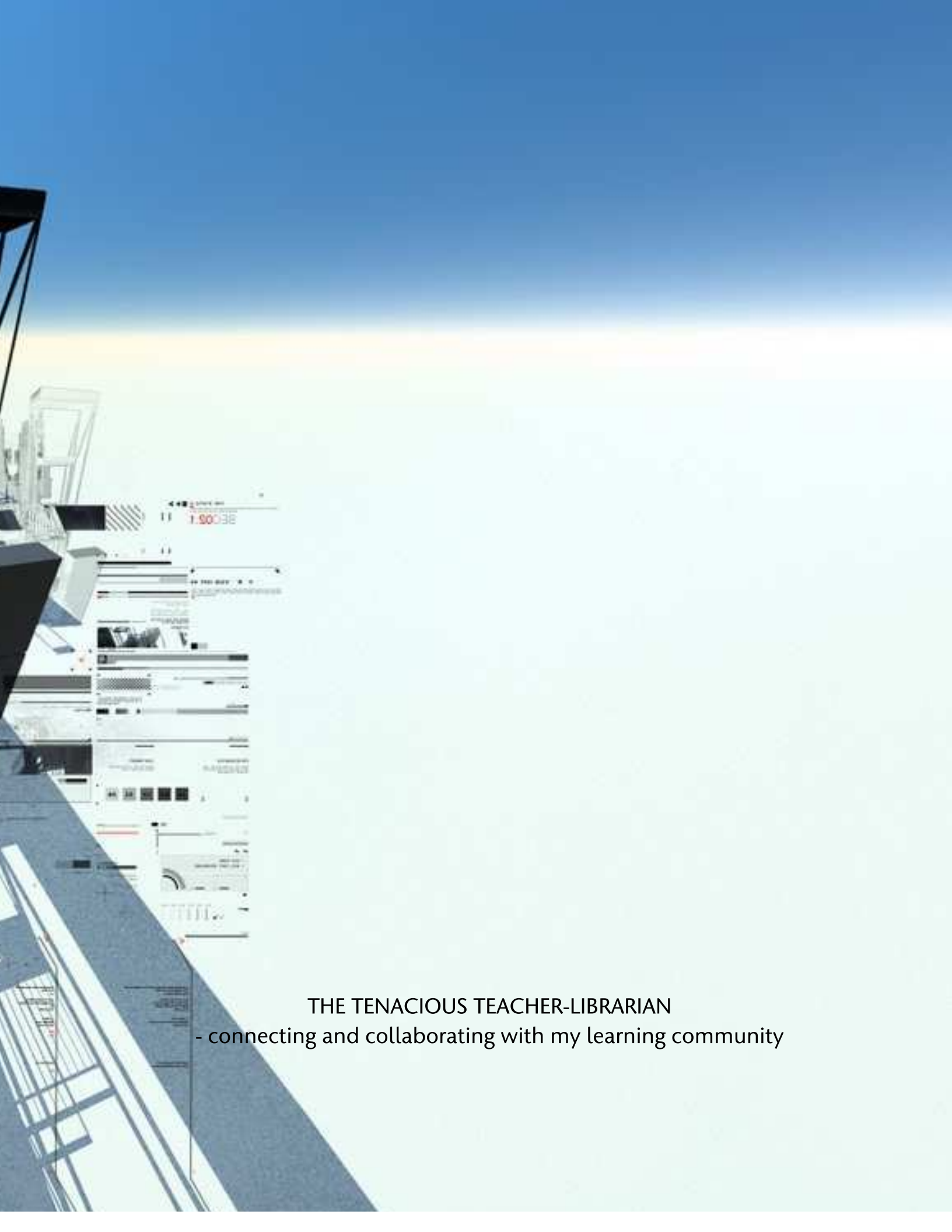
An early iteration of the BCED plan, since updated January 2015. The 2011 plan clearly suggested the impending changes in the focus of curriculum.

Burleson, W. (2015). Supporting resources for a PLE pilot in student leadership. Public Google folder. <http://tinyurl.com/oguzsyk>

This public Google Drive folder contains surveys, checklists, slides, and all other resources that I developed and applied in this pilot project. Teachers are encouraged to re-use, share or modify these resources.

Coursera: University of Houston. (2015). Powerful tools for teaching and learning: Web 2.0 tools. <https://www.coursera.org/course/newtechttools>

THE TENACIOUS TEACHER-LIBRARIAN
connecting and collaborating with my learning community



THE TENACIOUS TEACHER-LIBRARIAN
- connecting and collaborating with my learning community

Chapter Four: Reflections and Future Directions

Project Summary

This Master of Education (M.Ed) project explores the potential of a PLE by drawing from recent peer-reviewed literature (2010-2015) and from personal experience leading a short-term pilot project in a single course. As the curriculum of British Columbia undergoes dramatic changes during the next few years, the PLE holds potential for merging a learner-centered focus, 21st century competencies, and critical information literacies. A PLE also facilitates a thinking-centered learning culture in a visible way for students and teachers, regardless of technological platform choices. However, the specific iteration of a PLE approach for a class – and for individual students – will depend upon many variables: students, teachers, the teacher-librarian, the technological environment of the school, and the policies and parameters of individual school districts guided by the *Freedom of Information and Protection of Privacy Act* (2015). As an example, some school districts are in the early stages of adopting Google Apps for Education (GAFE), incorporating district-managed tools such as Google Drive, Google Classroom, and Wordpress blog spaces, all of which facilitate PLEs in a network space that mitigates risk to teacher and student privacy.

Regardless of variables, this project illustrates the power of a team-based approach – especially when the teacher-librarian forms an integral part of that team by providing support for platform usage, expertise in critical information literacies, and broad knowledge of curriculum. The literature review and teacher resource in this paper outlines one iteration for a collaborative approach and provides a foundation for future pilots and qualitative studies of a PLE. Such studies might focus upon student learning, assessment, or the impact of the teacher-librarian

upon student learning. Although the teacher resource in this project represents an initial and rudimentary step towards putting theory into practice, there is potential for developing this publication into subsequent issues with teacher-librarian colleagues in my PLN, a resource that could be shared through a variety of platforms.

Professional Learning and Growth

My experiences developing this project and coursework throughout the M.Ed program changed my thinking about curriculum, yet reinforced my core beliefs about the roles of technology and the teacher-librarian in student learning. Exploring the concept of curriculum throughout graduate coursework taught me to think beyond curriculum as a mandated document of goals and learning outcomes to curriculum as a philosophy of education that is inextricably linked to curriculum and teaching practices. Egan (2003) asserts that “curriculum inquiry is educational inquiry [since] both properly address the *what* and the *how* questions together and deal with all the ramifications of trying to answer, ‘what should children learn, in what sequence, and by what methods?’” (p. 15). Egan’s paper catalyzed my interest in exploring how a PLE might facilitate this paradigm; reading peer-reviewed literature on PLEs then implementing a PLE pilot showed me that students should be given opportunities to self-direct content and self-regulate their learning. These learning opportunities facilitate critical information literacies – print, digital, media, and information literacies – all of which are essential to all students in the new curriculum of British Columbia. However, this project reinforces the need to maintain a thoughtful, analytical lens regarding curriculum implementation strategies. Nahachewsky and Slomp (2009) assert that “what may be most important to realize . . . is that we as educators and curricular theorists are not defined or authored during this digital age by any one moment, curriculum, or understanding of teacher or learner” (p. 129). As the curriculum of British

Columbia undergoes dramatic changes with many unknowns pertaining to provincial exams, assessment, and resources, this observation serves as a realistic touchstone for everyone connected to public education. The dynamic nature of technology, diversity of learners, teachers, and site-based variations in technologies cautions educators against promoting any single guiding philosophy at the expense of another. In practical terms, this dynamism challenges teachers to integrate the previous curriculum with the new – and challenges schools and school districts to provide resources, time, training, and new structures to support ongoing professional learning and collaboration.

Individually, developing and maintaining a PLN is an initial implementation strategy. My own PLN has included a face-to-face book club of teacher-librarians, a Twitter account, LinkedIn network, Google Community focused upon inquiry-based learning, and a publicly-shared blog, [The Tenacious Teacher-Librarian](#), that documents my thoughts about teaching and learning. I became both teacher and learner in this PLN, an experience that prepared me to understand that these roles are inextricably linked, often interchangeable, and foundational to understanding PLEs as well as other new approaches to teaching and learning: Maker Spaces, Genius Hour and Hour of Code to name a few. As discussed in Chapter two, teacher experience building a PLN is essential before building a PLE with students since are both founded upon networked learning, Web 2.0, and community-building.

Community-building emerges from face-to-face and online connections. Whether through attending monthly book club dinner meetings with teacher-librarian colleagues, virtual meetings with my M.Ed cohort on video chats, or participating as a guest speaker in a Google Hangout in an education podcast, these interactions created opportunities for ongoing sharing and discussion. Similarly, my experiences with PLEs in the classroom reinforced the importance

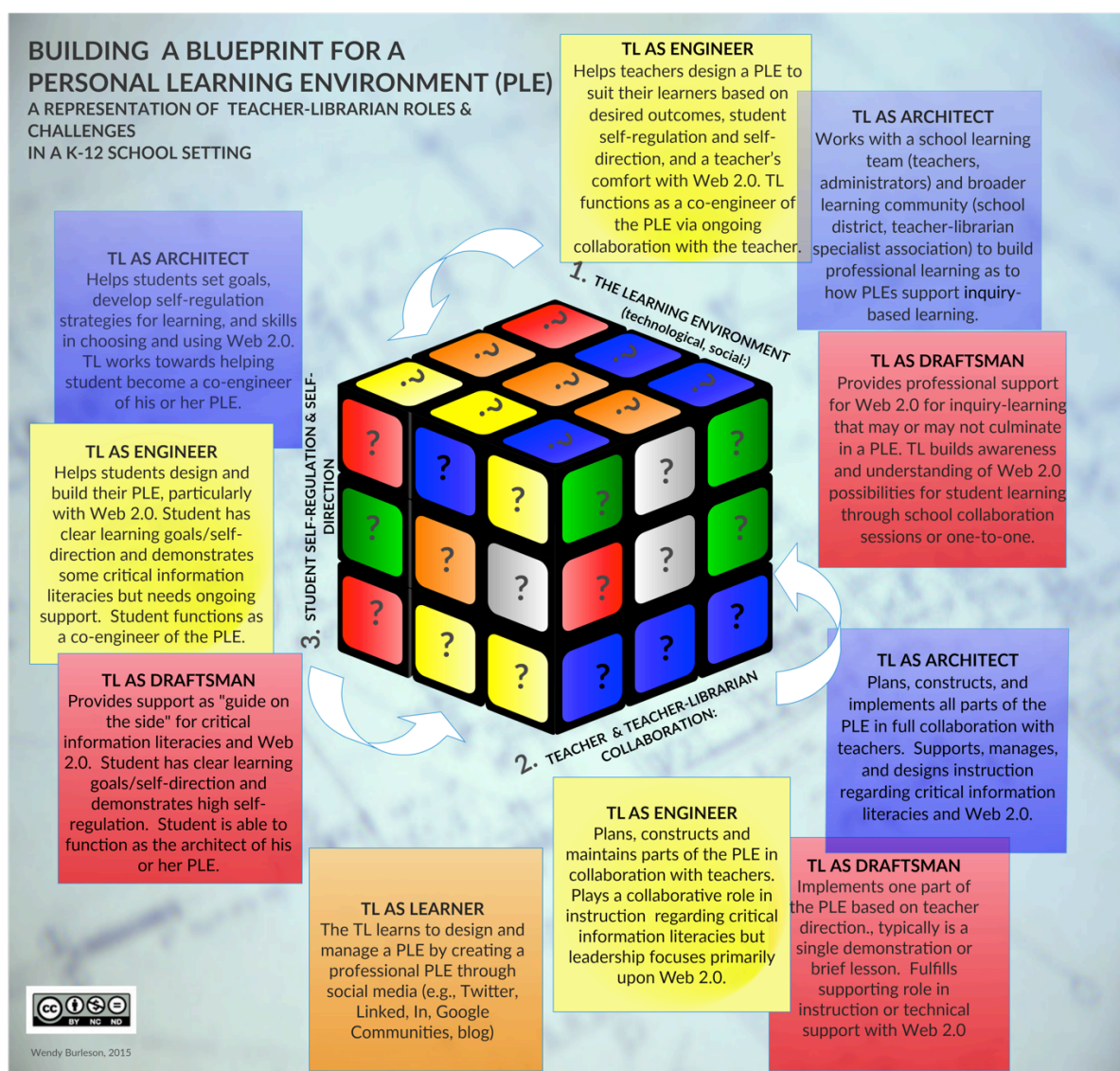
of building classroom community prior to introducing Web 2.0. Developing community involves fostering an atmosphere that promotes inquiry, risk-taking, and the roles of students in key decision-making roles involving their learning. Successful community building also develops from ongoing collaboration between subject teachers and the teacher-librarian. Teachers provide subject-area expertise and teacher-librarians provide expertise in critical information literacies related to print, media, information, and digital. Together, teachers and teacher-librarians guide students in establishing learning goals, outcomes, and expectations.

Moving Forward: Potential Impact of Professional Learning

Although there will be some differences in vision among those who draft curriculum and teachers who implement it, curriculum changes are inevitable and require strong instructional leadership. Part of teacher-librarian leadership will involve critically evaluating the application of Web 2.0 and PLEs for their impact upon learners, teachers, and in relation to core competencies, big ideas, curricular competencies, and content of the new curriculum. Too often, technology risks becomes the focal point of approaching student learning; hardware and software may be liberally applied with the goal of enhancing learning – goals with good intentions but that are often unrealized to their fullest potential. Reasons might include the need for a more thorough exploration of the extent to which existing technologies support sound pedagogies around learning, greater consideration of the technological infrastructure needed to support students and teachers on an ongoing basis – and also significantly, the missing link of teacher-librarian leadership at some district and provincial levels of decision-making. School libraries, whether termed libraries or *learning commons*, are natural hubs of technologies – computers, tablets, mobile devices and Internet access that connect students to physical and virtual resources and learning experiences. Teacher-librarians are tasked with possessing a broad understanding of

curriculum across subject areas, working with all subject teachers and departments, and applying a variety of technologies for communication -- not only Web 2.0 but also a range of databases and online resources to build students' critical information literacies. As Figure 1 suggests (Burluson, 2015), teacher-librarians can be positioned to function as draftsman, engineers, and architects in building the blueprint for PLEs and 21st century learning initiatives although individual roles will differ based upon these variables: student self-regulation, teacher collaboration, the technological and social affordances of the learning environment, and the capacities of individual teacher-librarians.

Figure 1. A blueprint for a personal learning environment and teacher-librarian roles



Embedded roles within a school place teacher-librarians in a unique and influential position as builders of the PLE blueprint in many different roles – although this position is contingent not only upon the teacher-librarian’s capacities, but also upon a school’s and school district’s investment in this instructional role.

Personal capacities with Web 2.0 tools, critical information literacies, and broad knowledge of cross-curricular challenges will help teacher-librarians guide colleagues and students in building PLEs. Students will need a high degree of ongoing and explicit guidance in applying Web 2.0 to formal learning contexts and in developing strategies for self-direction and self-regulation; teachers will need a high level of support with PLE learning design and Web 2.0, especially since Web 2.0 does not and cannot supplant the roles of the teacher and teacher-librarian and the power of collaborative teaching. Two examples in the near future of my role as teacher-librarian are as follows. Beyond the scope of the pilot PLE in Student Leadership, I will continue to work with English 9-12 classes in developing blogs as one iteration of a PLE. Moreover, I will work with the teacher assigned to delivering both Geography 12 and Sustainability 11 together in a single block. This combined course – quickly becoming the norm rather than the exception – lends itself to an inquiry-based approach to curriculum. A PLE can function as a tangible, online framework to help teachers and students manage the complexities of inquiry-based learning, and to make learning visible as a portfolio of research products and processes.

Recommendations

Teachers and teacher-librarians interested in developing a PLE are embarking upon a teaching and learning journey that challenges traditional ideas about the teacher as sage-on-the-stage and about students’ perceptions of and skills in adapting Web 2.0 for formal learning and

perceptions toward assuming a greater degree of self-direction and self-regulation over personal learning. This new paradigm will be challenging to navigate, but the adopting the following recommendations may help teacher-librarians ease the transition for students and teachers.

- 1) Use the embedded e-magazine resource in this project as a starting point, and consider contributing to subsequent issues, whether you are a teacher-librarian or teacher. This publication draws upon ‘lessons learned’ from both peer-reviewed literature and from the blog pilot. Please contact <http://thetenacioustl.wordpress.com> or wburleson@sd61.bc.ca to contribute narratives about your own pilots in different subject areas and levels.
- 2) Understand that establishing a PLE is a major undertaking requiring the scaffolding of many skills that must be explicitly taught to students, significant front-loading of supports to encourage student buy-in and ongoing usage of their PLE, and patience with the technologies. Recognize that PLE in its most sophisticated iteration includes a variety of Web 2.0 tools and requires a high degree of student self-direction and self-regulation, but begin modestly with a single tool such as a blog. Focus upon the concepts of digital identity, digital management, and digital leadership. Be prepared to troubleshoot technology together and build in time for trial and error.
- 3) Work collaboratively in school-based and district teams to help colleagues manage the challenges of teaching and assessing a PLE. Be part of your school’s technology and professional development committees and advocate for time and resources to support your teaching colleagues in an instructional role. Highlight critical information literacies in any project you undertake with a colleague; assume the lead in introducing a new technology and providing ongoing support to teachers and students in applying it. When planning a lesson or unit, ascertain roles and responsibilities of the teacher and teacher-librarian and

follow up on an ongoing basis to address technological and pedagogical challenges as they arise.

As curriculum changes in British Columbia and globally, teacher-librarians must be prepared to fulfill strong instructional leadership roles to support PLEs, and schools and school districts are challenged to build new supporting structures for them to do so. Investing in these structures will be a wise investment in 21st century student learning.

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