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**Title:** Development of a Framework for Digital Literacy

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### Abstract

**Purpose:** Institutions seeking to develop or expand digital literacy programs face the challenge of navigating varied definitions for digital literacy itself. In answer to this challenge, this case study shares a process for developing a shared framework for digital literacy at one institution, including drawing on themes in existing frameworks, soliciting campus feedback, and making revisions.

**Design/methodology/approach:** A draft digital literacy framework was created following the work of an initial Library task force. Focus groups were conducted to gather feedback on the framework and to identify areas for future development.

**Findings:** Focus groups yielded 38 written responses. Feedback themes related to gaps in the framework, structural suggestions, and common challenges for learners. Themes in focus group feedback led to several framework revisions, including the addition of Curation as a competency area, the removal of Information Communication Technologies as its own competency area, and the inclusion of Learner rather than Student at the center of the framework.

**Practical implications:** The approaches described in this case study can be adapted by those looking to create a shared framework or definition for digital literacy on their campuses, as well as to create or revise definitions for other related literacies.

**Originality/value:** This case study presents an adaptable process for getting started with broad digital literacy initiatives, within the context of existing digital literacy frameworks worldwide.

### Introduction

As digital technologies continue to influence teaching, learning, and research, colleges and universities are developing and expanding digital literacy programs to ensure that students can not only use digital tools, but also critically consume and create a variety of content. As noted in the New Media Consortium Horizon Report 2017, academic libraries are key partners and leaders for digital literacy initiatives (Adams Becker et al., 2017, p. 24). For institutions

looking to develop large-scale digital literacy programs, differing definitions for digital literacy and contrasting visions for which aspects to prioritize present major challenges (Ng, 2012). Emphases on digital literacy range from a focus on baseline technology or computer literacy skills, sets of critical thinking and creative abilities, and critical engagement with identity, ethics, and citizenship in digital contexts (Alexander et al., 2016, 2017; Hague and Payton, 2010).

In answer to the challenge of defining digital literacy, a wide variety of educational institutions, professional organizations, and others have created digital literacy models or frameworks. These frameworks may work to define broad, global definitions for digital literacy or to address the needs of their specific context. In addition to providing common definitions and language, digital literacy frameworks may be used to assess student and staff capabilities, to identify areas for expansion and growth, and to strategize implementation of digital literacy programming (Adams Becker et al., 2017).

The University Libraries at Virginia Tech has created a digital literacy framework as an initial step in leading the development of collaborative, campus-wide digital literacy initiatives. Following a review of the literature on defining digital literacy, this article shares approaches to developing the digital literacy framework at Virginia Tech, including results from focus groups and feedback discussions. While focusing on one institution, this case study aims to provide a sample process for others looking to revise an existing framework or create their own.

## Literature Review

The term ‘digital literacy’ emerged in the literature in the mid-1990s as a way to describe the shifting nature of reading and writing when mediated by the internet (Bawden, 2001, p. 246). Lanham describes literacy in the “digital age” as the “ability to understand information, however presented” (1995, p. 198). For Lanham, digital literacy is distinct from “print literacy” in its flexibility and blending of multimedia engagement (1995, p. 198). Lanham uses the term digital literacy interchangeably with multimedia literacy, arguing that to be literate in the digital world means “being at home in a shifting mixture of words, images and sounds” (1995, p. 200). More simply, Gilster, who popularized the term digital literacy in his 1997 book by the same name, defines digital literacy as “the ability to access networked computer resources and use them” (1997, p. 1). Here, Gilster emphasizes the tool access and digital skill components of digital literacy. However, Gilster later asserts that digital literacy is “about mastering ideas, not keystrokes” (p. 15). Gilster further defines digital literacy as “the ability to understand and use information in multiple formats...when it is presented via computers” (1997, p. 1). Here, he emphasizes the critical thinking abilities involved in digital literacy, particularly the ability to “make informed judgements about what you find on-line” (p. 2).

The differing emphases in Lanham’s and Gilster’s early uses of digital literacy reflect connections to other literacy movements, particularly information literacy, media literacy, and computer or technology literacy (Bawden, 2001; Alexander et al., 2016). Varying emphases on these interrelated literacies have continued to shape digital literacy definitions. For example, some define digital literacy with an emphasis on navigating, critically evaluating, and using

digital or digitally-mediated information (ALA, 2013; Sparks et al, 2016). Some even use “digital information literacy” as a hybrid term to address these capabilities (Bawden, 2001; Sparks et al., 2016). Other digital literacy definitions align more closely with the language of media or multimedia literacy, emphasizing media consumption and creation (Hobbs, 2017; Alexander et al., 2017). And others frame digital literacy as the ability to select and use digital tools, aligning with computer literacy or information communication technology (ICT) literacy (Hall et al, 2014; Hague and Payton, 2010). Acknowledging these overlapping areas of influence, some scholars advocate for use of the plural “digital literacies” to reflect a fuller range of practices and abilities (Bawden, 2001; Jones and Hafner, 2012; Belshaw, 2012).

Since the 1990s, defining digital literacy has continued to be a complex undertaking. Dissatisfaction with existing definitions and uses of the term is common throughout the literature. For example, Eshet-Alkalai notes that “indistinct use” of digital literacy as a term can lead to misunderstandings and poor communication among educators and researchers (2004, p. 94). In an effort to further define and more fully conceptualize the practices involved in digital literacy, institutions and individuals across sectors have developed digital literacy models and frameworks that grapple with specific educational needs around digital literacy in academic, personal, and professional settings. Current example frameworks include those from higher education institutions (Bryn Mawr College, 2016; Deakin University, 2015), individual scholars (Belshaw, 2012; Pangrazio, 2017; Reynolds, 2016), professional organizations (ISTE, 2016), government organizations (The Global Alliance to Monitor Learning, 2018; British Columbia Ministry of Education, n.d.), and not-for-profit companies and non-profit organizations (Jisc, n.d.; Mozilla, n.d.). The emphasis of this literature review is on the development of these kinds of frameworks and themes in their content and structure. Considering that many digital literacy frameworks have been created by organizations and institutions, white papers and reports constitute much of the key literature in this area. While the wealth of research literature regarding teaching and assessing competencies related to digital, information, and media literacies do further contextualize this topic, this literature is outside of the scope of this review.

Several groups of researchers and practitioners have worked to review digital literacy frameworks, with differing scopes and foci. In their report on the current landscape of digital literacy in higher education, Alexander et al. compared eleven exemplary frameworks from several types of institutions and identified themes in their content (2017). Hall et al., Pangrazio, Reynolds, and Sparks et al. reviewed sample frameworks and definitions for the purpose of constructing their own models (2014; 2016; 2016; 2016). The Global Alliance to Monitor Learning examined frameworks created or adopted at the national level in 43 countries to inform the development of the UNESCO Digital Literacy Global Framework (2018). From the large group of national frameworks reviewed, they selected nine frameworks to examine further, comparing them across purpose, competency areas, learning domains, modes, and tools.

Most digital literacy frameworks reviewed in the literature center on a group of competencies or abilities. Among the most common competencies are those related to creativity and content creation, As Pangrazio notes, design of digital media has become an increasing

popular emphasis in digital literacy education (2016, p. 166). Indeed, multimedia creation is a major emphasis for Hobbs (2017), who argues for “creating to learn,” through projects like blogs, infographics, videos, and memes, as vital to digital literacy (p. 7). Rather than describing particular tools or platforms for creation, Hobbs emphasizes the decisions that go into these kinds of digital projects, such as determining the appropriate media, making design choices, and reflecting on the ethics and impact of a work (2017). Audio creation and editing, animation, programming, and written essays are other forms of creation commonly described in digital literacy models (Alexander et al., 2017; Reynolds, 2016).

Interpersonal engagement, such as online collaboration and communication, is also a common feature of digital literacy frameworks (Alexander et al., 2017; Hall et al., 2014; Sparks et al., 2016). According to Hall et al. this emphasis connects closely to the creative aspects of digital literacy, considering that “makers or producers of knowledge” often work collaboratively with others and share their work via technologies (2014, p. 21). Reynolds summarizes these capabilities as the ability to “socialize” through digital tools, including contributing to wikis or forums, giving virtual presentations, and exchanging messages through email and chat tools (2016, p. 742). Participating in networks and communities via digital platforms and tools are also key aspects of digital communication and collaboration (Alexander et al., 2017).

Digital literacy models also include an emphasis on critical thinking and evaluation, (Alexander et al., 2017; Hall et al., 2014; Sparks et al., 2016). Capabilities in this area often include searching for and accessing a wide variety of content, and critically evaluating information and tools (Alexander et al., 2017; Hall et al., 2014; Reynolds, 2016; Sparks et al., 2016).

Digital literacy frameworks differ in their emphasis on topics like civic engagement, identity, wellness, ethical or legal issues including copyright and privacy law, and the role of technical skills (Alexander et al., 2017; Hall et al., 2014; Sparks et al., 2016). For example, Hall et al. found that few digital literacy frameworks identify online identity as its own area. They argue for the importance of “responsible and ethical behaviour, and developing an awareness of one’s digital identity and the consequences of online actions in a global context” in the creation of their own framework (2014, p 22-23). Similarly, management and organization of information, data, or media is also a competency area not always made explicit in digital literacy frameworks, but may be implicitly included under the umbrella of information literacy (Sparks et al., 2016).

Many digital literacy frameworks reference information literacy and other related literacies such as media, visual, or technology literacy (Alexander et al., 2017; The Global Alliance to Monitor Learning, 2018). However, few frameworks explicitly address the relationship between these literacies and may treat them as overlapping with other competencies, as a separate set of knowledge and skills, or as some combination of those approaches. For example, the Jisc Digital Capability Framework includes Information, Data, and Media Literacies as one capability area (Jisc, n.d.). In the graphic representation of their framework,

Information, Data, and Media Literacies overlaps with two adjacent areas: Digital Learning and Development, and Digital Creation, Problem Solving and Innovation.

The overlapping nature of information literacy's presence in digital literacy frameworks reflects broader complexities in the relationship between digital literacy, information literacy, data literacy, media literacy, and others. For example, Alexander et al. describe digital literacies as a combination of information and media literacy. They note that information literacy, or "critically finding, assessing, and using digital content" is a nearly universal feature of digital literacy frameworks, but describe it as just one part of the whole (Alexander et al., 2017, p. 4). In contrast, Mackey and Jacobson frame information literacy as a metaliteracy that includes digital literacy, media literacy, visual literacy, and information technology fluency (2011). According to Mackey and Jacobson, this framing "challenges traditional skills-based approaches to information literacy by recognizing related literacy types and incorporating emerging technologies" (2011, p. 62-63). As Mackey and Jacobson point out, common definitions for information literacy often focus on skills like finding and evaluating information, while excluding more complex engagement with topics like personal privacy, information ethics, and sharing information in participatory environments.

Similarly, digital literacy is often simplified to skills-based approaches, particularly related to accessing and using digital tools. To extend Mackey and Jacobson's point, traditional skills-based approaches to information literacy *and* to digital literacy tend to oversimplify their scope. Both literacies benefit from more expansive definitions that include overlapping competency areas related to creation, critical thinking, and ethical reasoning. Those developing digital literacy programs, or any literacy-related initiatives, benefit from an examination of other related literacies and reflection on how those literacies inform each other.

### **Digital Literacy at Virginia Tech**

Virginia Tech is a public research university with a student population of over 34,000 ("About", n.d.). In recent years, the university has embarked on several long-term planning and curricular initiatives, including a new general education curriculum and broad interdisciplinary initiatives for research and education. These changes have already begun to shift and, in many cases, expand the ways in which the Library engages with courses and programs.

For example, the new Pathways to General Education curriculum includes Discourse, the ability to "reason, write, and speak effectively for academic, professional, and public purposes," as one of seven core concept areas ("Pathways Concepts", n.d.). While the Discourse concept area does not call out information literacy by name, the learning outcomes associated with it include the ability to "discover and comprehend information" from a variety of sources, to "analyze and evaluate" content, and to "develop effective content" according to context, audience, and purpose ("Pathways Concepts", n.d.). In the previous general education curriculum, outcomes related to writing and discourse were fulfilled solely by the first-year writing or first-year communication course sequences. In contrast, the new Pathways curriculum has opened the possibility for other courses to fulfill this requirement. Further, Pathways has the

added requirement that students take advanced or applied credits in Discourse as well. This means that many courses, from colleges across the university, have been developed or revised to include the kinds of research and creative projects that address Discourse skills. These are often the kinds of courses likely to engage with the Library through instruction, consultation, use of spaces, and creation of course exhibits. Applied and advanced Discourse courses, in particular, may include assignments outside of the traditional research paper and students may need support in a variety of digital literacy capabilities.

New interdisciplinary initiatives are also impacting curriculum changes. These initiatives include a focus on teaching and research related to data and decision-making, information trust and security, and creativity and innovative technologies (“Destination Areas”, n.d.). Library faculty have been involved in aspects of the planning for each of these areas, including support for and collaboration on course development, research projects, and visiting speakers and events. The Library has multiple new spaces and services that align with the needs of these interdisciplinary focus areas, including creative studios where students, faculty, and community members can access technologies for 3D printing, data visualization, media design and creation, and virtual reality (Mathews et al., 2018).

In conjunction with the curricular shifts and new services described above, the Library began to envision a more coordinated effort around supporting digital literacy on campus. During the summer of 2016 the Library initiated a task force to explore existing frameworks; to examine the scope of digital literacy at Virginia Tech in relation to ongoing work around information, data, and media literacies; and to make general recommendations for future programs. The Digital Literacy Task Force (DLTF) involved nine members, including the author, with representation from across Library departments.

The DLTF began with a review of existing frameworks and definitions for digital literacy. Jisc’s Digital Capability Framework was particularly influential to the DLTF’s understanding of digital literacy (Jisc, n.d.). Jisc is a not-for-profit company in the United Kingdom that supports higher education teaching, learning, and research. The Digital Capability Framework, which positions digital literacy as “capabilities which fit someone for living, learning and working in a digital society,” was developed based on findings from a review of the literature and semistructured interviews with institutional representatives and national experts (Jisc, n.d.; Beetham, 2015). The Jisc Framework includes six elements:

- Information communication technology (ICT) proficiency
- Information, data, and media literacies
- Digital creation, problem solving, and innovation
- Digital communication, collaboration, and participation
- Digital learning and development
- Digital identity and well-being (Jisc, n.d.)

The DLTF discussed these elements as including engagement with a variety of digital tools, types of content, creation processes, and decision-making. The ACRL Framework for Information Literacy in Higher Education and its emphasis on students as “consumers and

creators of information who can participate successfully in collaborative spaces” was also key to the DLTF’s thinking (“Framework for Information Literacy for Higher Education”, 2015). While acknowledging differing views on the theoretical underpinnings and utility of the ACRL Framework, the DLTF felt that it was important to consult as a foundational document within the current landscape of information literacy instruction.

Following deep discussion of the Jisc Framework and ACRL Framework, as well as review of other existing models, the DLTF identified six overlapping areas for digital literacy:

- Tools: information and communications technology
- Creation: digital creation, innovation, and scholarship
- Content: information, data, media, and other emerging literacies
- Learning: digital learning and self development
- Interaction: communication, collaboration, and participation
- Outcome: identity and wellbeing (*Digital Literacy Task Force Report*, 2016)

These areas were intended to conceptualize digital literacy as a multilayered, dynamic set of knowledge, skills, and attitudes that may shift depending on context and individual goals.

Following the work of the DLTF, a smaller group of Library employees, led by the author, developed a draft framework to more specifically address how the aspects of digital literacy identified by the DLTF fit together. The draft framework represents four different aspects or layers for digital literacy at Virginia Tech:

- The student at the center critically engages with and actively produces a variety of digital knowledge.
- Students develop in eight core competency areas as they build towards digital literacy: Identity & Self-Development, Information & Communication Technologies, Learning, Reflective Discovery, Critical Evaluation, Ethics, Creation & Scholarship, and Communication & Collaboration.
- Five key values frame the competencies: Curiosity, Reflection, Equity & Social Justice, Creativity, Belonging, and Self-Efficacy.
- Data, information, media, and invention literacies provide different lenses for our understanding of digital literacy and span over all of the competencies and values.

This framework structure developed over the course of multiple sketches and informal conversations among Library Faculty and the Library’s creative services coordinator. The Library dean had asked what it might look like to visualize the student at the center of digital literacy. With this question as a starting point, the skill areas or competencies identified by the DLTF were grouped around an imagined student. The inter-related literacies that the DLTF identified then became the broad lens for the framework, rather than a single competency area. This structure builds on models in the literature that reflect a plurality of digital literacies, while offering a further visual emphasis on the shared competencies among these literacies (Bawden, 2001; Jones and Hafner, 2012; Belshaw, 2012). In other words, in this framework, information, data, media, and other emerging literacies share overlapping abilities across technology, creation, communication, collaboration, and identity. At this point, Library Faculty noted that the

competency areas included thus far were still missing some of the core pieces of these literacies. After a reexamination of the ACRL Framework for Information Literacy, Reflective Discovery and Critical Evaluation were added as additional competency areas.

(Table 1. Draft Competency Areas and Key Questions)

The series of values in the framework emerged as a way to think about the connections between the competency areas (which competencies should be next to each other in the graphic) as well as the broader affective aspects of digital literacy. The role of attitude and emotion has been discussed in digital literacy definitions (Eshet-Alkalai, 2004; Hall et al., 2014). However, these aspects are not often explicitly articulated in digital literacy frameworks and models, which tend to center on cognitive and technical abilities.

The draft framework graphic became a tool for sparking conversations about digital literacy across campus, with the goals of developing shared understanding and language. During these conversations feedback was solicited, ultimately leading to the revision of the framework to its current version.

(Figure 1. Draft Framework for Digital Literacy at Virginia Tech)

(Figure 2. Framework for Digital Literacy at Virginia Tech 2-1)

### **Feedback Methodology**

With the draft digital literacy framework in place, feedback was sought from a variety of campus stakeholders. Feedback goals included identifying faculty and staff perceptions of missing elements within the framework, exploring alignment to the curriculum, and identifying common challenges related to teaching and learning digital literacy competencies. Focus groups were selected to help reach these goals through both individual feedback and through interaction between participants. As discussed by Wildemuth and Jordan, the social nature of focus groups can reflect the settings in which people usually form their reactions and opinions (2009, p. 242). Focus groups can help to clarify points of agreement and difference in participant points of view (Wildemuth and Jordan, 2009).

A series of five focus groups were conducted. The first was held specifically for Library employees while the remaining four sessions were open to the university community. Participants were recruited through university email lists. Participants included Libraries' faculty and staff, teaching and research faculty from several colleges, graduate teaching assistants, and professional faculty from other university units. During the focus groups, the moderator shared a series of four open-ended questions related to the draft framework:

- Do you have any current assignments or classroom activities that address the competency areas in this draft framework? If not, could you imagine any?
- Where have you seen students struggle with digital literacy skills?



- Are there any competencies or other considerations that you feel are missing from this draft framework?
- Are there any other comments that you would like to share?

Each session lasted 60 to 90 minutes. Participants discussed the questions in small groups and shared with the larger group where time allowed. While they were not provided with specific definitions for each framework area, participants received a series of example questions that the framework areas address (see Table 1). While this lack of focused definitions may be a possible limitation of this methodology, this approach was intended to promote open interpretations from many perspectives.

The moderator took notes from general group discussion and participants were asked to record their own responses on a handout that was collected at the end of the session. A grounded theory analysis was employed to code the written responses and identify response themes (Bryant and Charmaz, 2007; Westbrook, 2010).

## **Feedback Results**

49 individuals attended the focus groups, yielding a total of 38 written responses. Major themes from their responses are grouped below by Framework Gaps, Structural Suggestions, and Challenges for Learners.

### *Framework Gaps*

In general, participants seemed to react positively to the draft digital literacy framework and were able to see connections to their own work. Nine participants indicated that they did not think that anything was missing from the framework or did not answer the question. For those who did identify potential gaps in the framework, thoughts varied among participants. One of the largest themes in feedback involved questions about where the role of the physical or analog world plays into digital literacy and this framework (nine responses). These questions came up most often at the first focus group specifically for Library employees. Participants wondered about including the limitations of digital tools as well as when and how a learner might disconnect from the digital. In contrast, one participant noted, “As we move into the 21st century, I think it will become less necessary to delineate ‘digital’ literacies from other literacies. For now, however, I think this is a productive way to frame this.” Further, this participant noted that, “Questions about how the digital bridges into the physical are more or less relevant based on the audience.” These comments highlight the need to be intentional about how we conceptualize the specifically digital context of digital literacy for different audiences.

Some participants also wondered where competencies related to authorship and intellectual property (three responses), legal issues (three), privacy and security (three), wellbeing or digital hygiene (three), and permanence or preservation (two) would fall within the draft framework. In many cases, participants acknowledged that these and other topics might already be included in the framework areas, but thought they could be more clearly highlighted or spelled out. For example, one participant wondered, “Where does security of personal data fit

into this? Security of other data?” The participant noted that questions of data security are of ethical and legal concern. Ultimately, the participant thought that these concepts “could be under Identity and Self Development actually.”

(Figure 3. Framework Gaps)

### *Structural Suggestions*

Multiple attendees made structural suggestions, particularly involving the student at the center of the framework and the Learning competency area. Attendees commented that they thought learning in a digital setting was broader than just one competency area and that it actually spans the whole framework. Similarly, some suggested that the student at the center of the framework could be broadened to learner or individual, acknowledging that digital literacy is a lifelong pursuit and for everyone, not just students.

Six participants requested that further details and examples be added to each competency area. In contrast, one participant requested a more concise framework version.

### *Challenges for Learners*

Participant perceptions of the greatest challenges for digital literacy learners varied among technical skills, critical thinking and creative abilities, and metacognition. Tools and technical skills was the most frequent response theme (14 responses). While some referenced technical skills broadly, tools and technical skills were most often framed as applied to certain contexts or as gateways to other abilities. One participant described “a whole range of basic skill needs” including understanding file types and creating email attachments. Other kinds of gateway skills mentioned included the ability to access the learning management system to participate in coursework and the ability to select a tool in order to create a particular creative output.

Core information literacy capabilities related to discovering, accessing, and critically evaluating information in many forms were also among the most frequently mentioned, with 12 attendees mentioning discovery or access and nine participants referencing evaluation. Other common competency areas mentioned included ethical behaviors and decisions (nine responses), communicating and collaborating with others (seven), management of online identity (seven), and creation of new content, particularly in open-ended assignments (six).

Beyond these more discrete skill areas, many attendees also described broad challenges for learners, including the ability to reflect on personal needs and capabilities in order to pursue help or further development (eight), the ability to adapt to rapidly changing contexts and technologies (seven), and the ability to cultivate a sense of confidence and self-efficacy when it comes to both technical and critical thinking skills (six). One participant described the challenges of overcoming the “try it and see barrier,” noting that time and lack of confidence can sometimes prevent learners from experimenting with new technologies.

(Figure 4. Faculty Perceptions of Learner Challenges)

## Discussion

Among the focus group feedback, several themes emerged that influenced revisions for the next digital literacy framework iteration. To reflect discussions around permanence, preservation, and sharing, Curation was added as an additional competency area. Identity & Self Development became Identity & Wellbeing to highlight concepts like digital wellness and digital hygiene specifically, returning to the original language in Jisc's framework.

Student became Learner at the center of the framework to reflect the centrality of the learning process to digital literacy and to emphasize that anyone can be a digital literacy learner. To that end, Learning was removed as a separate competency area because respondents discussed learning as applicable across the framework. Digital learning-related skills could still easily be represented in other competency areas, such as Discovery and Identity.

Additional revisions also worked to clarify and streamline the framework. The values of Belonging and Self-efficacy merged to become Participation, a more active framing. The adjectives Reflective and Critical were removed from Discovery and Evaluation for consistency and to remove duplication, since no other competencies have modifiers and the framework already includes Reflection as a value. Information Communication Technologies (ICT) was removed as a separate competency to reflect that, within a digital literacy framework, all competency areas involve the application of and reflection on technologies. Library faculty working on the framework were concerned that separating ICT into its own area placed too much emphasis on digital tools out of context.

The revised framework includes seven competency areas: Identity & Wellbeing, Discovery, Evaluation, Ethics, Creation & Scholarship, Communication & Collaboration, and Curation. These competencies are interconnected and can be explored in any order; each competency includes technical, critical thinking, and social aspects. Five key values frame the competencies: Curiosity, Reflection, Equity & Social Justice, Creativity, and Participation. These values connect and contextualize the competencies, addressing the *why* of digital literacy and our hopes for learners as engaged digital citizens. While each value connects strongly with the competencies it frames, each relates to competencies across the framework.

Looking forward, the digital literacy framework will help to guide the continued development of digital literacy initiatives at Virginia Tech. Upcoming work will include drafting broad learning outcomes for each competency area of the framework. These outcomes will provide more detail for the scope of each competency, and also help to align relevant pieces of existing Library educational offerings and identify areas for further development. More formal study of student perceptions and needs related to digital literacy in our context is also needed. Throughout this work, the framework will continue to provide a foundation for conversations about the scope and purpose of digital literacy at our institution as we continue to build partnerships in support of student learning.

## Conclusion

While focused on one institution, this case study seeks to share an adaptable process for beginning to explore new literacy initiatives. Developing shared language and definitions for varied literacies is a key challenge for those developing digital and other literacy-related initiatives. To address this challenge, those looking to initiate new literacy programs or to revise existing ones can begin by creating a shareable output. This output may take the form of a written definition, a series of key concepts or phrases, a graphic, or a fuller framework. Initial outputs may be original, adapted, or even already existent, drawing on the large number of existing frameworks. The major purpose for this initial output is to give partners and stakeholders something concrete to respond to. The output should be used to facilitate conversations as widely as possible, from a variety of perspectives.

To adapt the feedback mechanisms presented in this case study, conversations should be structured around gaps or tensions in the initial output, and should also encourage participants to connect the discussion to their own interests and backgrounds. For example, feedback facilitators could ask participants to identify gaps in the way the output represents digital literacy, to come up with synonyms or related concepts for the ideas present, and to identify applications to their own experiences and disciplinary perspectives.

Even after an initial framework or definition is shared and revised, broad conversations around the meaning and scope of digital literacy will need to continue. Continued conversation is key to ensuring that program development and partnerships connect back to a shared vision and that the vision continues to reflect the nature of these partnerships and learning needs.

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Table 1. Draft Competency Areas and Key Questions

Competency Area	Key Questions
Information & Communication Technologies	How do you navigate basic digital tools and spaces? Can you adjust settings and adapt tools to your needs? Can you get help when needed?
Learning	How do you learn productively in online environments? Can you utilize effective self-regulation strategies, support tools, and learning spaces?
Reflective Discovery	What are the questions driving your creative, academic, or professional work? What kinds of strategies and tools can you use to explore and access data, information, media, and other content?
Critical Evaluation	What criteria do you use to assess digital content and tools? How does this criteria change in different contexts?
Ethics	Who has access to certain information, data, media, or tools and how does this access shape its use? How can you use digital content and tools most ethically? What kinds of standards guide your work? What guides the ways in which others use your work?
Creation & Scholarship	How do you synthesize learning and research in order to create something new? What are your rights and responsibilities when participating in a scholarly, creative, or professional community? Where and how do you curate and share your data, information, media, or other creative outputs?
Communication & Collaboration	How can you participate in online environments and collaborative projects most effectively? What kinds of strategies and tools can you use for creation, project management, and sharing? How do you package communication for particular audiences?
Identity & Self Development	Who are you online? How do you create, curate, and assess this online identity in order to tell your story? Does this change for differing audiences?

Figure 1. Draft Framework for Digital Literacy at Virginia Tech

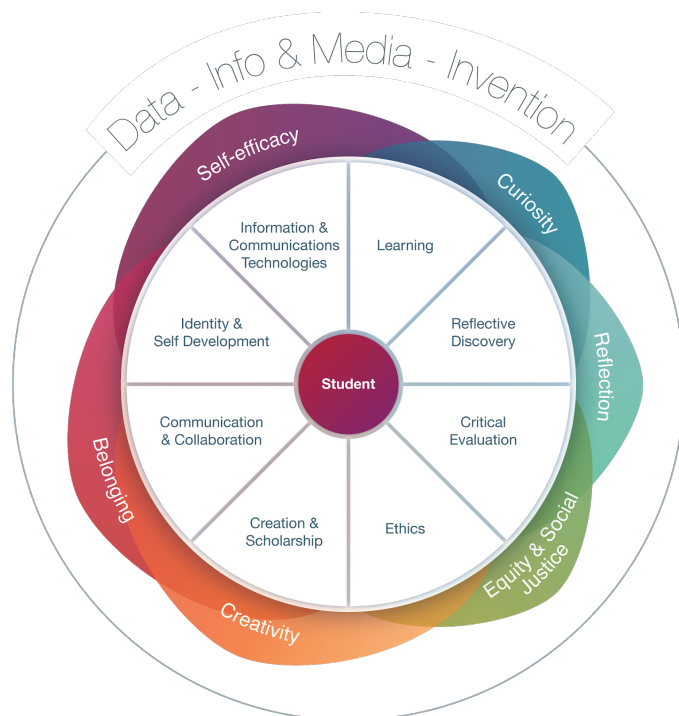


Figure 2. Framework for Digital Literacy at Virginia Tech 2-1

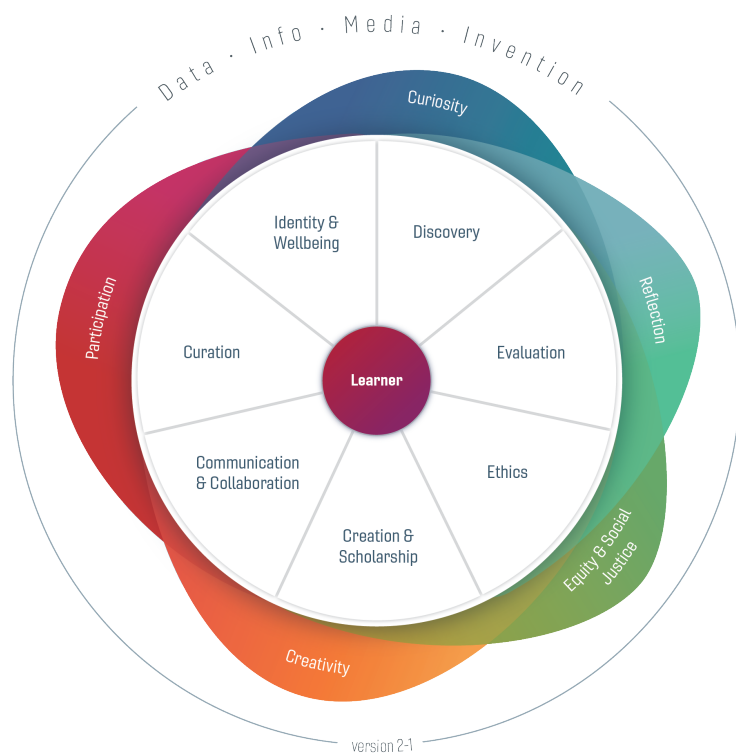




Figure 3. Framework Gaps

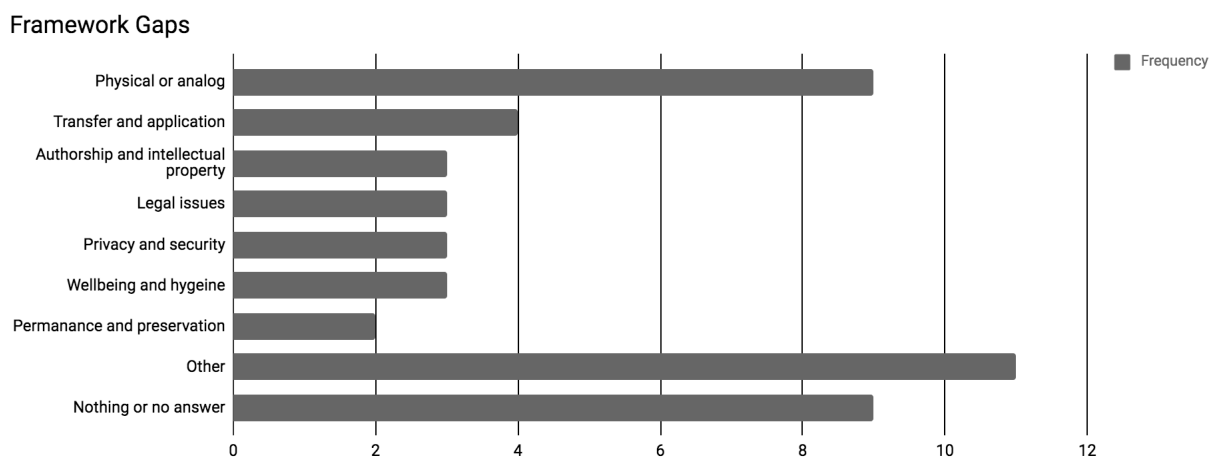


Figure 4. Faculty Perceptions of Learner Challenges

