Connection Information: Connected Learning and Information Practices

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Connected learning is a framework for learning in online environments. It encourages learning design to be peer supported, interest driven, academically oriented, production centered, based on a shared purpose and openly networked how to design learning opportunities that are connected requires school librarians and information professionals to understand the information practices involved in connected learning. This research examined previously collected data, to compare information practices of teen content creators to connected learning practices of the same participants. It suggests specific information practices that are imbedded in connected learning principles.

Introduction
Learning is a daily activity embedded in our life world; it is not limited to the hours spent in a classroom. We engage in our world in different ways, and in doing so encounter information that we question, assimilate, and use to confirm what we know. This requires one to make connections between new information and existing knowledge. Therefore, learning is in a word—connected. When we engage with information we connect to ourselves, our understandings, our experiences, as well as with others and to the world around us.

The initial research question focused on information literacy skills needed by teens’ in a Web 2.0 environment. As the initial study used grounded theory as a methodology, interviews suggested a need for a different framework to truly understand teen content creators’ experiences. The emergent research question was: what are the information practices of teen content creators? As I was engaged in data collection and analysis, the connected learning framework emerged from the Digital Media and Learning Research Hub (Ito, Gutierrez, Livingstone, Penuel, Rhodes, Salen, & Watkins 2013). There were interesting parallels in the work leading to the research question that guided this paper: What are the intersections of teens’ information practices and connected learning?

Literature Review
It is obvious by now that technology continues to provide opportunities for learning practices that connect us beyond our local contexts. Newer technologies have improved these opportunities, and we are still building and exploring ways to use digital technologies to
provide learning opportunities that are transformative. Recognizing shifts in the information age, connected learning reveals a model that “draws on the power of today’s technology to fuse young people’s interests, friendships, academic achievement through experiences laced with hands-on production, shared purpose and open networks” (Ito, Brazil, Rheingold, & Brown, 2016). The principles of connected learning encourage openness and connectivity, they are cross-generational and cross-cultural, and they encourage connection between academic and everyday practices. While connected learning does not theorize how people learn, it is located in constructivist theory, believing that learning is socially oriented as members of a community engage in constructing shared understandings.

**Connected Learning**

Connected learning calls for education that is “socially embedded, interest-driven, and oriented toward educational, economic, or political opportunity (Ito, et al. 2013). It is positioned as a framework for learning and intervention based on six principles. Connected Learning:

- Is based on the belief that learning is a social activity that is “fluid and highly engaging” and therefore peer supported.
- Suggests that youth participate in learning that is personally relevant and interest driven.
- Connects personal interest to “academic studies, civic engagement, and economic opportunities”, and is therefore academically oriented.
- Is production centered in which youth create content of a variety of formats, both digital and analog product.
- Based on a shared purpose that is cross-generational and cross-cultural.

These principles are representative of the ways youth learn when engaged in digital communities, but they are also relevant to schools and libraries.

Learning requires information, in all of its forms, and therefore if we are to discuss the model of connected learning we should ask how is information used in connected learning? Information underpins learning, and engaging with information is how one learns. Librarians have defined this as information literacy. In 1989 when the ALA Presidential Committee defined information literacy, they defined an information literate person as “someone who has learned how to learn” (American Library Association). Emergent from the concept of information literacy has been a series of standards that guide teaching students how to access, evaluate, and use information to support their learning. The most recent standards school librarians rely on are the *Student Learning Standards of the 21st Century Learner* (Note: As of 2016, these standards are under revision). There are four standards with multiple benchmarks. The standards are:

- Inquire, think critically, and gain knowledge.
- Draw conclusions, make informed decisions, apply knowledge to new situations, and create new knowledge,
- Share knowledge and participate ethically and productively as members of our democratic society.
- Pursue personal and aesthetic growth (American Association of School Librarians, 2009).
Table 1 highlights how Connected Learning principles are related to these four standards.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Related Connected Learning Principles</th>
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<tbody>
<tr>
<td>Inquire, think critically, and gain knowledge.</td>
<td>Interest Driven</td>
</tr>
<tr>
<td>Draw conclusions, make informed decisions, apply knowledge to new situations, and create new knowledge,</td>
<td>Interest Driven Academically Oriented</td>
</tr>
<tr>
<td>Share knowledge and participate ethically and productively as members of our democratic society.</td>
<td>Peer Supported Production Centered Shared Purpose Openly Networked Interest Driven</td>
</tr>
<tr>
<td>Pursue personal and aesthetic growth</td>
<td>Production Centered</td>
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Standards are a guide for our teaching; connected learning is a framework that can suggest approaches to teaching to the standards.

**Examples of Connected Learning**

The Digital Media and Learning Research Hub provides many examples of connected learning including online communities built around video games (Kow, 2014), or schools such as Quest to Learn (Salen, Torres, Wolozin, Rufo-Tepper, & Shapiro, 2010), or community spaces such as YouMedia (Larson et al., 2013). However, other examples have emerged in research as well. Gardner and Davis documented many examples of youth using mobile apps to connect and learn (Gardner & Davis, 2013). For instance, they shared an example of a young woman sharing “vids” on LiveJournal where she learned technical skills and received feedback from peers. Curwood & Fink (2013) examined how online affinity spaces based on young adult literature can have positive impacts on literacy development. In research with marginalized youth, Ng-A-Fook and others (2014) demonstrated how social networking extends social activism curriculum and improved academic performance by students. These studies all indicate that the connected learning framework has been successful in developing skills valued in the student learning standards such as the use of tools to access information, displaying new knowledge, connecting to community issues, as well as personal interests, and participating in the social exchange of ideas (American Association of School Librarians, 2009).

On the other hand, research demonstrates a gap in youth’s capacity to participate, and their understanding and development of skills related to access and evaluating information, as well as sharing knowledge in community spaces (Head & Eisenberg, 2009; James, 2014; Livingstone, 2008; Subramaniam et al., 2015). Popular perceptions of youth’s digital and information literacy and engagement can be found to be false. For instance, Banajai (2011) suggests that youth are not as civically engaged online as they are perceived to be. Subramaniam, et al. (2015) found that tweens assessment of credibility related to health issues “lacked one or more basic information literacy skills” (p. 560). In regard to academic activities research suggest that undergraduates lack critical skills in accessing and evaluating information (Gross & Latham, 2009; Hargittai, 2010; Head, 2013). This lack may be because as Erstad (2011)
pointed out youth may be critical of extending technologies perceived as out of school technology to school activities. Furthermore there is indication that simply providing the space for connected learning instructional support (not direct instruction per se) is also necessary (Bilandzic, 2016). The above findings suggest that school librarians have a critical role in helping students connect out of school and in school learning activities. They are critical in teaching youth how to improve information literacy skills that will impact their academic capacity.

**Information Practices**

It is necessary to define how the word practice is used in this context. Practices are socially situated, meaning is negotiated through interaction, they are physically enacted and tools of the community constrain and enable practice (Kemmis, 2011; Schatzki, Knorr Cetina, & von Savigny, 2001). Research in practices in digital spaces demonstrates how the practices are socially situated, the meaning of the community’s content is negotiated among members, and the practices are shaped by the tools of the community (boyd, 2008; Buckingham, 2008; Ito et al., 2010; Margaryan, Littlejohn, & Vojt, 2011; Ransdell, Kent, Gaillard-Kenney, & Long, 2011; Seiter, 2008). This definition is consistent with the definition used in connected leaning (Ito, et al., 2013). Youth develop online practices independent of academic practices in many cases. Evidence has suggested that digital practices youth engage in are not transferred to academic practices (Hargittai, 2010; Margaryan et al., 2011), or were ineffective (Head & Eisenberg, 2009), unethical (James, 2014), and risky (Livingstone, 2008). Despite the concerns there is evidence of successful practices that have also emerged (boyd, 2014; Ito et al., 2010; Ng-A-Fook et al., 2014; Tapscott, 2009). It is helpful for teachers, school librarians, and other mentors to identify information practices youth use so that we may provide instructional support, and to critically address problematic practices. This paper attempts to examine how practices are enacted in regard to information access and use for youth engaged in a connected learning activities.

**Information Practices of Online Creative Pursuits**

The Internet provides opportunities for youth to participate in creative pursuits and share their products widely. Creative pursuits include: film-making (Lange, 2014; Miller, 2010), writing (Alexander, 2006; Chandler-Olcott & Mahar, 2003), sharing art, and world building through collaboration, as well as more digital forms of art such as game development, web design, vidding (short fan videos based on popular culture) (Gardner & Davis, 2013), or machinima (using video game graphics to create film/animation) (Bittani, 2010; Ito et al., 2010; Lowood, 2008; Martens, 2011). Communities develop to support and share the products of these creative pursuits. Within these communities information practices are negotiated and performed.

This research project focused on youth involved in online communities to produce and share creative productions (Harlan, 2012). During this research, five information practices were identified: learning community, negotiating aesthetic, negotiating control, negotiating capacity, and representing knowledge. The five information practices reflect the intersection of information activities that youth engaged in and the ways information was experienced during these activities. The practices overlapped and were iterative in nature.
Methodology

Data Collection for Information Practices

In this research Charmaz’s (2006) grounded theory approach is a social constructionist approach, that is, a belief that knowledge is constructed through interaction with others. Data were concurrently collected and analysed to identify emergent categories. Through memo-ing, categories were related to one another to develop a theory of information practices in online content creating communities.

The participants in this study were initially identified through local teachers who had observed these teens involved in content creating and sharing activities. After initial contact with teens snowball sampling was used, as teens recommended friends and acquaintances that were involved in similar activities. Data were collected via semi-structured interviews with 11 participants between the ages of 14 and 19. Table 2 provides an overview of the participants.

<table>
<thead>
<tr>
<th>Participant</th>
<th>Age</th>
<th>Content Format</th>
<th>Community of Practice</th>
</tr>
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<tbody>
<tr>
<td>Eilowyn</td>
<td>18</td>
<td>Writing/Fan fiction</td>
<td>FanFiction.net</td>
</tr>
<tr>
<td>Goku</td>
<td>16</td>
<td>Video</td>
<td>Vimeo</td>
</tr>
<tr>
<td>Hannahsuzzannah</td>
<td>17</td>
<td>Website/Graphic Design</td>
<td>MoonFruit/Local</td>
</tr>
<tr>
<td>Jack</td>
<td>17</td>
<td>Programmer</td>
<td></td>
</tr>
<tr>
<td>Loli</td>
<td>17</td>
<td>Blog</td>
<td>WordPress/Blogger/Local</td>
</tr>
<tr>
<td>Robert</td>
<td>17</td>
<td>Role-playing</td>
<td>MyFastForum/Local</td>
</tr>
<tr>
<td>Roni</td>
<td>17</td>
<td>Visual Art</td>
<td>DeviantArt</td>
</tr>
<tr>
<td>Salamonde</td>
<td>18</td>
<td>Music</td>
<td>SoundCloud</td>
</tr>
<tr>
<td>Sam</td>
<td>19</td>
<td>Music</td>
<td>ReverbNation</td>
</tr>
<tr>
<td>Xeda</td>
<td>15</td>
<td>Visual Art</td>
<td>DeviantArt</td>
</tr>
</tbody>
</table>

Participants were involved in online communities focused on creating and sharing a variety of content. The content included storytelling that extended Live Action Role Playing (LARP) worlds; fan fiction; creative filmmaking; visual art and comics; music and music videos; web site design; and game design and development, including beta testing. The researcher conducted hour long interviews based on the questions listed in the Appendix, and, as categories emerged, additional questions were asked to develop emergent ideas. Follow-up interviews occurred both in person and via email where the researcher’s analysis was shared with participants for further comment. The final four participants participated in theoretical sampling interviews designed to interrogate the emerging theory and to ensure both theoretical saturation, and theoretical consistency (Dey, 1999). Additionally, observation of participants’ online communities occurred over the course of one year. The researcher did not participate beyond observation in these communities but used observations to confirm interview findings and analysis and to explore contradictions with participants in follow up interviews.

Initial Data Analysis Procedures

Data collection and analysis were ongoing and simultaneous. Interview questions were continually modified to explore what was emerging in the data. After an interview was completed and transcribed the coding process was initiated to identify emerging themes, ideas
and concepts. Conceptual categories were then developed through an iterative coding process. Interviews were initially coded through an open coding process using the recommended technique of coding actions through the use of gerunds, or a verb form that can function as a noun (Charmaz, 2006, p. 49). Codes were then compared and categorized, applied to previous interviews through focused coding using the emergent categories. As the categories emerged they were presented to participants for comment and additional insight. This was an effort to ensure the theory was “co-constructed” (Charmaz, 2006, p. 130) and to give voice to the teens. This process continued until categories could be considered saturated or “theoretically suggestive” (Dey, 1999, p. 117) and additional information was no longer found. This analysis identified five information practices and a model of how the practices interacted (Harlan, 2012).

![Diagram of Information Practices](image)

**Figure 1. Information Practices**

Figure 1 depicts the information practice process: negotiating aesthetic, control, and capacity enabled the practice of representing knowledge furthering engagement in the information practice of learning community. Below I examine the practices in more detail.

**Learning Community**

Learning community is how members understand the purpose and structure of the community, the roles within the community, norms of community interaction that represent implicit rules of the community, as well as the explicitly stated guidelines. Learning community consists of activities such as observing how a community interacts, identifying the artifacts a community values, and recognizing how members of the community shape their online profile. Youth participate in evaluating information for personal relevance, as well as evaluating the tone of the community wanting it to be “welcoming.” Youth contribute to the knowledge of the community through sharing artifacts. When they share, they participate in an iterative process, observing how others responded to their artifacts, and evaluating that response to shape their next artifact. Youth experience information as participation, which is social interaction within a particular community (Harlan, 2014). Learning community occurs initially through observation, but a community was truly understood through active participation in that community.

**Negotiating Aesthetic**
Negotiating aesthetic is an information practice that assists youth in defining what they personally value and how they define originality. Activities youth engage in include serendipitous encountering and focused browsing. Information came to them when they were not consciously looking, or when they were unsure of what they wanted. For instance, Xeda described “just kind of look[ing] at things” on DeviantArt. They subconsciously muse when they encounter information that “speaks to” them (Hannahsuzannah) and later more consciously consider the information. They try to recreate the feeling they developed in relation to information through modeling their own content on the artifact. Emotional response to information was important, and information is experienced as inspiration, as Swift said ‘a lot of my inspiration comes from an emotion or how something emotionally affects me.’ In negotiating aesthetic, youth were considering what mattered to them.

**Negotiating Control**

Negotiating control is the information practice of constructing personal understandings. Youth participate in information activities such as a direct search for needed information, considering information in relation to what was already known, planning on how to apply the information and composing an artifact to contribute to community knowledge. Youth engage directly in the negotiation of community demonstrating a shared understanding of knowledge. Information is experienced as collaboration as members of the community discuss and share artifacts and ideas. The discussion and sharing shapes the purpose of a community, establishes norms of interaction, and improves individual skills necessary to participate. While this is similar to learning community, it is a practice that enabled learning community by providing information upon which the learning community was built.

**Negotiating Capacity**

The information practice of negotiating capacity is the practice of youth using and applying information in creating content to share within a community. The information activities include direct searching for information related to skills youth needed to develop, using that information to plan their artifact, reflecting on the process of doing, considering “how to adjust it to my own preference” (Sam). They participate in modeling and composing artifacts to “see if [they] could do it” (Robert, Goku, Hannahsuzzanah). Information is experienced as process, as youth use the tools to create an artifact. Information is an embodied experience as well as they use tools available to create an artifact.

**Representing Knowledge**

The information practice of representing knowledge involves information activities such as modeling, composing, and reflecting. Youth create and share modelled or original artifacts with communities. Information is experienced as artifact, both as the concrete object and as the process of creating as they reflect on what they have learned, what they would do differently, or how they could improve the composition. They sometimes “do it four or five times to get it right” (Sam). Representing knowledge is a culmination of the previous information practices, but also enables continued engagement. It refines youth’s understanding and is a specific representation of what they know.
Secondary Data Analysis for Connected Learning

In order to explore how information practices were used in connected learning, the interviews were re-coded on clean transcripts through a thematic coding process for appearance of the following: interest based, peer supported, academically oriented, production oriented, shared purpose, and openly networked. While the data collected were not designed to elicit this information, the principles of connected learning naturally emerged in the data.

Following this coding session, interviews from the same participants were compared side by side to determine the following overlap between connected learning principles and information practices and elements of information practices such as information actions and experiences embedded within the identified connected learning code.

The coded transcripts from the initial and secondary analysis were examined to identify chunks of text and the specific codes of each text chunk to connect information practices and connected learning principles.

Findings

Interest Based Learning

Connected learning is interest-based; youth participate in learning because they find it personally relevant (Ito et al., 2010). The information practice of negotiating aesthetic was particularly strong in relation to interest-based learning. Participants experienced information as inspiration for their interests and enthusiasms, such as a “fondness for fantasy” (Roni) or how “camera angles and different cuts and transitions” work in movies (Goku). Information was encountered serendipitously encouraging an emotional response that signaled interest for youth, often speaking of “emotional reactions” (Salamonde, Hannahsuzanah) or things they “fell in love with” (Sam, Loli). Information came when they walked down a street, used Stumbleupon, or overheard a conversation. It was followed up with focused browsing in which youth searched for information in a less than specific manner, while still identifying connections to their interests. Xeda described this thusly: “I’ll type in like an image I want to see, I don’t know like flower or something into the search and I’ll just scroll through there and look at some things and favorite some things and so on and so forth.” Information seeking activities were simultaneous with an unconscious musing on the encountered information, followed by a more conscious considering of how the information was shaping their interest. Sam spoke of her background, which influenced her music to be more socially conscious exposing what she saw “walking down the street, the homeless, the drugs,” but she also linked it to her interest in 90s rapper Tupac Shakur. Her information practice of negotiating aesthetic led her to consider her interest in socially conscious rap music. In participating in interest based learning teens were involved in the practice of negotiating aesthetic.

Peer Supported

Connected learning is peer supported; peers play roles as both experts and learners (Herr-Stephenson, 2010). The information practice of negotiating control is most closely connected to
peer supported learning. Information is experienced as collaboration as youth make sense of the knowledge of the community. They participate in the community through sharing content, receive feedback that shapes how they understand what the community values, and improve their content to meet community norms. They view this information exchange as a collaborative process that improves their content. Negotiating control of information occurs in collaboration with mentors within the community that are seen as expert. Loli admitted that at first her work was “a total copy” of people she came to see as mentors. She felt her content improved and became more her own as she moved into modeling her own work, and eventually developing her own voice. In some instances, peers within the community took interest in teens’ work. Both Roni and Goku had community members contact them with constructive critique and advice. Roni specifically said, “one artist did this really massive critique on a piece that I did and I really really appreciated it because it helped a lot.” Peer supported learning was essential to how youth negotiated control of information, making it their own knowledge.

Additionally negotiating control through peer supported learning fostered increased engagement because the interest in the project increased. Jack described this as creating “playfully,” where he and his collaborative partner “would have these feature wars, we would see who could learn how to do what the fastest, and who could implement it the fastest, and who could have the most features” and that it was not fun after his partner left. Roni also noted that she “responds really well to encouragement and bouncing ideas of each other.”

**Academically Oriented**

Connected learning acknowledges that learning skills out of school impacts and improve academic skills, therefore positioning itself as academically oriented. The information practice of negotiating capacity closely aligns with the principle of academically oriented. Negotiating capacity is the practice of developing skills, and information is experienced as the process of doing something. For instance, youth made direct correlations to school in regard to specific content. Using the out of school skills they developed such as video editing, beta reading (editing), or life drawing techniques, they responded to specific school assignments. Eiolwyn discussed this intersection with her fan fiction and English class saying “whereas everything [fanfiction] I do is influenced by it [English class].” Recognizing skills they developed through their online communities in less direct connections was not always apparent to my participants. However, they demonstrated improved search strategies recognizing the need for specificity, identifying that “you have to be very specific on what you want” (Goku). They developed this skill through trial and error while creating content. And while this might not be the ideal way to learn, it was a skill that transferred to other search situations as demonstrated by Robert who had learned to use specificity in searching how to videos, and then in his school research assignments. Additionally, the ability to apply skills such as filmmaking in English class was identified as a motivation, with one participant suggesting: “I do use what have learned [informally] in school” (Robert) and another talking about how her fanfiction gives her a “feeling for what you learn didactically in class.” While the youth did not note obvious connections immediately, the information practice of negotiating capacity impacted academic skills.

**Production Centered**
Connected learning values production for an authentic audience. The clearest information practice that is embedded in the production-centered principle is representing knowledge. Representing knowledge is an information practice enabled by the other four practices. Information is experienced as an artifact that is produced by youth. Learning is not occurring through observing or listening, although ultimately those activities have occurred; it is enabled by doing, by enacting a production. For instance, Eiolwyn would receive feedback that her characters actions were OOC (Out of Character) that gave her “a feeling of what you should do.” Goku had the most specific story of learning how to do stop motion through an editing process that required multiple editing attempts to improve the final product, each editing process resulted in an artifact that determined the next step. Reflection occurs while experiencing information as artifact that enables youth to identify their learning. Sam discussed the reflection on feedback process thusly, “I can be extremely stubborn and be like, ‘You don’t know what you’re talking about.’ But then I’ll go home and listen to it and be like, oh, he’s right, I owe him an apology. And then I’ll change it.” Representing knowledge was a direct connection to the production-centered principle because they both center on an artifact or performance. Still, because the information practice of representing knowledge cannot occur without negotiation of interest, knowledge, and skills, production-centered aspects can be said to incorporate all information practices.

**Shared Purpose**

Connected learning as interest based and peer supported is based on a shared purpose. The information practice most closely associated with this principle is learning community. Shared purpose is not only sharing content but also using content to establish identity, or civic engagement, or frankly, to make the world a more beautiful place within a shared aesthetic. Learning community is an information practice that allows youth to understand and participate in the shared purpose. Information is experienced as participation and it is through these information experiences that youth construct the understanding of the shared purpose. The purpose of the community helps them establish their role. For instance, Jack discussed two different communities: one “was a serious community with a serious mission” that he did not want to participate in too deeply because he felt he couldn’t contribute. In the other he wanted to participate in but was careful in his approach because “they really chew newbies up.” His content went through multiple drafts before sharing. Shared purpose as a principle is not limited to youth within a specific context; it is cross-generational and cross-cultural. Sam received feedback from people in Australia, whereas Eiolwyn communicated with another fanfiction writer in Sweden. Goku, Loli, Xeda, and Roni all received feedback and exchanged information with members of their community who were older than they were but had expertise in their interest area.

**Openly Networked**

Connected learning is openly networked, learning is not occurring in a single space and what may be learned in one community may be significant to how a youth understands or interacts in another community. The information practices most significantly related to openly networked is an interplay between learning community and representing knowledge. While
skills and aesthetic may be negotiated and shared within one community, how the community responds shapes how youth construct the value of the community and the artifact. Goku’s positive feedback in Vimeo led him to create a second stop motion film but he avoided posting these videos on YouTube because he did not think the community would value the artifact. Sam was motivated by the views and comments she received from different countries around her music, using similar beats in follow up songs. Information is experienced both as participation – the sharing and feedback loop- and as artifact, the information shared for feedback. Without the openly networked nature of connected learning the information practice of representing knowledge is limited, and the engagement may cease, as it did with Jack, who said “I don’t know I kinda didn’t really know what to do with that either…that didn’t really work out” after he could not build an audience. The value of representing knowledge as an information practice requires openly networked principles.

**Discussion**

Information is the building block of learning; how one interprets and incorporates information shapes what they know and understand. As information professionals librarians contribute to learning by helping others be mindful in how they access (or encounter) information, how to consider its relevance within a context and its quality, how to use it to present new understandings, or confirm our constructions of knowledge, and how to create representations of knowledge to share ethically. Therefore, librarians should consider information practices in learning contexts or frameworks when participating in and constructing learning opportunities.

As a framework, connected learning is one way to approach learning using more diffuse networks, and the richer opportunities that networked global communities may provide It promotes interest based learning suggesting that how learners understand their personal aesthetic is important to how and where they decide to participate. What is it that a learner is truly interested in, how can that interest be articulated? Librarians can help youth be mindful of information as inspiration in a way that might shape their interests – are you interested in socially-conscious rap, or are you interested in jams celebrating the excess of success? Librarians can help learners identify communities that support and encourage the exploration of a learner’s interest. For instance, when one is browsing in the whole of DeviantArt what sub-communities are represented by the items the learner is “favoriting.” Encourage learners to ask: what does this tell you about your interests currently?

When youth describe the communities they participate in, youth with the most active engagement understood how the community shaped information, and impacted their own work. They were youth who received feedback from online peers who they had never met face to face, but they were also the most willing to provide feedback. The comfort and enthusiasm for participation occurred when they had negotiated control of the community information. These youth were most likely to participate in peer-supported learning. School librarians can encourage and direct youth to consider what information has value and how youth understand that information.

Every participant expressed some version of the thought that they were seeking peer supported learning, they wanted welcoming environments to participate in so they could share and receive response. Librarians should encourage the mindfulness of collaboration for youth
participating in these communities. Asking youth to articulate norms of the community, and how and why they participate in the norms, and why they might violate them and to what end. This encourages thoughtful participation in shared learning opportunities.

In much the same way as assisting youth in mindfulness in learning community librarians can encourage critical thought regarding how youth participation is contributing to a shared purpose. The communities youth seek out do not exist for learning’s sake. They have purposes related to sharing interests in which learning is the natural outcome. However, sometimes the shared purpose is implicit, while in smaller communities the purpose is more directly negotiated. Youth should consider what the purpose of the community is, and how they may participate in an ethical manner. Librarians can help youth explore what their goals are, and how the community supports those goals. They can ask questions that lead youth to evaluate their own role in the community, and how they wish to shape this role. The guiding question should be: how does your participation contribute to the shared purpose of the community? Evaluating communities in this sense will help youth more easily identify how to participate, and if participation is going to achieve what they desire.

As educators who value the learning that happens when youth engage in informal connected learning, we must establish a foundation for transferring the skills to academic environments. Many of the skills this study’s youth developed were not skills valued in traditional literacy although their search skills improved and one participant (fan fiction writer) discussed how her grammar skills improved. However, skills we identify as 21st Century skills such as problem solving, collaboration, and creativity were displayed (Partnership for 21st Century Skills, 2009). By calling attention to how youth are negotiating their capacity with these skills and identifying how that capacity can be used classroom or in a work place, youth begin to value what they learn in these environments as more than just a “hobby.” They recognized how their interest-based learning can impact their experience of school curricula, and perhaps vice versa.

A key role for school librarians is supporting youth through the process of creating a product by helping them identify tools, mentors, and the information they need in order to develop capacity to represent their knowledge. Connected learning recognizes that the value lies not only in creating but also in creating for an authentic audience. Recognizing and sharing productions with an authentic audience increases the value of an experience. School librarians are onsite mentors and coaches to help youth use information to produce products. Additionally, through guided questions such as what they liked about the product (aesthetic), what they might do differently (control, capacity) librarians can encourage reflection on the product the represents their knowledge. This helps youth identify what they have learned and suggest how that information can be used in future productions or different contexts.

Without embracing the principle of openly networked connections between contexts that encourage, transfer of knowledge may not occur. Librarians can encourage a mindset that helps youth identify connections and help teachers in schools identify the knowledge gained outside of community that impacts their classrooms. Rather than bifurcating school context from other life worlds, the connected learning principle of openly networked learning encourages connections between these spaces. Youth should be encouraged to reflect on skills, habits, and knowledge gained to consider how this crosses contexts. In schools, this reflected
places value on youth interest, encourages peer supported learning, and opens pathways for impact on academic skills – both valued literacies within schools but also the “soft skills” schools hope to encourage. Librarians should encourage youth to produce for authentic audiences, and reflect upon that experience.

**Limitations of the Study**

This study is small in scope, and particularly oriented in a specific geographical area. Emergent themes related to barriers of access to technology based on the geography remain unexplored. Additionally the data collected were collected to explore the information practices of youth in online spaces that were engaged in creative content rather than social experiences. It was not collected specifically to explore connected learning principles, and therefore has limits of analysis. Further research into the information practices of connected learning would be necessary to act as confirming data, and to expand on the understanding of how information practices and connected learning are related, as well as how to design for connected learning.

**Conclusion**

Learning cannot occur without information. The information practices above helped youth learn how to participate in creating and sharing artistic content. They benefited from technology to pursue their interests and engage with others in order to learn, improve, and produce. This indicates that these information practices are embedded in the principles of connected learning leading to the question: how are these information practices embedded in a connected learning? By answering this we may support youth engaged in connected learning.

Connected learning principles holds promise for introducing the concept of life-long learning that crosses contexts and expands youth horizons. It engages personal interests and communities, which in turn, creates relevance and increases motivation. However, the learning principles of connected learning must rest on the exchange of information as all learning does, and recognizing that information practices are embedded in connected learning can help mentors shape mindful participation for youth that improves learning. Further research that articulates these information practices in different contexts and applied research that develops strategies of support for information practices is worth further exploration.

**References**


**Author Note**

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Appendix. Interview Protocol

Interview Protocol 1

Below is the interview protocol for the initial interviews for research question 1: What are the information practices of teen content creators?

1. Provide a digital tour of your online world. Describe your online activities in a normal day.
2. Describe your digital identity. Who are you online? Compare your online identity to your offline identity.
3. Describe the content you have created. [Tell me the story of creating ]
   a. How did you get interested in [content]?
   b. Why did you choose this [content]?
4. Describe the first time you created [content]
   a. What skills did you need to have?
   b. How did you learn those skills?
   c. Who helped you learn those skills?
5. Describe a time when you got stuck – what did you do to help yourself move forward.
   a. Was there a time when you got conflicting information on how to move forward – what did you do?
6. What was the hardest/easiest part of [content creation]
7. Why did you want to [create content]?
8. Why did you continue to [create content]?
9. Is your [content] part of a community?
   a. Describe your role in the community.
   b. What role does the community play in [creating content]? E.g. motivation, mentoring, feedback
   c. Can you describe the positive versus negative role of the community in your content creating?
   d. Was there ever a time when you broke the community rules? Describe what happened? How did you feel?
   e. How did you learn the community rules?
10. Compare how you “learn” or “create” online v. in the classroom.

Interview Protocol 2

Below is the emergent theoretical interview schedule for research question 1: What are the information practices of teen content creators?

1. Describe your online activities.
2. Describe your content.
3. How do you create content?
4. How did you learn to create content?
5. Where do you get your ideas for the content?
6. Where do you learn how the skills? The tools?
7. How do you learn to improve?
8. Describe the process of moving from a germ of an idea to a fleshed out plan.
9. Do you copy others content to learn? What about modeling your content on others?
10. When do you feel like content is original?