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Elizabeth Burns
Old Dominion University, eburns@odu.edu

Melissa Gross
Florida State University

Don Latham
Florida State University

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The Information Literacy Continuum: Mapping the ACRL Framework to the AASL School Library Standards

Elizabeth Burns
Old Dominion University

Melissa Gross & Don Latham
Florida State University, USA

The Association for College and Research Libraries (ACRL) and the American Association for School Libraries (AASL), two major divisions of the American Library Association (ALA), both recently released new guidelines. These documents form the basis for information literacy and library skills instruction for PK-20 education. In this study, we explored the alignment between these documents to identify the continuum of knowledge and skill expectations as well as the dispositional attributes toward information literacy that learners are presented. Our findings identified where the content of the ACRL Framework and AASL Standards Framework for Learners documents is strongly aligned as well as the gaps in the teaching and learning continuum. These findings suggest areas for ongoing development in practical application for both PK-12 school librarians and academic librarians who provide information literacy instruction in colleges and universities.

Introduction

Information literacy instruction often begins in PK-12 classrooms. The need for information literacy skills, however, continues beyond high school graduation, following learners into the workplace and higher education. To ensure students understand how to effectively locate and evaluate information to meet academic and personal needs, as well as engage ethically as information creators and consumers, PK-20 librarians instruct learners in information literacy practices. Guiding this instruction are published documents written to assist librarians at all levels of education. The American Library Association (ALA) is comprised of several divisions including the American Association of School Librarians (AASL), which is concerned with PK-12 education, and the Association of College and Research Libraries (ACRL), focused on higher education. Each of these divisions publishes its own guiding principles and standards for the professionals they serve and represent.

In 2014 the ACRL began a revision of their *Information Literacy Competency Standards for Higher Education* with a clear shift in focus away from a skills-based approach to an approach focused on threshold concepts. Threshold concepts are core or foundational concepts that, once grasped by the learner, create new perspectives and ways of understanding a discipline or challenging knowledge domain. Such concepts produce transformation within the learner; without them, the learner does not acquire expertise in that field of knowledge. Threshold concepts can be thought of as portals through which the learner must pass in order to develop new perspectives and wider understanding. (ACRL, 2016)

In 2015, AASL began to revise the *Standards for the 21st Century Learner* (2007) into the *National School Library Standards* (2018). While the new *National Standards* focus largely on skills and observable behavior, the *Standards* also reflect inquiry-based learning (Mardis, 2017). The new

ACRL *Framework* signals a paradigmatic shift in higher education away from the standards-based approach that the ACRL once embraced. What effect this shift in focus may have on students' preparation for higher education is unknown, but important to consider. The revised and updated documents produced by both the ACRL and the AASL have now been finalized, adopted, and published. Each document is organized around fundamental ideas and defining concepts that aid in information literacy instruction and learning in libraries.

Problem Statement

Divisions of ALA maintain separate functions and governance, therefore it is not clear to what extent the two divisions communicated as they worked to update their visions of what information literacy is and how it should be taught. Though each division's workgroup accessed materials of other divisions (Filbert, 2016; AASL 2018), no documentation was found that states the divisions collaborated during the writing process. Because both of the divisions' documents have only recently been adopted, they have not yet been fully implemented in schools, colleges, and universities. Understanding the extent to which the ACRL *Framework* and the AASL *Standards* agree or have common goals in the development of information literacy skills is a first step in ensuring that information literacy instruction in these institutions provide appropriate scaffolds for learners seeking higher education.

Significance of the Problem

Student attainment of information literacy is a goal of both the ACRL and the AASL that has yet to be fully realized. While researchers (e.g., Chaudhry & Choo, 2001; Hutcherson, 2004; Redfern, 2004; Schaub, Cadeno, Bravender, & Kierkus, 2017) who explored literacy instruction in the academic setting found that students begin their college experience with a basic understanding of information literacy language, recently, researchers have demonstrated that many students enter higher education non-proficient in information literacy skills (Gerrity, 2018; Gross & Latham, 2012; Varleejs, Stec, & Kwon, 2014). While many factors that influence student attainment of information literacy, the extent to which formal definitions of information literacy agree and provide a scaffold for increasing information literacy competency has the potential to affect student success in school and in the workplace. Understanding the relationship between the expectations of the ACRL and AASL documents will inform instructional practice and educational policy. Understanding the alignment between the ACRL *Framework* and the AASL *Standards* will also inform collaboration between school and academic librarians.

Research Questions

The study reported here sought to determine to what extent the ACRL Framework and the AASL Standards align in terms of their approach to information literacy instruction, providing a scaffold for students as they transition from high school to higher education. To explore the extent of alignment, this project was guided by the following questions:

1. Do the ACRL *Framework for Information Literacy for Higher Education* and the AASL *National School Library Standards for Learners* reflect similar content?
2. If there are gaps between the documents, what are they?

Related Literature

Both the ACRL and AASL documents went through a rigorous research and feedback process that included multiple opportunities for comment and participation from key stakeholders. Early in the

revision process for the ACRL *Information Literacy Standards for Higher Education* (2000), Filbert (2016) suggested that the resulting document should align with the current set of standards in use for K-12 education, the AASL *Standards for the 21st Century Learner* (2007). As it turned out, AASL was also beginning to engage in a standards revision process.

Development of the ACRL Framework

ACRL began the *Framework* development process in June 2012 as significant revision to the ACRL *Standards of 2000* (ACRL, 2016). Drawing from Meyer and Land's (2003) theory of threshold concepts, the ACRL work introduced a different way of thinking about instruction. Threshold concepts are based in the idea that when learning new ideas, learners may need to be exposed to ideas multiple times in order to push past the point of discomfort until they reach a "threshold" of understanding and are able to include new knowledge into their authentic practices. Townsend, Brunetti, and Hofer (2011) brought the idea of threshold concepts for information literacy and this perspective became the grounding idea the ACRL Framework Task Force subsequently embraced.

A draft of the *Framework* was released for public comment in two parts, February 2014 and April 2014 (ACRL, 2016). ACRL solicited comments through online hearings, allowing for continuous open feedback, and released a revised draft in June 2014. Community members provided additional feedback through multiple ALA channels including social media and public and private email distribution lists. ACRL also solicited targeted feedback and incorporated suggestions into subsequent drafts. After a last round of feedback from the ACRL Information Literacy Standards Committee and the ACRL Standards Committee, the ACRL Standards Task Force submitted a final draft in December 2014. ACRL officially filed the final document in 2015.

The ACRL Board formally adopted the *Framework for Information Literacy in Higher Education* in 2016 (ACRL, 2016). The *Framework* includes the knowledge practices and dispositions that illustrate important learning goals for college-age students' information literacy. Knowledge practices are ways in which learners increase their understanding of the information literacy concepts; dispositions are the affective, attitudinal, or valuing dimensions learners exhibit in pursuit of information literacy.

The *Framework* is organized around six Frames that are the central "threshold" concepts determined to be an integral component of information literacy. The six Frames are:

- Authority is Constructed and Contextual
- Information Creation as a Process
- Information has Value
- Research as Inquiry
- Scholarship as Conversation
- Searching as Strategic Exploration (ACRL, 2016)

The Frames are presented in alphabetical order, as there is no hierarchical relationship among them. A clear departure from the previous ACRL *Standards*, the Frames are not intended to be learning outcomes; rather, each library and its campus partners are expected to implement the Frames to best fit their local instructional context.

An additional information literacy lens in the *Framework* is that of learners as not only consumers but also as creators of information, who use resources and information for select purposes in collaborative spaces. This recognition requires self-direction and attention to cognitive, behavioral, and affective engagement as well as evaluation and self-reflection when engaging with information. The *Framework* expects that students will engage with the concepts presented in the Framework over the course of their academic lives.

Development of the AASL National School Library Standards

AASL used a multi-year development process for the AASL *National School Library Standards*. In February 2015, AASL convened a seven-member Editorial Board to begin revising and rewriting process standards. The data and research process included oversight from a commissioned research team. In September 2015, the Editorial Board began a research process and multi-layered survey for community needs assessment (AASL, 2018). In this initial phase, the Editorial Board asked AASL members and community stakeholders to assess current needs and envision future concerns for school libraries. Over 1200 participants responded to a broad survey with an additional 60 participants engaged in focus groups across the country to provide input into the direction of the needs of the field. The Board also conducted a broad scan of the field looking at educational trends, current research and literature, and an overview of prevailing standards and guidelines in the education and library fields. After more than two years of research and writing, the AASL released the new *National School Library Standards* accompanied an aggressive, targeted implementation plan to make this document immediately accessible and useful to practicing school librarians.

The AASL *Standards* are grounded by six Shared Foundations, or central ideas on current educational practices, priorities, and trends. The Shared Foundations are: Inquire, Include, Collaborate, Curate, Explore, and Engage, as shown in Table 1. These Shared Foundations are explicated with essential explanations called Key Commitments. Each Key Commitment is further developed in four domains: Think (cognitive), Create (psychomotor), Share (affective), and Grow (developmental) (AASL, 2018). These domains are then expressed in competencies, measurable statements that describe the knowledge, skills, and dispositions essential for learners and school librarians. All Shared Foundations and their domains may be approached through multiple entry points, allowing learners to enter at the point of benefit; for example, learners may first engage with the competencies in the Think domain and progress through Create, Share, and Grow, or they might enter at any domain or competency in the continuum. Likewise, any Shared Foundation may be accessed at any point in the instruction and learning process. The Learner Standards for the PK-12 school library environment include information literacy as just one priority. The Learner Standards reflect just one framework of an integrated sets of standards developed for the *AASL School Library Standards for Learners, School Librarians, and School Libraries*, developed to reflect a comprehensive approach to teaching and learning in the school library.

Table 1. AASL Shared Foundations and Key Commitments

Shared Foundation	Key Commitment
I. Inquire	Build new knowledge by inquiring, thinking critically, identifying problems, and developing strategies for solving problems.
II. Include	Demonstrate an understanding of and commitment to inclusiveness and respect for diversity in the learning community.
III. Collaborate	Work effectively with others to broaden perspectives and work toward common goals.
IV. Curate	Make meaning for oneself and others by collecting, organizing, and sharing resources of personal relevance.
V. Explore	Discover and innovate in a growth mindset developed through experience and reflection.
VI. Engage	Demonstrate safe, legal, and ethical creating and sharing of knowledge products independently while engaging in a community of practice and an interconnected world.

Use of the Documents in Practice

Developed independently and with different purposes, both the ACRL and AASL documents are explicitly designed for nonlinear information instruction. In their introductory text, both documents state that the material is designed to be approached and used to best meet the needs of the student.

The ACRL Framework states it is “based on a cluster of interconnected core concepts, with flexible options for implementation, rather than on a set of standards or learning outcomes, or any prescriptive enumeration of skills” (ACRL, 2016, p. 2). To this end, each Frame is presented alphabetically without preference for any one Frame or prescription for how one moves through the content. Likewise, the AASL Shared Foundations, are described as “Personalized guides: learners and school librarians can enter the standards at the point most appropriate to the learning task or professional activity and use the standards to guide decisions about actions to develop specific competencies” (AASL, 2018, p. 17). The textual context further explains there is no preferred manner in which to use the document for instruction.

Through their standards, AASL articulates a vision and set of guidelines and standards to guide library instructional practices in K-12 schools (AASL, 2012). Information literacy instruction in the K-12 setting often follows an inquiry process and integrates classroom curriculum with library skills (Moreillon, 2016). In academic libraries, most information literacy instruction is provided through what are called “one-shot” single instruction events that take place in the library, classroom, or computer lab (Gross, Latham, & Julien, 2018). Librarians also conduct information literacy instruction by embedding in courses, offering credit bearing courses in information literacy, and by providing library guides, web tutorials, and videos.

The AASL *Standards* and the ACRL *Framework* are relatively new; since 2016, researchers (e.g., Fisher, 2017; Scott, 2017) have begun to explore the success of implementation of the ACRL Frames in the field. By using the *Framework* to develop learning opportunities and outcomes, librarians have helped to identify areas in which higher education students lack proficiencies. In their research, (Latham, Gross, & Julien) discovered challenges to implementing the *Framework* beyond one-shot models of instruction and that the *Framework* may be too complex for those students who arrive in higher education settings lacking basic information literacy skills. Similarly, the implementation of the *National School Library Standards* is in an early stage. Researchers have not yet systematically explored their use, leaving an opportunity for investigation.

Method

Information literacy is a skill, developed over time. This study explores the alignment of instructional content in the two developed guidelines to assess information literacy skills introduced and expected of students across the PK-20 continuum. We employed a one-way crosswalk analysis in order to address the research questions. According to Chan and Zeng (2006), a crosswalk is “a mapping of the elements, semantics, and syntax from one metadata scheme to those of another,” and further that crosswalks are “the most commonly used method to enable interoperability between and among metadata schemas.” Crosswalks are a familiar method for converting one set of standards to another. A well-known example among school librarians in the United States is the Common Core Crosswalk to the AASL *Standards for the 21st Century Learner* (AASL, 2007). Crosswalks have already been developed for the new AASL National Standards providing maps to the Future Ready Librarians Framework and the International Society for Technology in Education (ISTE) standards¹.

In this study, we conducted a one-way crosswalk analysis (A → B, Frames to Shared Foundations) to assess the relationship between the ACRL Frames and the AASL Shared Foundations. We matched the AASL *National School Library Standards* Learner Framework competencies by Shared Foundation to the ACRL *Framework* knowledge practices and disposition statements by Frame to understand how both sets of standards served students transitioning from high school to higher education.

¹ See <https://standards.aasl.org/project/crosswalks/>

To facilitate this mapping, we developed a numbering scheme for the Frames analogous to the numbering scheme used in the AASL *Standards*. In the AASL *Standards*, each Shared Foundation is identified using a Roman numeral (I. Inquire, II. Include, etc.). We identified the domains by letter (A. Think, B. Create, etc.) and within each domain, numbered the competencies (e.g., 1. Using evidence to investigate questions). For the purposes of coding, a similar numbering structure was imposed on the ACRL Frames in which each Frame is assigned a Roman numeral (I. Authority is Constructed and Contextual, II. Information Creation is a Process, etc.). Knowledge Practices are identified using the letter A and dispositions are identified using the letter B. We then sequentially numbered (1, 2, 3, etc.) the individual items listed under knowledge practices and dispositions. The numbering scheme for the ACRL Frames can be seen in the six Crosswalk tables in the Appendix.

Independently, each researcher attempted to find alignment between the two documents by assigning competencies from the AASL *Standards* to the ACRL Frames. We paid particular attention to the use of verbs in the two documents: if the element being matched to a Frame used the same verb, for example, “evaluate,” we considered this as evidence of a match. If the element being matched to a Frame did not use the exact same verb, but the verb used conveyed a similar meaning (“assess” versus “evaluate”), we considered them equivalent. Another consideration related to verb use was to consider the intent verbs used by looking at the particular element’s activity focus. For example, “Acknowledge authorship and demonstrate respect for the intellectual property of others” in the AASL Standards was considered equivalent to “Give credit to the original ideas of others through proper attribution and citation” in the ACRL Framework although the wording is considerably different.

After independently mapping an agreed upon AASL Shared Foundation to an ACRL Frame, we then met to discuss the mapping of the AASL competencies to each of the knowledge practices and dispositions within that frame. If there were differences in mapping they worked to come to a consensus before progressing to the next Frame. As a result, we analysed the competencies within the Shared Foundations for equivalency to all of the Knowledge Practices and Dispositions in each of the six ACRL Frames.

We used quantitative content analysis to identify the frequency with which specific verbs appeared in each document and looked for consistencies and differences across the two documents.

Method Limitations

There are several difficulties that can complicate the creation of crosswalks. For one, full equivalence is rare between two data schemes, even when they address similar concepts (Chan & Zeng, 2006). Another problem arises when the data in each scheme is at a different level such that the elements in one scheme need to be broken into parts in order to achieve equivalency. This was confronted in mapping the *Standards* to the *Framework* as there are competencies that contain more than one action. For example, the competency “soliciting and responding to feedback from others” contains two ideas. Breaking this statement into parts would allow the action of soliciting feedback to be differentiated from responding to feedback and thus has the possibility of improving mapping. There are a limited number of instances of these kind of compound statements in the AASL Standards, and the researchers decided not to break the Competencies down into smaller component parts, but rather to consider the statements in each scheme as the primary unit for mapping.

The need to repeat elements in order to map to another scheme was another situation that arose during the crosswalk analysis. The need for repetition often results from “different degrees of equivalency” (Chan & Zeng, 2006). Examples of this are one-to-one, one-to-many, many-to-one, and one-to-none relationships between the elements in two different data schemes. It is also possible for one or more elements in a scheme to overlap definitionally or in their range of meanings. As will be

discussed further below, there were instances in which competencies matched to multiple Frames, Knowledge Practices, and Dispositions. There were also competencies that could not be mapped to any of the Frames.

It is important to note that the resulting crosswalks reflect the interpretations of the researchers and that the replicability of the resulting crosswalks has not been established. The crosswalks mapping the AASL competencies to the six ACRL Frames are provided in the appendix to allow readers to assess the crosswalks and to consider the relationship between the two documents when placed side by side.

Findings

Even though there are six Frames in the ACRL Framework and six Shared Foundations in the AASL Standards, a one-to-one match between these high-level elements was not possible. Most Shared Foundations, such as Collaborate, had no correlate in the Frames. Other Shared Foundations such as Inquire and Explore had some equivalence with Research as Inquiry and Searching as Strategic Exploration, but at the lower level of competencies, all of the Shared Foundations had to be coded across all of the Frames to find equivalent concepts. In most cases, the AASL competencies mapped to at least one of the ACRL Frames' knowledge practices or dispositions. Thus, the relationship of the Shared Foundations to the Frames is a one-to-many relationship that fragments the Shared Foundations across all six frames. In the crosswalks (see Appendix) the competencies that could be mapped are identified for each Frame, aligned with knowledge practices and dispositions.

Alignments between the ACRL Framework and the AASL Standards

Though there are elements that did not align between the two documents, as shown in Table 3, there are some elements that strongly agree in emphasis and priority. Both the ACRL Framework and AASL Standards are interested in ethical behavior in information literacy practices, with particular attention to the participatory creation of information. A strong emphasis on the evaluation of information is also threaded through both documents. Likewise, being mindful of the audience when creating and evaluating information is stressed in both the Frames and the Shared Foundations.

The Frames with the strongest relationship to the Shared Foundations are Research as Inquiry (33 matching competencies) and Scholarship as Conversation (27 matching competencies). Forty-nine percent of the 68 total competencies in the *AASL Standards* were mapped to Research as Inquiry Frame and nearly 40% of the total competencies were mapped to Scholarship as Conversation. Authority is Constructed and Contextual, and Searching as Strategic Exploration, each had 15 matching competencies (aligning with 22% of the total competencies of the *AASL Standards*), Information Creation as a Process, and Information Has Value, each had 11 matching Competencies (i.e., aligning to just 16% of the AASL competencies).

However, the relationship between the AASL Competencies and the ACRL knowledge practices and dispositions is not a one-to-one match. While nearly 40% (27 out of a total of 68) of the AASL competencies demonstrated a one-to-one match with either knowledge practice or disposition statements, all but six (51%) of the remaining 41 competencies found multiple equivalent relationships both within single Frames and across the six Frames. For example, there are two (3%) competencies that were matched four times. One of these competencies was mapped to four different Frames, the other was mapped twice within one Frame as well as in two additional Frames, as shown in Table 2.

Table 2. AASL Competencies with the Highest Frequency of Alignment with ACRL Frames

AASL Competency	ACRL Frame Alignment
I.C.4: Adopting a discerning stance toward points of view and opinions expressed in information resources and learning products	Scholarship as Conversation: Recognize that a given scholarly work may not represent the only- or even the majority perspective on an issue. Research as Inquiry: Seek multiple perspectives during information gathering and assessment Information Creation as a Process: Assess the fit between an information product's creation process and a particular information need Authority is Constructed and Contextual: Develop awareness of the importance of assessing content with a skeptical stance and with a self-awareness of their own biases and worldview.
VI.A.2: Understanding the ethical use of information, technology, and media	Information has value: Understand that intellectual property is legal and social construct that varies by culture. Information has Value: Make informed choices regarding their online actions in full awareness of issues related to privacy and the commodification of personal information Scholarship as Conversation: Understand the responsibility that comes with entering the conversation through participatory channels Research as Inquiry: Follow ethical and legal guidelines in gathering and using information

Ten competencies (15%) were mapped three separate times to the frames and 22 competencies (32%) were mapped twice.

Inconsistencies Between the Documents

As noted above there is no one-to-one match between the Framework and the Standards. There were six AASL Competencies (9 % of the total number of Competencies) that did not match any of the ACRL Knowledge Practices or Dispositions. These gaps did not present in any one AASL Shared Foundation but rather spanned across nearly all Shared Foundations, as shown in Table 3.

Table 3. AASL Competencies not Aligned with ACRL Framework

Competency Code	Competency
II.C.2	Contributing to discussions in which multiple viewpoints on a topic are expressed
III.A.1	Demonstrating their desire to broaden and deepen understanding
IV.D.2	Integrating and depicting in a conceptual knowledge framework their understanding gained from resources
V.C.3	Collaboratively identifying innovative solutions to a challenge or problem
VI.A.1	Responsibly applying information, technology and media to learning
VI.D.3	Inspiring others to engage in safe, responsible, ethical, and legal information behaviors

Conversely, after all the AASL Competencies had been interrogated for equivalency with the Knowledge Practices and Dispositions in the ACRL Frames, 16 knowledge practices and 11 dispositions in the Framework had no counterpart in the AASL Standards' Competencies, as Table 4 depicts.

Table 4. ACRL Framework Knowledge Practices and Dispositions that Lack Equivalent Competencies

ACRL Knowledge Practices. Learners who are developing their information literate abilities:	ACRL Dispositions. Learners who are developing their information literate abilities
I.A.1: define different types of authority, such as subject expertise (e.g., scholarship), societal position (e.g., Public office or title), or special experience (e.g., participating in a historic event)	I.B.1: develop and maintain an open mind when encountering varied and sometimes conflicting perspectives
I.A.4: recognize that authoritative content may be packaged formally or informally and may include sources of all media types	II.B.1: are inclined to seek out characteristics of information products that indicate the underlying creation process
II.A.3: articulate the traditional and emerging processes of information creation and dissemination in a particular discipline	II.B.2: value the process of matching an information need with an appropriate product
II.A.4: recognize that information may be perceived differently based on the format in which it is packaged	II.B.4: accept the ambiguity surrounding the potential value of information creation expressed in emerging formats or modes
II.A.7: transfer knowledge of capabilities and constraints to new types of information products	II.B.5: resist the tendency to equate format with the underlying creation process
III.A.3: articulate the purpose and distinguishing characteristics of copyright, fair use, open access, and the public domain	III.B.1: respect the original ideas of others
III.A.5: recognize issues of access or lack of access to information sources	III.B.2: value the skills, time, and effort needed to produce knowledge
IV.A.3: deal with complex research by breaking complex questions into simple ones, limiting the scope of investigations	III.B.4: are inclined to examine their own information privilege
V.A.3: identify barriers to entering scholarly conversation via various venues	IV.B.5: value persistence, adaptability, and flexibility and recognize that ambiguity can benefit the research process
V.A.6: summarize the changes in scholarly perspective over time on a particular topic within a specific discipline;	V.B.8: recognize that systems privilege authorities and that not having a fluency in the language and process of a discipline disempowers their ability to participate and engage.
VI.A.2: identify interested parties, such as scholars, organizations, governments, and industries, who might produce information about a topic and then determine how to access that information	VI.B.3: realize that information sources vary greatly in content and format and have varying relevance and value, depending on the needs and nature of the search
VI.A.4: match information needs and search strategies to appropriate search tools	
VI.A.5: design and refine needs and search strategies as necessary, based on search results	
VI.A.6: understand how information systems are organized in order to access relevant information;	
VI.A.7: use different types of searching language appropriately	
VI.A.8: manage searching processes and results effectively	

Inconsistencies in Language

There are several other inconsistencies between the documents that were observed during the mapping process. A primary difference, which greatly complicated mapping, was that the language of the documents sets them apart. Though information literacy skills and practices are the intended outcomes, the two documents lack a common set of vocabulary to describe similar actions or activities. This difference in terms made the task of alignment difficult when nuances in language

altered meanings or definitions. Further, the ACRL Frames are written as statements while the AASL Shared Foundations are presented as verbs. Likewise, competencies within the Shared Foundations are presented as verbs, intended to represent measurable actions. A closer examination of the verbs used within the AASL *Standards* demonstrates actions that are easily measured and assessed. The most frequently used verbs in the ACRL Frames were “understand” and “recognize,” each occurring 10 times. These same two verbs appear in the AASL *Standards* much less frequently: “understand” (occurred once), “recognize” (occurred twice). With a preference for action words that are easy to measure in an assessable manner, AASL favored language such as “demonstrate” (occurred five times), “use” (occurred five times) and “engage” (occurred five times).

Inconsistencies in Focus

Another noted difference is that there is a heavy emphasis on the process of information literacy practices within the ACRL Framework, while the AASL Standards focus more heavily on the learners themselves. Given this, when the ACRL Framework does consider the learner, it is interested in the individual student. The AASL Standards are consistently concerned with the group, demonstrating an orientation to learning in a classroom environment. The AASL Standards promote concern with the interest of others and encourage the solicitation and use of feedback. The ACRL Framework is less oriented to collaboration and group work; the AASL Standards devote an entire Shared Foundation to the tenet of collaboration. These nuances in language may impact the approach to information literacy instruction as outcomes are established for the setting.

We also noted other differences between the two approaches, such as the weight given to issues of authority when considering the source of information. One of ACRL Frames focuses entirely on this consideration. In contrast, authority is not directly addressed in the AASL Standards at all. Lastly, treatment of the themes of diversity and inclusiveness varies between the two documents. The ACRL *Framework* includes these themes, but they are a much more pervasive component of the AASL *Standards*.

Discussion

Our findings demonstrate that an absolute crosswalk, which requires exact mapping between elements, cannot be achieved between the ACRL *Framework* and the AASL *Standards*. The alternative approach of relative crosswalking (Chan & Zeng, 2006) was also not achieved as not every Competency in the Standards was equivalent to either a Knowledge Practice or a Disposition in the Framework. The mapping did identify how information literacy skills were situated on a K-20 continuum of information literacy.

Curiosity-driven inquiry and the information-seeking skills of the inquiry process are the areas most closely aligned in the documents. The number of competencies matched within the Frame of Research as Inquiry supports this as a continued area of emphasis throughout all levels of education. This resonates with other research (Burke, 2017) exploring guidelines from both divisions that found skills-focused teaching is easiest to identify.

Our careful examination of the six AASL competencies not aligned within the *Framework* (as shown in Table 3) demonstrated that three of these competencies required direct interaction with others. As collaborative, interactive experiences are not the focus of the Framework it is not surprising that these would be the items to lack equivalency. An additional non-aligned AASL competency, IV.D.2: Integrating and depicting in a conceptual knowledge framework their understanding gained from resources, is heavy with jargon. It is possible that this competency may have aligned more closely had some of the vocabulary been simplified. Findings highlighting the disconnect between the crosswalks may open dialog about language and allow librarians across K-

20 to begin to standardize language and assist students transitioning from high school to higher education.

The finding that there are many ACRL Knowledge Practices and Dispositions in the Framework that are not addressed by the competencies set out in the Standards, suggests that there are aspects of the *Framework* that students may not be exposed to until they reach higher education. These provide future areas of emphasis for K-12 school librarians, specifically those working with high school students. Findings suggest school librarians should develop lessons including topics such as authority, targeted search strategies, and perspective to bridge the gap of knowledge expectation for college readiness.

In comparing the ACRL *Framework* to the earlier *Standards for the 21st Century Learner*, Burke (2017, para. 1) noted, "there are large differences in their theoretical approach to information literacy, which are revealed in their definitions, treatments of dispositions, and approach to measurement." The new AASL *Standards* explored in this study continue to use measurable language, suitable for a classroom environment. While Foasberg (2015) posits that the Framework embraced a social constructivist philosophy, similar to the theorists cited in the National School Library Standards, the crosswalk analysis described here provides support for Burke's statement as regards the relationship between the Framework and the new AASL *Standards*. The crosswalk analysis revealed that the Framework is very interested in process and its focus is on individual students, whereas the Standard's focus is on measurable tasks for learners situated in a classroom setting. The Standards see learning as co-constructed and emphasizes the collaborative and participatory nature of information use.

While there is significant overlap between the two documents, there is not a clear bridge between the two to scaffold a learner's development toward the independent scholar to which the ACRL Framework speaks. Yet, in many ways, the *Framework* and the *Standards* do work toward the same educational principles.

Conclusion

Differing priorities between the ACRL *Framework* and the AASL *Standards* make a clear continuum of information literacy instruction difficult to ascertain without the development of a bridge to help connect the two approaches in information literacy instruction. The competencies of the *Standards* do not clearly align to the threshold concepts presented in the *Framework*. The crosswalk analysis revealed a level of consistency in the knowledge and skills continuum of these two documents that will transfer from the PK-12 setting to that of post-secondary information literacy instruction. However, the documents reflect many different perspectives toward information literacy instruction; school and academic librarians may want to consider the gaps in knowledge and dispositions in their work with students.

Implications for Research

Both the Framework and the Standards are relatively new documents and their implementation in learning contexts is ongoing. Because of this, researchers have a unique opportunity to study the implementation of both of these documents and their effect on instruction and student attainment of information literacy. There is much to be learned in terms of the reactions of various stakeholders in these contexts to the resulting changes in information literacy instruction. Evaluation researchers will want to investigate the efficacy of these interventions and consider the question of how the attainment of information literacy skills can best be measured. Another interesting research question that remains is how to build a bridge between K-12 and higher education and to achieve greater collaboration across these educational levels.

Implications for Practice

Understanding the differences between these documents will allow practitioners to fill in gaps that would otherwise exist in instruction. High school students may benefit from exposure to the ACRL Framework's threshold ideas in preparation for higher education and school librarians may want to consider teaching the Knowledge Practices and Dispositions the Framework seeks, that are not addressed in the *Standards*.

Likewise, academic librarians may want to consider how these documents align when preparing instruction for first-year students. Understanding the consistencies and inconsistencies between the documents will help them design more effective instruction for first-year students. If students who are taught the *Standards* develop comfort working collaboratively in learning spaces and expect to solicit feedback, this knowledge may aid early intervention strategies when they are engaged in higher education.

In the end, the persistent call for collaboration between high school and academic libraries (Oakleaf & Owen, 2010) is still seen as an important avenue for building bridges to higher education and easing that transition for students.

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Author Notes

Elizabeth Burns is an Assistant Professor in the Library Science Program at Old Dominion University. She teaches school library education courses, preparing graduate students to work as school librarians. Her research focuses on building-level school library advocacy and exploring library practices that engage and assess students in the library learning environment. She has served on several national committees in the school library field and was recently a member of the editorial board selected to write the newly released AASL *National School Library Standards for Learners, School Librarians, and School Libraries* (AASL, 2018).

Melissa Gross is a professor in the School of Information at Florida State University and a past president of the Association for Library and Information Science Education (ALISE). She was awarded the prestigious American Association of University Women Recognition Award for Emerging Scholars in 2001. Dr. Gross has published extensively in a variety of peer reviewed journals and has authored, co-authored, or co-edited nine books. Her most recent book, with co-editors Shelbie Witte and Don Latham, is *Literacy Engagement through Peritextual Analysis* (Chicago, IL: ALA Editions, 2019).

Don Latham is a professor in the School of Information at Florida State University. His research focuses on information literacy and information behavior of young adults. In his current research he is exploring academic librarians' experiences implementing the Association for College and Research Libraries *Framework for Information Literacy for Higher Education*, and applying the Peritextual Literacy Framework (co-developed with Melissa Gross) to nonfiction resources for young adults. His most recent book, with co-editors Shelbie Witte and Melissa Gross, is *Literacy Engagement through Peritextual Analysis* (Chicago, IL: ALA Editions, 2019).

Appendix. ACRL Framework to AASL Standards Crosswalks

Crosswalk 1: ACRL Framework and the AASL Standards: Authority is Constructed and Contextual

ACRL Framework for Information Literacy	AASL Standards Framework for Learners
ACRL Structure: Frames, Knowledge practices, Dispositions	AASL Structure: Shared Foundations, Domains and competencies
I. Authority is Constructed and Contextual: Information resources reflect their creator's expertise and credibility and are evaluated based on the information need and the context in which the information will be used. Authority is constructed in that various communities may recognize different types of authority, it is contextual in that the information need may help to determine the level of authority required.	Includes domains and competencies from: I. Inquire II. Include III. Collaborate IV. Curate V. Explore VI. Engage
A. Knowledge Practices Learners who are developing their information literate abilities	
1. define different types of authority, such as subject expertise (e.g., scholarship), societal position (e.g., Public office or title), or special experience (e.g., participating in a historic event);	
2. use research tools and indicators of authority to determine the credibility of sources, understanding the elements that might temper this credibility;	I.B.1: Using evidence to investigate questions. I.C.1: Interacting with content presented by others
3. understand that many disciplines have acknowledged authorities in the sense of well-known scholars and publications that are widely considered "standard," and yet, even in those situations, some scholars would challenge the authority of those sources; 4. recognize that authoritative content may be packaged formally or informally and may include sources of all media types;	IV.B.3: Systematically questioning and assessing the validity and accuracy of information
5. acknowledge they are developing their own authoritative voices in a particular area and recognize the responsibilities this entails, including seeking accuracy and reliability, respecting intellectual property, and participating in communities of practice;	IV.C.2: Contributing to collaboratively constructed information sites by ethically using and reproducing others' work V.C.1: Sharing information resources in accordance with modification, reuse, and remix polices V.C.2: Disseminating new knowledge through means appropriate for the intended audience
6. understand the increasingly social nature of the information ecosystem where authorities actively connect with one another and sources develop over time.	II.A.1: Articulating an awareness of the contributions of a range of learners.
B. Dispositions Learners who are developing their information literate abilities	
1. develop and maintain an open mind when encountering varied and sometimes conflicting perspectives;	
2. motivate themselves to find authoritative sources, recognizing that authority may be conferred or manifested in unexpected ways;	IV.D.1: Performing ongoing analysis of and reflection on the quality, usefulness, and accuracy of curated resources.
3. develop awareness of the importance of assessing content with a skeptical stance and with a self-awareness of their own biases and worldviews;	II.A.2: Adopting a discerning stance toward points of view and opinions expressed in information resources and learning products.
4. question traditional notions of granting authority and recognize the value of diverse ideas and worldviews;	III.C.2: Involving diverse perspectives in their own inquiry process.

5. are conscious that maintaining these attitudes and actions requires frequent self-evaluation.	I.D.1: Continually seeking knowledge. II.D.3: Reflecting on their own place within the global learning community. III.D.2: Recognizing learning as a social responsibility. VI.D.1: Personalizing their use of information and information technologies
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Crosswalk 2: ACRL Framework and the AASL Standards: Information Creation as a Process

ACRL Framework for Information Literacy	AASL Standards Framework for Learners
ACRL Structure: Frames, Knowledge practices, Dispositions	AASL Structure: Shared Foundations, Domains and competencies
II. Information Creation as a Process: Information in any format is produced to convey a message and is shared via a selected delivery method. The iterative processes of researching, creating, revising, and disseminating information vary, and the resulting product reflects these differences	Includes domains and competencies from: I. Inquire III. Collaborate IV. Curate VI. Engage
A. Knowledge Practices Learners who are developing their information literate abilities	
1. articulate the capabilities and constraints of information developed through various creation processes;	II.A.1: Articulating an awareness of the contributions of a range of learners IV.D.3: Openly communicating curation processes for others to use, interpret, and validate.
2. assess the fit between an information product's creation process and a particular information need;	II.A.2: Adopting a discerning stance toward points of view and opinions expressed in information resources and learning products.
3. articulate the traditional and emerging processes of information creation and dissemination in a particular discipline;	
4. recognize that information may be perceived differently based on the format in which it is packaged;	
5. recognize the implications of information formats that contain static or dynamic information;	IV.A.3: Making critical choices about information sources to use.
6. monitor the value that is placed upon different types of information products in varying contexts;	IV.B.3: Systematically questioning and assessing the validity and accuracy of information. VI.A.3: Evaluating information for accuracy, validity, social and cultural context, and appropriateness for need.
7. transfer knowledge of capabilities and constraints to new types of information products;	
8. develop, in their own creation processes, an understanding that their choices impact the purposes for which the information product will be used and the message it conveys.	I.B.3: Generating products that illustrate learning. VI.B.3: Including elements in personal-knowledge products that allow others to credit content appropriately. VI.C.1: Sharing information resources in accordance with modification, reuse, and remix policies.
B. Dispositions Learners who are developing their information literate abilities	
1. are inclined to seek out characteristics of information products that indicate the underlying creation process;	
2. value the process of matching an information need with an appropriate product	
3. accept that the creation of information may begin initially through communicating in a range of formats or modes;	III.B.1: Using a variety of communication tools and resources.
4. accept the ambiguity surrounding the potential value of information creation expressed in emerging formats or modes;	
5. resist the tendency to equate format with the underlying creation process;	

6. understand that different methods of information dissemination with different purposes are available for their use.	VI.C.2: Disseminating new knowledge through means appropriate for the intended audience.
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Crosswalk 3: ACRL Framework and the AASL Standards: Information Has Value

ACRL Framework for Information Literacy	AASL Standards Framework for Learners
ACRL Structure: Frames, Knowledge practices, Dispositions	AASL Structure: Shared Foundations, Domains and competencies
III. Information Has Value: Information possesses several dimensions of value, including as a commodity, as a means of education, as a means to influence, and as a means of negotiating and understanding the world. Legal and socioeconomic interests influence information production and dissemination.	Includes domains and competencies from: I. Inquire II. Include III. Collaborate IV. Curate VI. Engage
A. Knowledge Practices Learners who are developing their information literate abilities	
1. give credit to the original ideas of others through proper attribution and citation;	VI.B.2: Acknowledge authorship and demonstrate respect for the intellectual property of others.
2. understand that intellectual property is a legal and social construct that varies by culture;	VI.A.2: Understanding the ethical use of information, technology and media (also posted to ACRL IV.B.8). VI.D.2: Reflecting on the process of ethical generation of knowledge
3. articulate the purpose and distinguishing characteristics of copyright, fair use, open access, and the public domain;	
4. understand how and why some individuals or groups of individuals may be underrepresented or systematically marginalized within the systems that produce and disseminate information;	II.A.3: Describing their understanding of cultural relevancy and placement within the global learning community.
5. recognize issues of access or lack of access to information sources;	
6. decide where and how their information is published;	I.C.4: Sharing products with an authentic audience VI.C.2: Disseminating new knowledge through means appropriate for intended audience.
7. understand how the commodification of their personal information and online interactions affects the information they receive and the information they produce or disseminate online;	III.B.2: Establishing connections with other learners to build on their own prior knowledge and create new knowledge (maybe)
8. make informed choices regarding their online actions in full awareness of issues related to privacy and the commodification of personal information.	VI.A.2: Understanding the ethical use of information, technology, and media. VI.C.1: Sharing information resources in accordance with modification, reuse, and remix policies.
B. Dispositions Learners who are developing their information literate abilities	
1. respect the original ideas of others;	
2. value the skills, time, and effort needed to produce knowledge;	
3. see themselves as contributors to the information marketplace rather than only consumers of it;	II.D.3: Reflecting on their own place within the global learning community (this also appears in ACRL V.B.3). III.D.2: recognizing learning as a social responsibility
4. are inclined to examine their own information privilege	

Crosswalk 4: ACRL Framework and the AASL Standards: Research as Inquiry

ACRL Framework for Information Literacy	AASL Standards Framework for Learners
ACRL Structure: Frames, Knowledge practices, Dispositions	AASL Structure: Shared Foundations, Domains and competencies
IV. Research as Inquiry: Research is iterative and depends in asking increasingly complex or new questions whose answers in turn develop additional questions or lines of inquiry in any field.	Some domains and competencies from: I. Inquire II. Include III. Collaborate IV. Curate V. Explore VI. Engage
A. Knowledge Practices Learners who are developing their information literate abilities	
1. formulate questions for research based on information gaps or on re-examination of existing, possibly conflicting, information;	I.A.1: Formulating questions about a personal interest or a curricular topic. I.A.2: Recalling prior and background knowledge as context for new meaning.
2. determine an appropriate scope of investigation;	IV.A.1: Determining the need to gather information
3. deal with complex research by breaking complex questions into simple ones, limiting the scope of investigations;	
4. use various research methods, based on need, circumstance, and type of inquiry;	III.B.1: Using a variety of communication tools and resources. IV.A.2: Identifying possible sources of information IV.A.3: Making critical choices about information sources to use V.C.2: Co-Constructing innovative means of investigation
5. monitor gathered information and assess for gaps or weaknesses;	I.B.2: Devising and implementing a plan to fill knowledge gaps. IV.B.3: Systematically questioning and assessing the validity and accuracy of information. V.D.1: iteratively responding to challenges
6. organize information in meaningful ways;	IV.B.4: Organizing information by priority, topic, or other systematic scheme.
7. synthesize ideas gathered from multiple sources;	II.B.3: Representing diverse perspectives during learning activities.
8. draw reasonable conclusions based on the analysis and interpretation of information.	I.B.1: Using evidence to investigate questions. I.D.3: Enacting new understanding through real-world connections.
B. Dispositions Learners who are developing their information literate abilities	
1. consider research as open-ended exploration and engagement with information;	I.D.2: Engaging in sustained inquiry. V.A.3: Engaging in inquiry-based processes for personal growth.
2. appreciate that a question may appear to be simple but still disruptive and important to research;	V.A.2: Reflecting and questioning assumptions and possible misconceptions
3. value intellectual curiosity in developing questions and learning new investigative methods;	I.D.1: Continually seeking knowledge.
4. maintain an open mind and a critical stance;	II.B.2: Evaluating a variety of perspectives during learning activities.
5. value persistence, adaptability, and flexibility and recognize that ambiguity can benefit the research process;	
6. seek multiple perspectives during information gathering and assessment;	II.A.2: Adopt a discerning stance toward points of view and opinions expressed in information resources and learning products. II.D.2: Demonstrating interest in other perspectives during learning activities. III.A.2: Developing new understandings through engagement in a learning group. III.A.3: Deciding to solve problems informed by group interaction.

	<p>III.B.2: Establishing connections with other learners to build on their own prior knowledge and create new knowledge.</p> <p>III.C.2 Involving diverse perspectives in their own inquiry process.</p> <p>IV.B.1: Seeking a variety of sources</p> <p>IV.B.2: Collecting information representing diverse perspectives</p>
1. seek appropriate help when needed;	<p>III.C.1: Solicit and respond to feedback from others.</p> <p>V.D.3: Open-mindedly accepting feedback for positive and constructive growth</p>
2. follow ethical and legal guidelines in gathering and using information;	<p>VI.A.2: Understanding the ethical use of information, technology, and media.</p> <p>VI.B.1: Ethically using and reproducing other's work.</p>
3. demonstrate intellectual humility (i.e., recognize their own intellectual or experiential limitations).	<p>I.D.4: Use reflection to guide informed decisions.</p> <p>V.D.2: Recognize capabilities and skills that can be developed, improved and expanded</p>

Crosswalk 5: ACRL Framework and the AASL Standards: Scholarship as Conversation

ACRL Framework for Information Literacy	AASL Standards Framework for Learners
ACRL Structure: Frames, Knowledge practices, Dispositions	AASL Structure: Shared Foundations, Domains and competencies
V. Scholarship as Conversation: Communities of scholars, researchers, or professionals engage in sustained discourse with new insights and discoveries occurring over time as a result of varied perspectives and interpretations.	Includes domains and competencies from: I. Inquire II. Include III. Collaborate IV. Curate V. Explore VI. Engage
A. Knowledge Practices Learners who are developing their information literate abilities	
1. cite the contributing work of others in their own information production;	VI.B.1: Ethically using and reproducing others' work. VI.B.2: Acknowledging authorship and demonstrating respect for the intellectual property of others.
2. contribute to scholarly conversation at an appropriate level, such as local online community, guided discussion, undergraduate research journal, conference presentation/poster session;	I.C.1: Interacting with content presented by others. I.C.4: Sharing products with an authentic audience. II.B.1: Interacting with learners who reflect a range of perspectives. II.C.1: Engaging in informed conversation and active debate. III.D.1: Actively contributing to group discussions. IV.C.2: Contributing to collaboratively constructed information sites by ethically using and reproducing others' work VI.C.2: Disseminating new knowledge through means appropriate for the intended audience
3. identify barriers to entering scholarly conversation via various venues;	
4. critically evaluate contributions made by others in participatory information environments;	I.C.2: Providing constructive feedback IV.C.1: Assessing and evaluating collaboratively constructed information sites.
5. identify the contribution that particular articles, books, and other scholarly pieces make to disciplinary knowledge;	II.A.1: Articulating an awareness of the contribution of a range of learners.
6. summarize the changes in scholarly perspective over time on a particular topic within a specific discipline;	
7. recognize that a given scholarly work may not represent the only -or even the majority- perspective on the issue	II.A.2: Adopting a discerning stance toward points of view and opinions expressed in information resources and learning products.

	III.C.2: Involving diverse perspectives in their own inquiry process
B. Dispositions Learners who are developing their information literate abilities	
1. recognize they are often entering into an ongoing scholarly conversation and not a finished conversation;	I.D.3: Enacting new understanding through real-word connections (maybe)
2. seek out conversations taking place in their research area;	II.D.1: Seeking interaction with a range of learners. III.D.1: Actively contributing to group discussions
3. see themselves as contributors to scholarship rather than only consumers of it;	I.C.4: Sharing products with an authentic audience II.D.3: Reflecting on their own place within the global learning community. VI.B.3: Including elements in personal-knowledge products that allow others to credit content appropriately
4. recognize that scholarly conversations take place in various venues;	V.A.1: Reading widely and deeply in multiple formats and write and create for a variety of purposes.
5. suspend judgment on the value of a particular piece of scholarship until the larger context for the scholarly conversation is better understood;	V.A.2: reflecting and questioning assumptions and possible misconceptions
6. understand the responsibility that comes with entering the conversation through participatory channels;	III.D. 2. recognizing learning as a social responsibility VI.A.2 Understanding the ethical use of information, technology and media
7. value user-generated content and evaluate contributions made by others;	I.C.1 Interacting with content presented by others. II. D.2 Demonstrating interest in other perspectives during learning activities. IV.C.3 Joining with others to compare and contrast information derived from collaboratively constructed information sites.
8. recognize that systems privilege authorities and that not having a fluency in the language and process of a discipline disempowers their ability to participate and engage.	

Crosswalk 6: ACRL Framework and the AASL Standards: Searching as Strategic Exploration

ACRL Framework for Information Literacy	AASL Standards Framework for Learners
ACRL Structure: Frames, Knowledge Practices, Dispositions	AASL Structure: Shared Foundations, Domains, and Competencies
I. Searching as Strategic Exploration: Searching for information is often nonlinear and iterative, requiring the evaluation of a range of information sources and the mental flexibility to pursue alternate avenues as new understanding develops.	Includes domains and competencies from: I. Inquire III. Collaborate IV. Curate V. Explore VI. Engage
A. Knowledge Practices Learners who are developing their information literate abilities	
1. determine the initial scope of the task required to meet their information needs;	I.A.1: Formulating questions about a personal interest or a curricular topic I.B.2: Devising and implementing a plan to fill knowledge gaps IV.A.1: Determining the need to gather information.
2. identify interested parties, such as scholars, organizations, governments, and industries, who might produce information about a topic and then determine how to access that information;	IV.A.2: Identifying possible sources of information.
3. Utilize divergent (e.g., brainstorming) and convergent (e.g., selecting the best source) thinking when searching;	V.A.3: Engaging in inquiry-based processes for personal growth.
4. match information needs and search strategies to appropriate search tools;	

5. design and refine needs and search strategies as necessary, based on search results;
6. understand how information systems (i.e., collections of recorded information) are organized in order to access relevant information;
7. use different types of searching language (e.g., controlled vocabulary, keywords, natural language) appropriately;
8. manage searching processes and results effectively.

B. Dispositions

Learners who are developing their information literate abilities

1. exhibit mental flexibility and creativity;	I.D.4: Using reflection to guide informed decisions V.B.1: Problem solving through cycles of design, implementation, and reflection.
2. understand that first attempts at searching do not always produce adequate results;	V.D.1: Iteratively responding to challenges.
3. realize that information sources vary greatly in content and format and have varying relevance and value, depending on the needs and nature of the search;	
4. seek guidance from experts, such as librarians, researchers, and professionals;	I.C.3: Acting on feedback to improve III.C.1: Soliciting and responding to feedback from others? V.D.3: Open-mindedly accepting feedback for positive and constructive growth.
5. recognize the value of browsing and other serendipitous methods of information gathering;	I.D.1: Continually seeking knowledge V.A.1: Reading widely and deeply in multiple formats and write and create for a variety of purposes.
6. persist in the face of search challenges, and know when they have enough information to complete the information task	I.D.2: Engage in sustained inquiry V.B.: Persisting through self-directed pursuits by tinkering and making.