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Embedding Digital Fluency in Our Courses: Moving from Theory to Practice

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Embedding Digital Fluency in Our Courses: Moving from Theory to Practice

Abstract

An increasing amount of literature from academic, government, and non-government organizations (Kluzer et al., 2018; Kluzer & Pujol Priego, 2018) points to the need for post-secondary institutions to do more to prepare students to be fluent in the consumption, understanding, and use of digital media and tools. Digital fluency is increasingly seen as an essential skillset for graduates' employability and citizenship. However, while there is strong consensus about the need for students to be more digitally fluent, there is less consensus about what digital fluency is or how to teach it. This paper will offer a working definition of digital fluency and describe an approach to fostering student digital fluency development that can be applied to a wide range of courses. Drawing on frameworks by various government and non-government organizations, as well as current scholarship in the field of teaching digital literacy (Caulfield, 2017; Hinrichsen & Coombs, 2013; Ng, 2012; Ungerer, 2016), this paper will first provide an explanation of the rationale behind the framework tool that the author has developed and conclude with an explanation of how to use the tool to embed specific and authentic digital fluency skill development at the course level.

Une quantité croissante de littérature provenant d'organisations universitaires, gouvernementales et non gouvernementales (Kluzer et al., 2018; Kluzer et Pujol Priego, 2018) souligne la nécessité pour les établissements postsecondaires de faire davantage pour préparer les étudiants à maîtriser le la consommation, la compréhension et l'utilisation des médias et des outils numériques. La maîtrise du numérique est de plus en plus considérée comme un ensemble de compétences essentielles pour l'employabilité et la citoyenneté des diplômés. Cependant, s'il existe un fort consensus sur la nécessité pour les élèves d'être plus à l'aise avec le numérique, il y a moins de consensus sur ce qu'est la maîtrise du numérique ou sur la manière de l'enseigner. Cet article proposera une définition pratique de la fluidité numérique et décrira une approche visant à favoriser le développement de la fluidité numérique des étudiants qui peut être appliquée à un large éventail de cours.

Keywords: Digital fluency, digital literacy, learning outcomes, competencies, frameworks

Introduction

In the fall of 2019, I started a two-year secondment with Humber's Teaching and Learning support team. I focused my research on how to support faculty in teaching students to become digitally fluent, which is one of the institutional learning outcomes embedded in Humber's 2018-2023 strategic plan. This paper describes that research, and some of the ways that this research has helped me and others at Humber to make digital fluency an explicit and authentic part of what we teach.

Many academic studies, government agencies, and consulting groups in the educational sector have identified digital literacy, in the very broad sense of the term, as a skillset that those entering the current workforce need to have (Hague & Payton, 2010; Jisc, 2019; Kluzer & Pujol Priego, 2018; Lamb et al., 2019; RBC, 2018). Many also feel that digital literacy is something that all citizens should also have in democratic societies. Digital communication and use of digital tools make up a significant part of our lives now, and, like the development of any skillset, becoming digitally fluent is something that can and should be supported by public schools, community support groups (including public libraries), and post-secondary institutions.

My decision to focus my secondment research on digital fluency is a direct result of my interest in textual literacy. I wanted to know more about how digital literacy differs from, and yet also extends, the kind of textual literacy with which I am most familiar. I am an English teacher, and I have some sense of what goes into developing text-based literacy. It is a skill that students work on and are assisted with for a very large part of their time in school. Textual literacy[1] is a complex business, and we put a lot of resources into developing it. However, when it comes to digital literacy/fluency, post-secondary faculty often assume that the students already have it, or that it is not something many of us are equipped to teach because it is overly technical.

We have all likely heard that current post-secondary students are "digital natives" and that many faculty are "digital immigrants," meaning that while our students have grown up in a world filled with digital tools and access to the Internet, we came to these things later in life and are not as proficient with these tools. This distinction, popularized by Marc Prensky (2001) and Don Tapscott (1997; 2008), is

[1] The American Association of School Librarians define textual literacy as "the ability to read, write, analyze, and evaluate textual works of literature and personal and professional documents" (ALA, 2009).

premised on the assumption that by having always had digital devices, millennials/digital natives are habituated to using these tools, and even the way that they think has been impacted by this life-long digital immersion and network connection. Taken to its most extreme articulations, the digital native/digital immigrant divide suggests that digital natives are already digitally fluent and digital immigrants cannot further develop students' fluency.

In recent years, this view of native digital literacy/fluency has been critiqued by a number of scholars (see Bennett & Maton, 2010; Eynon, 2020; O'Neil, 2014; Selwyn, 2009), mainly because this dichotomy does not fully account for issues such as unequal access to digital tools, inconsistent training in digital tools, the different purposes that users have for accessing digital tools, or the level of engagement that they might have with those tools. Still, while students born into the digital age might not be more competent in all aspects of their digital literacy/fluency than their teachers, research shows that most students today are able to learn new digital tools quickly if they have proper guidance (Ng, 2012). This finding suggests that a focus on digital fluency within the contexts of our existing courses might be a more effective approach than offering courses that are dedicated to teaching specific digital tools.

An important place to start when deciding how to add authentic and meaningful digital literacy/fluency components to a course or program is to define digital literacy/fluency. At Humber, the team developing our institutional learning outcomes decided on the term "digital fluency" instead of the more commonly used term "digital literacy." This was intended to reflect a larger scope of skills that are going to be required of students and graduates than literacy alone suggests. That said, much of my research has included sources that use the term "digital literacy," and so, when I refer to "digital fluency" in this paper, I am doing so with the view that the concept of "digital fluency" also includes what is generally defined as "digital literacy."

Defining Digital Fluency

Defining digital literacy and digital fluency can be challenging. To some, being digitally literate means having the capacity to use or program specific software or hardware. To others, such as Reyna et al. (2018), digital literacy is about viewing digital media in a critical way and/or having the capacity to see the social, political, and economic impacts of digital communication and media. Ng (2012) defines digital literacy as a collection of many kinds of literacy that are connected using "digital technologies" (para. 7). I have found it useful to think of digital literacy/fluency as encompassing a wide range of related competencies.

Humber's own working definition of digital fluency was developed in 2022 by Lara McInnis, then Institutional Learning Outcome Faculty Team Lead, and Sarah Nieman, then Institutional Learning Outcome Project Assistant. McInnis and Nieman

(2022) have suggested that "[d]igital fluency skills enable individuals to use and adapt to digital tools, manage information, conduct research, and create and communicate effectively and ethically in digital spaces" (p. 8). Building on this definition, McInnis and Nieman identified six areas of digital fluency skill: Data analytics, ethics and security, information management, multi-platform competency, new media literacy, and online professionalism.

When I joined the project in the fall of 2019, McInnis and Nieman had already started to link specific competencies to these six areas, and much of my initial work on digital fluency involved extending the list of competencies in each of the six areas. To do that, I reviewed the work on digital fluency by academic researchers and scholars (e.g., Caulfield, 2017; Hinrichsen & Coombs, 2013; Ng, 2012; Ungerer, 2016), British and European government bodies (DigiComp – the European Digital Competence framework), non-government agencies (Jisc and the National Foundation for Educational Business), and educational consultants (Brookfield Institute). I also spent time reviewing the work on digital fluency by the Humber library team, who theorize what digital fluency means for Humber faculty and students, and continue to support students with programs to help build their digital fluency. The work of these groups helped me to identify a wide range of specific competencies that I believe students should develop in order to be both professionally and personally ready to effectively navigate digital spaces and use digital tools.

Competencies and Learning Outcomes

Humber started to develop a set of institutional learning outcomes, later renamed Humber Learning Outcomes (HLOs), as part of its current academic/strategic plan. These learning outcomes are not meant to be covered in specific, mandatory courses, but rather become part of the overall learning experience. The HLOs "skills in action" (of which digital fluency is one) are the kind of competencies that are meant to transcend specific subject matter and, as a result, should be a part of many different courses at Humber.

Like any learning outcome, the digital fluency HLO provides students with an opportunity to develop a skillset, as well as measure their progress its development. However, my research demonstrates that measuring one's digital fluency is challenging since being digitally fluent is not just one skill or skillset, but rather a range of competencies. Fostering the development of a student's digital fluency is not a one-and-done process, and the development of a student's digital fluency does not live in a single course or program. Like the other HLOs, students will ideally expand their digital fluency in iterative ways throughout their time at Humber. To successfully build on and refine their digital fluency, students need to be able to 1) identify when they are building their digital fluency (this is where the language of learning outcomes is important), and 2) reflect on the development of their own digital fluency, and how that

development happened so that they can continue to adapt to new digital tools and forms. The latter can be accomplished through reflective assignments or reflective elements within existing assignments, and/or by using student-completed reflective rubrics.

Developing a Digital Fluency Framework at Humber

When I started my teaching and learning secondment, McInnis and Nieman had already defined digital fluency. Using my own research, I linked specific digital fluency competencies to each of the six digital fluency skills. These lists began to grow very quickly, and it soon became obvious that not all competencies were going to be needed by every student at every level of mastery. For example, while a bakery arts student and a computer engineering student should both develop competency in the areas of digital ethics and digital security, the level at which they need to develop these competencies might be quite different. Individual faculty would need to thoughtfully consider which specific competencies aligned with their courses or could be aligned in the future.

In order for faculty to locate the competencies that were most relevant for their courses, I felt that we needed a framework tool that was comprehensive, but easy to navigate and use. I laid out the competencies that we had amassed into three categories: Foundational, developmental, and proficient. I chose these categories because they are the same ones used by the Post-Secondary Quality Assessment Board (PEQAB) to identify course levels, and therefore, they provide a familiar terminology for thinking about the development of a skill over a range of courses. Figure 1 provides an image of the framework tool and Appendix A provides a full-sized version.

Figure 1

Digital Fluency Competencies Chart

Digital Fluency: Digital fluency skills enable individuals to use digital tools, manage information, conduct research, and create and communicate effectively and ethically in digital spaces.						
Digital Fluency Skill	**Data Analytics / Fluency**	**Ethics and Security**	**Information Management**	**Multiplatform Competency**	**New Media Literacy**	**Online Professionalism**
Related HLOs and Mindsets	Critical Thinking; Systems Thinking; Communication	Critical Thinking; Systems Thinking; Strategic Problem Solving; Professionalism	Critical Thinking; Communication	Critical Thinking; Collaboration; Communication; Professionalism	Critical Thinking; Equity, Diversity & Inclusion Collaboration; Communication; Professionalism	Critical Thinking; Communication; Professionalism;
Foundational	• Understand how personal data may be collected and used, especially in relation to algorithms. (2) • Understand how data is used in professional and public contexts, including legal, ethical and security guidelines	• Understanding of how user agreements work and how they impact data security. (1,6) • Apply understanding how copyright, licences and Canadian laws apply to data, information, and	• Articulate information needs and search for appropriate data, information and digital content. (1,5,6) • Develop and update effective search strategies to find credible and reliable information in the ever-changing	• Share data, information and digital content with others by effectively using appropriate digital technologies. (1) • Create documents using common workplace productivity software	• Understand how the creative and technical uses of digital technology are changing practices at work, at home, in social and in public life. (2,3) • Understand the constructed and contextual nature of digital media,	• Understand how digital media and networks influence social behaviour. (2) • Interact in digital environments with an awareness of behavioural norms and of the reputational benefits and risks

	in data collection and use. (2) • Find reliable and credible data. (1) • Organize, store data, and retrieve data, information and content using appropriate software. (1)	digital content by correctly referencing and attributing digital sources. (1,5) • Understand risks and threats in digital environments such as malware, phishing, hacking. (1) • Familiar with digital safety and security measures and have due regard for privacy. (1) • Understand the role of digital technologies in social well-being and social inclusion. (1)	digital information landscape. (1,5,6) • Evaluate data, information, and digital content (both qualitative and quantitative sources) for applicability, credibility, reliability and value. (1,2,6) • Curate, organize, cite, store and retrieve data, information and content. (1)	(Microsoft Office, Google Docs). (6) • Create and edit digital artifacts using a variety of digital tools (production tools, productivity tools, audio and visual tools. etc.) in order to share digital content in the most appropriate media and format for a specific, or multiple, audiences. (1,5,6)	and how digital media are used as social, political and educational tools. (2,6,7) • Apply core media literacy skills (critical reading, critical writing and image interpretation) in order to analyze and evaluate the choices made in the production of digital artifacts and the effectiveness of those choices. (2,5,6)	of using digital technologies. (1) • Interact with others using the most appropriate digital communication tools for a given context or purpose. (1) • Understand the ethical and legal implications of personal choices in digital spaces and how such choices affect the self and others. (5) • Protect self-reputation and that of others in digital spaces. (1)
Developmental	• Understand various digital research methods and how to use a variety of data analysis tools and techniques. (2) • Analyze, interpret, and critically evaluate different types of data, information and digital content. (1) • Collate, manage, access and make use of digital data in spreadsheets, databases and other formats. (2) • Create visual representations of data and provide narratives about data. (6)	• Protect personal data, privacy, content and devices in digital environments (1) • Protect oneself and others from possible dangers in digital environments (e.g. cyber bullying). (1) • Recognize the legal and ethical impact of sharing private or identifiable data about an individual or organization. (5) • Protect mental and physical health by managing digital use through an understanding of the health and wellbeing benefits and risks of digital participation. (2,6)	• Research and construct digital evidence to answer questions and to solve problems related to one's academic, professional and personal needs. (2,5,6) • "fact check" information by comparing, contrasting and synthesizing multiple sources (analysis of a discourse). (6) • Recontextualize, re-purpose, rephrase and share digital information, for academic, professional and personal purposes. (2,4) • Use digital learning resources including appropriate apps, websites and tools for information access, discussion and assessments, and manage own time, attention and motivation when engaging in digital learning. (2,6)	• Create and edit digital artifacts using a variety of digital tools (production tools, productivity tools, audio and visual tools. etc.) in order to share digital content in the most appropriate media and format for a specific, or multiple, audiences. (1,2,5,6) • Use digital resources (e.g. tutorials, manuals and FAQ pages) in order to independently stay up to date with evolving digital technologies. (2,6) • Repurpose information across digital media platforms and for different audiences, giving due recognition to originators. (2,5) • Collaborate and co-construct resources and knowledge using digital tools and digital networks. (1,2)	• Use critical thinking skills to recognize, understand, analyze and evaluate arguments in digital spaces. (2) • Select and use the most appropriate digital tools for a particular audience and purpose based on an understanding of tool function and of communication norms and needs. (2,5,6) • Identify and solve problems with appropriately chosen digital technologies (from troubleshooting to solving more complex problems). (1) • Create original and relevant content and knowledge by integrating and synthesizing information from a variety of digital sources. (1)	• Curate and advance one's own reputation in digital spaces. (1,6) • Create, facilitate and participate in networks using digital tools. (2) • Communicate effectively, mindfully and purposely in digital spaces and when using digital tools. (2 6) • Design and adapt communication strategies for a variety of audiences and demonstrate understanding of audience diversity in digital environments. (1) • Build and maintain digital profiles and other digital identity assets. (2) • Share and amplify messages across networks using digital tools. (2)
Proficient	• Use data to solve problems, to advance knowledge, and to innovate. (6) • Use data to assess the effectiveness of digital initiatives (e.g. use analytics to assess the influence and spread of social	• Use and share personally identifiable information for personal and professional purposes while protecting self and others from damages and/or harm. (1,6)	• Comprehend topics in a critical way in order to create and communicate new knowledge. (5) • Use digital information in developing new ideas, projects and opportunities. (2) • Design personal, civic, and political interventions that	• Produce professional digital artifacts, using appropriate formats and media, for specific audiences and with specific purposes. (1,4) • Use digital tools and technologies to create knowledge and	• Seek opportunities for self-empowerment, sector development (workplace / education) and for participatory citizenship through appropriate digital technologies. (1,2) • Understand where one's own digital	• Capacity to develop and project a positive digital identity (or identities), and to manage digital reputation (personal or organizational) across a range of platforms. (2) • Review the impact of online

	media / online professionalism efforts). (5,6)		improve our shared information environment. (7)	innovative processes and products. (1) • Upgrade skills by seeking out professional development opportunities where needed (e.g. taking courses to transfer understanding of Microsoft Excel to SQL or SAP). (5,8)	competences need to be improved, kept up-to-date, or updated. (1) • Ability to support others with their digital competence development. (1) • Capacity for innovation and enterprise in digital spaces and/or with digital tools. (2)	activity using data analytics, media literacy tools and/or other means. (1,6) • Use digital identity to promote professional, personal and social values and goals. (1,7)

Because they are the most transferable, foundational skills are the ones that I think we can expect most of our students to possess upon graduation because they will be taught, assessed, and reinforced in most of their program courses and electives. Indeed, many of our students will likely possess these skills when they arrive at Humber, although they might not think of them consciously as skills, which is where the language of our learning outcomes and assessment criteria become important – students will need to be able to identify these competencies as skills that they may or may not possess, and not as things that they just do naturally as "digital natives." This is where translating the language of specific digital fluency competencies into program or course specific language comes into play.

Given many of these competencies are going to be program and course specific, not all Humber students will develop foundational, developmental, and proficient levels of all competencies. The framework tool is more of a menu to draw from. Out of the list of competencies, for example, a specific course might only focus on one or two of the skills, and only a small number of the competencies under each skill heading. To make the tool easy to use, all the competencies are on one page (albeit in a very small font). Someone who is trying to decide how digital fluency competencies could, or already do, fit into their course(s) simply needs to highlight or circle what they think the most appropriate competencies are, and then think about how to translate the articulation of those competencies from the tool into program and/or course learning outcomes and into their course assignments. I will use my own experience with one of the courses that I teach regularly to demonstrate this process.

Translating Competencies into Specific Learning Outcomes and Assignments

Learning outcomes should make it clear to all parties involved in a course (students, faculty, Humber, the Ontario Ministry of Colleges and Universities) what the purpose of the course is and what skills the students should either develop or refine during their time in the course. WRIT 100: College Reading and Writing Skills is one of the first-semester English courses at Humber. It is a required course for most diploma students, so there are many sections of it that run every semester. Figure 2 lists the learning outcomes for WRIT 100.

Figure 2

WRIT 100 Learning Outcomes 2022-2023

The learning outcomes for WRIT 100 are:

- Read a variety of texts actively to paraphrase and summarize accurately.
- Identify and analyze strategies used by authors to persuade audiences.
- Evaluate a variety of texts for reliability and effectiveness.
- Develop and apply a process for writing well-structured texts that employ tone and language appropriate to their context.
- Demonstrate digital fluency by locating and assessing online information and using conventional citation practices.

Although WRIT 100 currently includes a learning outcome that names digital fluency specifically, the other outcomes are also implicitly about digital fluency. Often, digital fluency competencies from the framework tool will relate closely to existing course learning outcomes. With the existing WRIT 100 learning outcomes in mind, I used the framework tool to identify specific digital fluency competencies that I felt related closely to the existing course outcomes. Figure 3 provides an image of the framework tool with competencies specific to WRIT 100 highlighted.

Figure 3

Digital Fluency Competencies Chart with WRIT 100-Specific Highlights

Digital Fluency: Digital fluency skills enable individuals to use digital tools, manage information, conduct research, and create and communicate effectively and ethically in digital spaces.						
Digital Fluency Skill	**Data Analytics / Fluency**	**Ethics and Security**	**Information Management**	**Multiplatform Competency**	**New Media Literacy**	**Online Professionalism**
Related HLOs and Mindsets	Critical Thinking; Systems Thinking; Communication	Critical Thinking; Systems Thinking; Strategic Problem Solving; Professionalism	Critical Thinking; Communication	Critical Thinking; Collaboration; Communication; Professionalism	Critical Thinking; Equity, Diversity & Inclusion Collaboration; Communication; Professionalism	Critical Thinking; Communication; Professionalism;
Foundational	• Understand how personal data may be collected and used, especially in relation to algorithms. (2) • Understand how data is used in professional and public contexts, including legal, ethical and security guidelines	• Understanding of how user agreements work and how they impact data security. (1,6) • Apply understanding how copyright, licences and Canadian laws apply to data, information, and	• Articulate information needs and search for appropriate data, information and digital content. (1,5,6) • Develop and update effective search strategies to find credible and reliable information in the ever-changing	• Share data, information and digital content with others by effectively using appropriate digital technologies. (1) • Create documents using common workplace productivity software	• Understand how the creative and technical uses of digital technology are changing practices at work, at home, in social and in public life. (2,3) • Understand the constructed and contextual nature of digital media,	• Understand how digital media and networks influence social behaviour. (2) • Interact in digital environments with an awareness of behavioural norms and of the reputational benefits and risks

	in data collection and use. (2) • Find reliable and credible data. (1) • Organize, store data, and retrieve data, information and content using appropriate software. (1)	digital content by correctly referencing and attributing digital sources. (1,5) • Understand risks and threats in digital environments such as malware, phishing, hacking. (1) • Familiar with digital safety and security measures and have due regard for privacy. (1) • Understand the role of digital technologies in social well-being and social inclusion. (1)	digital information landscape. (1,5,6) • Evaluate data, information, and digital content (both qualitative and quantitative sources) for applicability, credibility, reliability and value. (1,2,6) • Curate, organize, cite, store and retrieve data, information and content. (1)	(Microsoft Office, Google Docs). (6) • Create and edit digital artifacts using a variety of digital tools (production tools, productivity tools, audio and visual tools. etc.) in order to share digital content in the most appropriate media and format for a specific, or multiple, audiences. (1,5,6)	and how digital media are used as social, political and educational tools. (2,6,7) • Apply core media literacy skills (critical reading, critical writing and image interpretation) in order to analyze and evaluate the choices made in the production of digital artifacts and the effectiveness of those choices. (2,5,6)	of using digital technologies. (1) • Interact with others using the most appropriate digital communication tools for a given context or purpose. (1) • Understand the ethical and legal implications of personal choices in digital spaces and how such choices affect the self and others. (5) • Protect self-reputation and that of others in digital spaces. (1)
Developmental	• Understand various digital research methods and how to use a variety of data analysis tools and techniques. (2) • Analyze, interpret, and critically evaluate different types of data, information and digital content. (1) • Collate, manage, access and make use of digital data in spreadsheets, databases and other formats. (2) • Create visual representations of data and provide narratives about data. (6)	• Protect personal data, privacy, content and devices in digital environments (1) • Protect oneself and others from possible dangers in digital environments (e.g. cyber bullying). (1) • Recognize the legal and ethical impact of sharing private or identifiable data about an individual or organization. (5) • Protect mental and physical health by managing digital use through an understanding of the health and wellbeing benefits and risks of digital participation. (2,6)	• Research and construct digital evidence to answer questions and to solve problems related to one's academic, professional and personal needs. (2,5,6) • "fact check" information by comparing, contrasting and synthesizing multiple sources (analysis of a discourse). (6) • Recontextualize, re-purpose, rephrase and share digital information, for academic, professional and personal purposes. (2,4) • Use digital learning resources including appropriate apps, websites and tools for information access, discussion and assessments, and manage own time, attention and motivation when engaging in digital learning. (2,6)	• Create and edit digital artifacts using a variety of digital tools (production tools, productivity tools, audio and visual tools. etc.) in order to share digital content in the most appropriate media and format for a specific, or multiple, audiences. (1,2,5,6) • Use digital resources (e.g. tutorials, manuals and FAQ pages) in order to independently stay up to date with evolving digital technologies. (2,6) • Repurpose information across digital media platforms and for different audiences, giving due recognition to originators. (2,5) • Collaborate and co-construct resources and knowledge using digital tools and digital networks. (1,2)	• Use critical thinking skills to recognize, understand, analyze and evaluate arguments in digital spaces. (2) • Select and use the most appropriate digital tools for a particular audience and purpose based on an understanding of tool function and of communication norms and needs. (2,5,6) • Identify and solve problems with appropriately chosen digital technologies (from troubleshooting to solving more complex problems). (1) • Create original and relevant content and knowledge by integrating and synthesizing information from a variety of digital sources. (1)	• Curate and advance one's own reputation in digital spaces. (1,6) • Create, facilitate and participate in networks using digital tools. (2) • Communicate effectively, mindfully and purposely in digital spaces and when using digital tools. (2 6) • Design and adapt communication strategies for a variety of audiences and demonstrate understanding of audience diversity in digital environments. (1) • Build and maintain digital profiles and other digital identity assets. (2) • Share and amplify messages across networks using digital tools. (2)
Proficient	• Use data to solve problems, to advance knowledge, and to innovate. (6) • Use data to assess the effectiveness of digital initiatives (e.g. use analytics to assess the influence and spread of social	• Use and share personally identifiable information for personal and professional purposes while protecting self and others from damages and/or harm. (1,6)	• Comprehend topics in a critical way in order to create and communicate new knowledge. (5) • Use digital information in developing new ideas, projects and opportunities. (2) • Design personal, civic, and political interventions that	• Produce professional digital artifacts, using appropriate formats and media, for specific audiences and with specific purposes. (1,4) • Use digital tools and technologies to create knowledge and	• Seek opportunities for self-empowerment, sector development (workplace / education) and for participatory citizenship through appropriate digital technologies. (1,2) • Understand where one's own digital	• Capacity to develop and project a positive digital identity (or identities), and to manage digital reputation (personal or organizational) across a range of platforms. (2) • Review the impact of online

	media / online professionalism efforts). (5,6)		improve our shared information environment. (7)	innovative processes and products. (1) • Upgrade skills by seeking out professional development opportunities where needed (e.g. taking courses to transfer understanding of Microsoft Excel to SQL or SAP). (5,8)	competences need to be improved, kept up-to-date, or updated. (1) • Ability to support others with their digital competence development. (1) • Capacity for innovation and enterprise in digital spaces and/or with digital tools. (2)	activity using data analytics, media literacy tools and/or other means. (1,6) • Use digital identity to promote professional, personal and social values and goals. (1,7)

As you can see, I was able to identify competencies at the foundational level, and a few more at the developmental level. While WRIT 100 is not a course in digital media, many of the things that students do in the course require them to use digital tools and assess digital artifacts. Therefore, even though it is not explicitly stated, there is a strong digital fluency component in this first-semester English course. Given how closely many of the framework tool competencies align with the WRIT 100 learning outcomes, it seems appropriate that I would include instruction on the use of digital tools and on how to be critical of digital artifacts since I am implicitly asking my students to do these things. To demonstrate what I mean, Figure 4 shows five of the specific competencies that I highlighted on the Framework tool.

Figure 4

List of WRIT 100-Specific Digital Fluency Competencies

- Develop and update effective search strategies to find credible and reliable information in the ever-changing digital information landscape.
- Evaluate data, information, and digital content (both qualitative and quantitative sources) for applicability, credibility, reliability, and value.
- Share data, information, and digital content with others by effectively using appropriate digital technologies.
- Create documents using common workplace productivity software (Microsoft Office, Google Docs).
- Apply core media literacy skills (critical reading, critical writing, and image interpretation) in order to analyze and evaluate the choices made in the production of digital artifacts and the effectiveness of those choices.

In the case of each of these competencies, we can see many of the core skills that would be covered in a foundational English course, even though these skills might not always be demonstrated using digital tools and artifacts. In Figure 5, I have removed the digitally specific language from the competencies to show the connection a bit more clearly.

Figure 5

Digital Fluency Language Removed to Show Similarities with Skill Acquisition in Other Modes

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- Develop and update effective search strategies to find credible and reliable information **~~in the ever-changing digital information landscape~~**.
- Evaluate data, information, and **~~digital~~** content (both qualitative and quantitative sources) for applicability, credibility, reliability, and value.
- Share data, information, and ~~digital~~ content with others **~~by~~** effectively **~~using appropriate digital technologies.~~**
- Create documents **~~using common workplace productivity software (Microsoft Office, Google Docs).~~**
- Apply core **~~media~~** literacy skills (critical reading, critical writing, and image interpretation) in order to analyze and evaluate the choices made in the production of **~~digital~~** artifacts and the effectiveness of those choices.

As one can quickly see, many of the competencies that I would focus on with my students are closely related to the digital fluency competencies that I compiled in my research. By adding explicit language about the role of digital tools and digital artifacts to describe what the traditional focus looks like in 2023 acknowledges an important truth about how essential digital tools and artifacts have become to my teaching practice and my students' learning environment.

I also believe that such reframing foregrounds the reality of an important shift in the nature of our textual literacy: We use digital tools and artifacts for many aspects of our reading and writing practice. With this in mind, it is worth viewing digital fluency as a requirement for the English student in 2023 and, if it is a requirement, we should both teach and assess it. This brings me to the last suggestion I have for using the framework tool, which is identifying ways to embed digital fluency skill development into assignments.

Digital Fluency in Action: Web Literacy / Bibliography Assignment

In my WRIT 100 classes, I do not tend to focus on academic sources. This is not because academic sources are unimportant, but because I want my students to focus on current political and social discourses. These topics might not be at the centre of my students' personal worldviews, but these are topics that impact them directly nonetheless. Although the kind of information that I want them to access is more popular in scope than academic sources, I still want students to find information that is credible. So, when I have them look for sources, the task falls more into the realm of web literacy than true academic research. Based on my research into digital fluency and web literacy, which has been greatly influenced by the work of Mike Caulfield, I now include very specific digital fluency elements into a course assignment that asks students to produce an annotated bibliography using digital tools and digital texts (which may include, but is not confined to, electronic library sources). While this is the way most of us do research today, and we may not think of these as digital fluency skills so much as skills, I want to highlight the digital fluency aspects of these tasks for my students in my assignment instructions.

To foreground the web literacy that is required for this assignment, I also ask my students to establish the credibility of the publisher and authors of the sources that they pick by doing lateral research on both. This assignment, and the instruction that goes along with it, allow me to directly address the one specific digital fluency learning outcome for WRIT 100: Demonstrate digital fluency by locating and assessing online information and using conventional citation practices. The assignment also invites students to engage in at least two of the specific digital fluency competencies that I pulled from the framework tool:

- Develop and update effective search strategies to find credible and reliable information in the ever-changing digital information landscape.
- Evaluate data, information, and digital content (both qualitative and quantitative sources) for applicability, credibility, reliability, and value.

Conclusions

My research into digital fluency has led me to the conclusion that many of the things that we do in post-secondary education require our students to use digital tools and interact with digital artifacts in ways that are often not recognized. I also think we tend to assume that our students have a high level of digital fluency because of their familiarity with digital tools and forms. However, while research shows that students tend to have a high level of comfort with these things, there is still an important role for us to play in assisting students to increase their digital fluency. Although many of the core literacy skills that we teach our students have remained much the same for decades, digitization has had a sizable impact on how these skills are now performed.

Articulating the digital nature of many of the competencies that we ask our students to develop and refine helps us to clarify the things we are asking our students to learn and what we should include in our instructional design.

Coda

I completed the bulk of my research on digital fluency when I was in the first year of my secondment with Humber's Teaching and Learning support team (2019 – 2020). Obviously, a lot has changed since then. The rapid shift to online learning in March 2020 meant that the Teaching and Learning support team needed to refocus its priorities in order to assist faculty from across the college as they began teaching exclusively online and supporting their students from a distance. About a month into the early COVID-19 pandemic "pivot" to online learning, one of my colleagues suggested that the pandemic had taken care of the digital fluency issue. This was said as a joke, but it did touch on an assumption that many in post-secondary education had begun to believe: That the struggle to make the best out of the rapid shift online would at least make us all competent users of digital technology (after all, we had no other choice, did we?). Unfortunately, this assumption did not prove to be true for all.

Now that we are seeing a return to on-campus activity and a general reopening in the education sector, the case for teaching digital fluency and the case for increasing digital access seem stronger than ever. Educators are finding that many students have learning gaps and access issues that went undetected during the periods of lockdown. The need for greater support with digital technologies is also one of the pillars of Canada's Bill C-27: the Digital Charter Implementation Act, 2022, which is intended to protect Canadians from the dangers of digital spaces while also giving them the training and digital literacy to innovate, create, and build in those spaces. Many provincial ministries of education, local school boards, library associations, and colleges and universities have developed digital literacy and fluency frameworks and plans, but it is still early to know if those plans are having their intended effects.

Currently at Humber, most assessment of digital fluency is happening at the course assessment level where it is either part of an assignment rubric or a course-specific reflection. This form of assessment is very important because it is focused directly on the competencies being developed by individual students within a course- or program-specific context. However, this form of assessment is also quite narrow in scope, and it does not indicate the overall digital fluency of Humber's students across the institution.

To assess this level of digital fluency at Humber, we are considering the use of HLO-focused reflective rubrics. Such rubrics would ask students to assess their own level of proficiency with specific digital fluency skills and to reflect on that proficiency. The results of these self-assessments and reflections would help students to identify

where to focus their own future digital fluency competency development and to give faculty a better sense of where to add resources for future student development and support. This approach differs from the kind of skill-based VALUE rubrics that are being proposed by The American Association of Colleges and Universities. The VALUE rubric approach requires faculty to assess each individual student nearing graduation on their competencies with a variety of institutional learning objectives, which is intended to give a sense of the institutional level of student learning of those objectives (The American Association of Colleges and Universities, 2023).

It will take time to develop assessment tools that can evaluate the success of institutional and governmental efforts to teach digital fluency to students and the larger community, but such assessment tools are going to be essential for understanding what aspects of our digital fluency efforts are working, and which need to be refined. In the Digital Charter Implementation Act, the Canadian government makes a compelling case of the need for digital fluency. It seems to me that post-secondary educational institutions have a key role to play in developing tools to promote digital fluency and in researching ways to refine those tools as the digital landscape continues to change and evolve.

References

Caulfield, M. (2017). Web literacy for student fact-checkers. https://ecampusontario.pressbooks.pub/webliteracycaulfield/

Eynon, R. (2020). The myth of the digital native: Why it persists and the harm it inflicts. In T. Burns & F. Gottschalk (Ed.), Education in the Digital Age. OECD Publishing. https://doi.org/10.1787/1209166a-en

Government of Canada. (2022, August 18). Bill C-27 summary: Digital charter implementation act, 2022. https://ised-isde.canada.ca/site/innovation-better-canada/en/canadas-digital-charter/bill-summary-digital-charter-implementation-act-2020

Hague, C. & Payton, S. (2010). Digital literacy across the curriculum: A Futurelab handbook. National Foundation for Educational Research / Futurelab. https://www.nfer.ac.uk/publications/futl06/futl06.pdf

Hinrichsen, J., & Coombs, A. (2014). The five resources of critical digital literacy: A framework for curriculum integration. Research in Learning Technology, 21. https://doi.org/10.3402/rlt.v21.21334

Humber College. (2018, April 30). Librarian ILO development day: Additional notes. Humber Institutional Learning Outcomes Project. https://humber.ca/academic-division/our-hlo-framework

Jisc. (2019). Digital capabilities framework: The six elements defined. http://repository.jisc.ac.uk/7278/1/BDCP-DC-Framework-Individual-6E-110319.pdf

Kluzer, S. & Pujol Priego L. (2018). DigComp into action - Get inspired, make it happen. In S. Carretero, Y. Punie, R. Vuorikari, M. Cabrera, and O'Keefe, W. (Eds.). JRC Science for Policy Report, EUR 29115 EN, Publications Office of the European Union, Luxembourg. https://doi.org/10.2760/112945

Lamb, C., Vu, v. & Willougby. (2019). I, human: Digital and soft skills in a new economy. Brookfield Institute. https://brookfieldinstitute.ca/wp-content/uploads/I-Human-ONLINE-FA-1.pdf

McInnis, L & Nieman, S. (2020). Humber learning outcomes (HLOs). Office of the Senior VP Academic, Humber ITAL. https://humber.ca/svpa/wp content/uploads/2020/03/HLOFramework.pdf

Ng, W. (2012). Can we teach digital natives digital literacy? Computers & Education, 59(3), 1065–1078. https://doi.org/10.1016/j.compedu.2012.04.016

O'Neil, M. (2014). Confronting the Myth of the "Digital Native." Chronicle of Higher Education, 60(32), 5. https://www.chronicle.com/article/confronting-the-myth-of-the-digital-native/

Prensky, M. (2001). Digital natives, digital immigrants. On the Horizon, 9(5). https://www.marcprensky.com/writing/Prensky%20-%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part1.pdf

RBC. (2018). Humans wanted: How Canadian youth can thrive in the age of disruption. https://www.rbc.com/dms/enterprise/futurelaunch/_assets-custom/pdf/RBC-Future-Skills-Report-FINAL-Singles.pdf

Reyna, J., Hanham, J. & Meier, P. (2018). A framework for digital media literacies for teaching and learning in higher education. E-Learning and Digital Media, 15(4), 176–190. https://doi.org/10.1177/2042753018784952

Selwyn, N. (2009). The digital native - myth and reality. Aslib Proceedings, 61(4), 364-379. https://doi.org/10.1108/00012530910973776

Tapscott, D. (1998). Growing up digital: The rise of the net generation. McGraw-Hill.

Tapscott, D. (2008). Grown up digital: How the net generation is changing your world. McGraw-Hill.

The American Association of Colleges and Universities. (2023). VALUE Rubrics - Information Literacy. https://www.aacu.org/initiatives/value-initiative/value-rubrics

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