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Word (and/or/not) play: The role of playfulness in searching and strategic exploration

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ABSTRACT

When searching for information in a catalog or database, a library user takes an active role by choosing search terms, selecting filters, and using advanced features. This process is rarely straightforward; depending on their needs and the availability of resources, a user may not find relevant results on the first try. When this happens, users must modify their search terms and strategies, observe the new results, and adapt accordingly. Successful searchers, therefore, are those who experiment, explore... and play.

This article will put the concepts of play and playfulness in context with the ACRL Framework for Information Literacy for Higher Education, particularly its sixth pillar, Searching as Strategic Exploration. This juxtaposition will identify whether and how play, playfulness, and playful research are appropriate approaches for achieving the flexibility and creativity called for in the Framework. Recommendations follow for applying play in practical library settings such as reference and instruction.

Introduction

A student opens a database on the library website. She needs scholarly articles on, say, the spectral signature of astrophage en route to Venus (Weir, 2021). In the search box, she types 'What is the color of light of astrophage going to Venus?' The list of search results is a mess; hundreds of items listed, but only one or two on the first page seem even remotely related to her paper.

Any librarian can spot her error. Unfortunately, this is 2am on a Saturday night with the paper due Sunday at 11:59pm. Unless her library is large enough to support overnight hours or subscribes to a 24-hr chat service, she isn't going to be able to go to the library for help. Tonight she's on her own. (Or maybe we don't have to be that specific. A case of library anxiety–an overwhelming feeling of intimidation that prevents library users from interacting with library staff–is enough to keep her home, no matter what time it is (Mellon, 1986).)

She attended a library session a month ago, but her retention of specific searching strategies is fleeting. She can't remember the purpose of all the filters and advanced features. She doesn't know what a 'subject heading' is. The search results are a wall of technobabble. Boolean searching is right out.

Some students will stop here, taking the first few (bad) results and doing the best they can with them. But this student doesn't stop there. She asks an important question, 'What if I…?' 'What happens when…?' She changes something about her search term and tries it. And she tries it again. As she changes her strategy, she starts learning how the database responds to search terms, and she also starts learning the vocabulary experts use to talk about the topic. Within a few searches, her results are becoming more targeted, and she starts compiling a list of sources. Soon she has enough for her paper tonight, but her curiosity is piqued, and she will come back to these sources in the future.

Years after graduation, she encounters many other databases, catalogs and search engines in her workplace, her local library and even the website of a national shoe franchise. Later still, she watches as they change over time, meaning specific strategies she learned may not apply after a system is overhauled. Sure, she remembers being shown the 'Scholarly Sources' button in Academic Search years ago, but that was not the life skill that transferred to her life after college. Instead, she approaches every new database as a frontier to be explored, with new rules to learn and parameters to discover.

When searching for information in a catalog or database, a user takes an active role by choosing search terms, selecting filters, and using advanced features. This process is rarely straightforward; depending on their needs and the availability of resources, a user may not find relevant results on the first try. When this happens, users must modify their search terms and strategies, observe the new results, and adapt accordingly. Successful searchers, therefore, are those who experiment, explore... and play.

This article will put the concepts of play and playfulness in context with the ACRL *Framework for Information Literacy for Higher Education (Framework)*. Although aspects of play and playfulness appear throughout its six frames, the scope of this article will focus on the knowledge practices and dispositions in its sixth, 'Searching as Strategic Exploration', which calls for the most active engagement from users. This juxtaposition will identify whether and how play, playfulness, and playful research are appropriate approaches for achieving the flexibility and creativity called for in the *Framework*. Recommendations follow for applying play in practical library settings such as reference and instruction.

Information Literacy and the ACRL Framework

Information literacy is a person's ability and right to 'seek, evaluate, use and create information effectively to achieve their personal, social, occupational and educational goals' (Bibliotheca Alexandria, 2006). Reference librarians and instruction librarians assist library users with searching for information, typically by teaching searching strategies. Formal strategies may save a user's time, which is a major goal of the library (Rimland, 2007). All strategies have limits, however. Due to the shifting nature of information and user needs, it is difficult to predict when a particular strategy is going to fail.

In 2000, the Association for College and Research Libraries (ACRL) developed the *Information Literacy Competency Standards for Higher Education* (*Standards*), which utilized the traditional conceptualization of information literacy as a person's ability to find, evaluate, organize, and use information, as well as recognizing when information is needed. According to Farkas (2017), however, a user could be successful at finding and using information without being information literate. That is, student can know *how* to find a book or article, but not understand *why* information exists in its current form. The ACRL *Framework for Information Literacy in Higher Education (Framework)* updated the definition in 2015 to emphasize 'dynamism, flexibility, individual growth, and community learning.' The *Framework* defines information literacy as:

> the set of integrated abilities encompassing the reflective discovery of information, the understanding of how information is produced and valued, and the use of information in creating new knowledge and participating ethically in communities of learning. (p. 8)

This definition incorporates metaliteracy, a conception of literacy that moves learners from mere consumers of information to participants in communities of information, engaging in collaborating, producing, and sharing, and understanding the rights and responsibilities in doing so.

The *Framework* was designed with pedagogical flexibility in mind, allowing librarians local control in how they implement the core ideas of information literacy. Implementation of the frames has resulted in more active, interactive, conversational, collaborative and hands-on instruction compared to the *Standards'* skill-based approach (Kowalski et al., 2021; Latham et al., 2019), and more concept and problem-based instruction compared to the *Standards'* focus on resource-based bibliography (Scott, 2017). Much of the attempted instruction of the *Framework* centers around student-centered pedagogy, such as scaffolding and social constructivism (Mattson & Oberlies, 2018).

The *Framework* itself has faced criticism since its development. In opposition to the more practical *Standards*, the *Framework* is highly theoretical, and more difficult for librarians to understand, implement, and assess (Bombaro, 2016; Farkas, 2017; Latham et al., 2019). Despite the *Standards* being rescinded in 2016, librarians interviewed by Latham et al. (2019) continued using the *Standards* alongside the *Framework*. Additionally, while the Framework

contains some acknowledgement of how marginalized communities are affected by information inequities, the *Framework* lacks clear concepts to redress them. Sweet (2021) suggests the issue requires its own frame, either as Social Justice or as a Human Right (which Bibliotheca Alexandria (2006) alludes to in their definition). The *Framework* was scheduled to begin reviews and revisions in 2021, but were postponed to 2023 due to the pandemic (Sweet, 2021).

The Structure of the ACRL Framework

The *Framework* is structured around six core ideas, or 'frames,' that represent major concepts in information literacy. The ACRL (2015) considers these 'threshold concepts', or those concepts that open a learner's understanding of a discipline once learned. Included in each frame are a list of related knowledge practices, the 'proficiencies or abilities' users learn once they grasp the threshold concept, and dispositions, 'ways 'ways in which to address the affective, attitudinal, or valuing dimension of learning' (p. 9).

The first five frames describe the world of information and its ethical creation and use. This involves concrete skills such as identifying, defining and articulating certain concepts within information literacy, as well as understanding the user's role in participating in creating and using information. The sixth frame, Searching as Strategic Exploration, involves the most active skills a user must develop when interacting with the world of information.

The frames are not mutually exclusive, and overlap greatly. For example, evaluating resources may involve aspects of understanding authority, the process of information creation, or the value of information. Likewise, the process of creating information will include ongoing conversation with other scholars, asking questions to drive research, and understanding the value of the information used. Some concepts are even repeated, such as when Research as Inquiry encourages 'persistence, adaptability, and flexibility' and seeking 'appropriate help when needed,' which are repeated later in Searching as Strategic Exploration. Therefore, although aspects of play appear in the first five frames, the scope of this article is limited to Searching as Strategic Exploration.

The frames are listed alphabetically:

Authority Is Constructed and Contextual

Authority (in the sense of authorship, rather than power or control), expertise and credibility are determined according to the topic, the role and environment of the author, and even how the information is being used.

Information Creation as a Process

The information lifecycle (the cycle of researching, writing, revising and publishing) is iterative, and varies depending on the nature of the information conveyed.

Information Has Value

Information does not just have monetary value, but value in how it is used as a commodity, a means of education, influence, and a method of negotiating and understanding the world. Users have their own rights and responsibilities when using information, and understand how information can be misused, and how inequalities in access can cause information privilege and marginalization.

Research as Inquiry

Research is a collaborative, iterative process of exploration, driven by intellectual curiosity, that involves asking questions that may generate even more questions.

Scholarship as Conversation

Research is not a finished product by one individual, but an ongoing discourse between many voices within a community. Users must be aware of who is included in the conversation, and who is marginalized from it.

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' (ACRL, 2015, p. 22).

The term 'Strategic Exploration' is doing a great deal of heavy lifting, with two seemingly dichotomous concepts tied together. Exploration is a free and responsive exercise, learning about an environment by moving through it, sometimes involving detours and backtracking depending on what discoveries are found. Strategy involves a pre-set plan of action aimed toward long-term goals. General manifestations of strategic exploration in library instruction involve search strategies, knowledge of databases (among other resources) and the functions of basic database features, and introduction to services used to acquire resources.

Searching is a process of learning (Rieh et al., 2016). Just as exploring is learning about an environment, searching is learning about the information space; what information a collection holds, how the information is organized, and how to retrieve the information. These are aspects that may be different in different environments. For example, two academic libraries will focus on different collections, and two databases may choose different subject terms when describing their content. As users search and browse, they take in information about this new physical or virtual space and its contents. Rieh et al. (2016) emphasize that this is more than learning to search (being instructed on using a database; you learn then you search) or searching to learn (searching for something to learn, then learning does not happen until you have the item). Learning as a searching process means learning about the topic as the user searches it.

Play and Playfulness

No definitive definition of play or playfulness has been developed, but working definitions abound, and many authors claim relationships between playfulness and concepts such as (but not limited to) creativity (Bateson & Martin, 2013; Gordon, 2014; James, 2021; Sawyer, 2019), curiosity (Görlitz & Wohlwill, 1987; James & Nerantzi, 2019, pp. 18 & 128; L'Abate, 2009; Reilly, 1974), divergent thinking (Bateson & Martin, 2013, pp. 55 & 122; Hughes, 1987; Lieberman, 1965), exploration (Brown & Vaughan, 2009; L'Abate, 2009; Whitton, 2015), flexibility (Bateson & Martin, 2013; Gordon, 2009), intrinsic motivation (Bateson & Martin, 2013; L'Abate, 2009; Smeed, 2019), learning (Gordon, 2014; Mills & King, 2019; Sawyer, 2011), openness (Brown & Vaughan, 2009; Gordon, 2009), problem solving (Bateson & Martin, 2013; Brown & Vaughan, 2009, 10; L'Abate, 2009; Shannon, 1974), spontaneity (Bateson & Martin, 2013; Herron & Sutton-Smith, 1982), social interaction (Barnett, 2011; Gordon, 2014).

Salen and Zimmerman (2003) developed a design-based definition of play as 'free movement within a more rigid structure' that emerges both because of and in opposition to the structure (p. 304). Play can also be transformative, pushing the boundaries of the structure (such as wordplay or slang becoming standard within language) or altering the participants themselves (developing skills, developing relationships, or altering their perception of the environment). This definition is simple and broad, and does not include the element of human agency. L'Abate (2009) constructs an individual-centered, modular definition based on commonly identified aspects:

> Play consists of an active (rather than passive), spontaneous (natural rather than demanded, guided, or requested), and voluntary (rather than involuntary) involvement (rather than uninvolvement) that is pleasurable and relatively prolonged. (pp. 17-18)

While play is an activity, playful-ness is a mindset, disposition or 'permeating personality trait' applied to any activities, regardless of contexts such as work or non-work obligations (Shen, Chick & Zinn, 2014, p. 350). Barnett's 2011 definition of playfulness consists of 'the predisposition to frame (or reframe) a situation in such a way as to provide oneself (and possibly others) with amusement, humor, and/or entertainment (p. 384). Barnett indicates that individuals can be playful regardless of the activity they are involved in. Playful college students 'can internally concoct novel and unique experiences through their disposition to be playful, that is, to transform situations in ways which they do not naturally present themselves' (p. 395). College students with a playful disposition did not choose different leisure activities than their non-playful peers; rather, they approached the same situations in a way that provided more amusement, humor, and entertainment.

There is debate in play literature about the relationship between exploration and play. Brown and Vaughan (2009) put it forcefully: 'Play is exploration, which means that you will be going places where you haven't been before' (p. 212). L'Abate (2009) defines exploration as a precursor to play, both consisting of 'curiosity, interest, and joy' and 'characterized by active manipulation of objects' (p. 102). Authors such as Pellegrini (2009, 2011) and Hutt (1966) argue that play and exploration substantially differ in several characteristics. The primary difference is in its intent;

the end-goal of exploration is in gathering information to satisfy curiosity, whereas play is not concerned with an outcome. Other differences include a positive rather than flat or negative affect, how easily one can be distracted, and whether the context is familiar or novel (Pellegrini, 2009). Schneider (1987) distinguished exploration as primarily a sensory activity (looking and touching) with some basic manipulation of an object, while play includes unconventional manipulation and incorporation of the object into other contexts.

The concept of exploratory play combines the characteristics the two share, such as intrinsic motivation and novelty (Beach, 1945; Herron & Sutton-Smith, 1982; Gordon, 2014). Gordon (2014) distinguishes exploratory play from non-play exploratory behaviors depending on whether they are characterized by heightened anxiety or lack of interest. Given a safe, inclusive environment, exploratory play becomes 'the basis for learning, goal pursuit, and growth' (p. 241).

The fact that play is found within the structure of games (Nicholson's (2012) formula for a game is 'Game = Play + Goal + Structure' (p. 2)) contradicts the conception that play (or playfulness) cannot exist in the face of an outcome or end-state. Just as play is movement within a rigid structure, involvement that is active, spontaneous, voluntary, and pleasurable can happen within situations that are relatively rigid. According to Sutton-Smith (1997), 'almost anything can allow play to occur within its boundaries' (p. 3). Structured play with goals, especially with flexible and lightly defined goals, is still play.

The Frame through the Lens of Play

The frame 'Searching as Strategic Exploration' is divided into eight knowledge practices and six dispositions. For each knowledge practice and disposition, the most relevant concepts in play are identified.

Knowledge Practice: 'Determine the initial scope of the task required to meet their information needs'

Several of the Knowledge Practices echo previous frames. Determining the initial scope of a search requires a user to first understand what they are researching; that is, to consider 'Research as Inquiry' and determine their topic or research question. The process of searching for information, therefore, begins well before delving into a collection. Deitering and Rempel (2017) spell out the importance of selecting an appropriate topic or research question, one that will inspire curiosity to drive the student through the searching process. If the student's topic generates a scope that is too daunting or frustrating (or boring!), it is the topic that needs to change. Deitering and Rempel (2017) also point out the importance of motivation and low stakes–a student whose status depends on writing a paper 'correctly' for a good grade will then approach searching for information as a chore. If the student has the freedom to set their topic creatively, they will have a much better foundation for their information needs.

This increases the importance of playfulness in research. In listing several uses of play in research, James (2021) lists 'unleash[ing] ideas about research possibilities' (p. 16) and 'carve[ing] out new ways of thinking/seeing/discovering' (p. 18). Opening the possibilities of what a student can or should research increases the chance they will land on

something interesting or exciting to them, leading to intrinsic motivation when they enter the stage of searching for more information. A playful approach to research, then, will translate into a playful approach to searching for information.

Knowledge Practice: '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'

This skill requires previous or working knowledge of a subject area, reflected in the previous frames, as some knowledge of the authorities, publications, and conversations in the field will give the user a place to start and foundation to return to. From there, a user can explore for additional authorities, alternate resources, and further conversations, occasionally branching off and returning throughout their search (Rieh et al., 2016).

Knowledge Practice: 'Utilize divergent (e.g., brainstorming) and convergent (e.g., selecting the best source) thinking when searching'

Divergent thinking, the process of idea generation usually disassociated to boundaries, helps in both topic and keyword selection by developing a large cluster of options (Sawyer, 2001). A user's ability to generate a variety of keywords, subjects, and authors will have a wider range of options to try, increasing the chances that they will happen upon the search terms that will provide the best search results. Sawyer (2001) explains that divergent thinking is a difficult skill because it's the opposite of the kinds of skills learned in school, 'where we're expected to come up with the correct answer' (p. 196).

Lieberman (1965) found a correlation between playfulness and three aspects of divergent thinking: ideational fluency (the ability to come up with many different ideas quickly), spontaneous flexibility (the variety of ideas), and originality (the uniqueness of ideas). Not all keywords generated in a divergent process will result in successfully finding relevant information. Therefore, the value of quantity, variety and originality of idea generation affects the success of convergent thinking, or the critical and analytical process of identifying the best and most relevant ideas and shedding the rest.

Knowledge Practice: 'Match information needs and search strategies to appropriate search tools'

This skill requires some previous knowledge of the structure of search tools, available resources and how they relate to the information a student needs. For example, if a student is just being introduced to a subject, a dense and jargony research paper on an obscure aspect of the topic would not be appropriate, and they would be better served with a textbook or encyclopedia entry. The fourth of S. R. Ranganathan's famous Five Laws of Library Science is

to 'save the time of the reader,' (Rimland, 2007, p. 24) which would be possible if the reader had previous knowledge of which resources were most appropriate.

However, a user may fail in matching needs, strategies and tools, and they must accept the sunk cost of a failed search attempt. According to Shannon (1974), 'play encourages risk-taking, trial and error and commitment, essential to the development of problem-solving or decision-making' (p. 290). The user's comfort in accepting failure and attempting another strategy will increase their chance of success in finding relevant information.

The downside to risk is failure, and the downside to trial- and-error is error, causing wasted time. A challenge with using play is the amount of time a user must commit, and the possibility that time will be wasted, not saved (James, 2021; MacKay et al., 2021; Sawyer, 2019; Walsh, 2019). Part of commitment, however, is that users 'know this is a necessary part of a process of exploration and frequent idea generation' (Sawyer, 2019, p. 25).

Knowledge Practice: 'Design and refine needs and search strategies as necessary, based on search results'

Even after they have chosen their topic, their topic may continue to change as a result of their search. As a user understands more about and reflects upon the domain and the information available, the information they find may influence the scope and nature of their topic. The iterative nature of searching is a result of both failed search attempts as well as the discovery of information that produces more questions (Scott, 2017). Rieh et al. (2016) emphasize that 'It is well known that information objects encountered during the search process could trigger the searcher to shift their search tasks or intentions' and that 'search results for a goal tend to trigger new goals' (p29). Searching becomes a nonsequential and messy process, and just as in the knowledge practice above, requires risk-taking, trial and error and commitment. Searching becomes a nonsequential and messy process, and just as in the knowledge practice above, requires the kind of risk-taking, trial and error and commitment play provides.

Knowledge Practice: 'Understand how information systems (i.e., collections of recorded information) are organized in order to access relevant information'

Information systems are typically structured in a way that provides methods of finding items within it; physical items may be placed in order according to a classification system, while databases and catalogs may describe items with subjects and other metadata. As play is freedom within a structure, according to Salen and Zimmerman (2003), users approaching such a structure will need to understand it in order to find information within it. Lack of previous knowledge of this structure will be a user's primary barrier to overcome.

Shen (2020) indicates that while play enhances a person's knowledge, some amount of mastery is required before play can occur (p. 544). Pellegrini (2009, p. 17) says that a child's play with an object is only possible after the object is familiar to the child, although Brown and Vaughan (2009) argue that learners will not reach a level of mastery until they can play with the knowledge they have previously gained. As a user learns more about the different

methods of organizing information, they will become more proficient in using them, and will possibly require less exploration to find information.

Knowledge Practice: 'Use different types of searching language (e.g., controlled vocabulary, keywords, natural language) appropriately'

Databases and catalogs will describe their collections with specifically chosen vocabulary and metadata. In listing best approaches to searching for information, Carlock (2020) advises, 'the output-–your results-–are only as good as the input-–the key words that you provide' (p. 47). However, due to the complexity of language, different information systems may choose different words to describe similar concepts. 'Therefore, to make a strong start to your search, you have to think flexibly about the key words in your list' (p. 47).

Just as in the knowledge practice above, a user must have some knowledge or mastery of the vocabulary and jargon of a subject in order to begin making sense of the landscape, but learns more as they explore. The literary technique of wordplay has value in exploring the complex meanings of words (Loads, 2019; Salen and Zimmerman, 2003). According to Smeed (2019), being open and explorative 'creates the space for "what if?" questions and opportunities for students to playfully test possibilities in the search for answers' (p. 313). Playing with words and synonyms, trying new ways of communicating an inquiry, and testing possible word combinations will open a user to possible discovery of what vocabulary a collection is using to organize its materials.

Knowledge Practice: 'Manage searching processes and results effectively'

Part of the searching process will require users to backtrack and revisit previous searches to create new branches. Although a playful user may be comfortable in accepting failure and moving on, the information the user gained in a failed search may become valuable later on. If that information becomes relevant again, but the user cannot get back to it, their time is wasted. Keeping a search log or research diary to manage the information they find is important to help users remember previous search attempts and their outcomes (Fluk, 2015).

Additionally, the Framework emphasizes metacognitive self-reflection, in which the student thinks about the way they think about information (ACRL, 2015). Reflection is an important method of translating play into learning, in which the learner thinks about what they did and why (Sinfield et al., 2019). Activities where students articulate their thought processes during and after their research reinforces their learning, increasing their retention of the concepts and information they learned during their search (Harmeyer & Baskin, 2018). In other words, students 'experience [their] experiences while they are happening, and then reflect upon those experiences' (Reale, 2017, p. 10).

Disposition: 'Exhibit mental flexibility and creativity'

When a user encounters barriers preventing them from finding or accessing information, a key disposition is the ability to change their strategy to overcome those barriers or discover an acceptable solution. Flexibility, the capacity to easily switch between approaches, is a central aspect of play (Bateson & Martin, 2013, p. 56). Play, according to Brown and Vaughan (2009), 'is all about trying on new behaviors and thoughts, it frees us from established patterns' (p. 92). With the lack or diminishment of an end goal, a player is free to change their current strategy when the situation makes it clear the strategy is not working.

Creativity, meanwhile, is the ability to generate novel or unique ideas, generally outside of established thoughts or structures. Sawyer (2019) identifies several habits of mind to generate creativity; guided improvisation, questioning, mindful awareness, accepting failure, time to experiment and iterate, and playfulness (p24-26). Deininger (2013) defines creativity as 'the ability to come up with ideas or artefacts that are novel, valuable and substantive within a psychological or historical context' (p. 39). The distinction between psychological (or personal) and historical context is important for educational environments; a student may arrive at a revelation that many others have come up with before, but it is creative because it is an idea that is new to the student, and the student has come up with it themselves.

Although these definitions place the generation of novelty within creativity, Bateson and Martin (2013) and Gordon (2009) make the distinction between play and creativity in a similar relationship as divergent and convergent thinking, respectively. Gordon (2009) says that play 'produces possibilities' to act as material for creativity, which puts into practice by converging the ideas into applicable information and 'produces artifacts… Play makes creativity possible while creativity manifests possibility into actuality. In other words, while creativity is based on play, play is not necessarily creative' (p. 10). The role of creativity is to identify the novelty and utility of generated ideas, and to select the ones that can be implemented in reality.

Disposition: 'Understand that first attempts at searching do not always produce adequate results'

Failure is a common occurrence in searching, even among experienced searchers. However, the possibility of high-stakes failure in academic settings can cause anxiety, leading students to avoid failure and opt for 'safe' choices (Deitering and Rempel, 2017). Findings among multiple studies show that college students tend toward efficient, predictable, and risk-averse strategies (regardless of success), and grow frustrated at the open-endedness of finding information (Head & Eisenberg, 2010).

Lowering the stakes of failure is important for both learning and gathering information. Sawyer (2019) says that in 'productive' failure, 'students can learn creative knowledge more effectively from mistakes than from getting to the correct answer right away' (p25). In an example rubric in Latham et al. (2019), the top to scores go to students who

acknowledge failed search attempts (the top score going to students who add a plan for next steps), while the lowest scores are assigned to students who simply repeat the failed search over and over or accept the first result regardless of quality (p83). The iterative, free and spontaneous nature of play reduces the consequences of failure (MacKay, 2021; Sawyer, 2019). Conversely, an environment where such consequences are minimized must be provided for play to happen (James, 2021; Whitton, 2015).

Disposition: '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'

Invoking the concepts of Information Creation as a Process and Information Has Value, this disposition puts them in context with searching for information. As the user surveys the results of a search, they must inspect and examine the different kinds of information sources they find, and compare their search attempt with the quality of information returned (Farkas, 2017). Going into the search with the understanding that the results will vary prepares them for this undertaking. Play in this context is applicable in the sense that the user is entering an environment that requires exploration and flexibility.

Disposition: 'Seek guidance from experts, such as librarians, researchers, and professionals'

Unique to the other knowledge practices and dispositions, which involve a user's solo journey into finding information, this disposition proposes interacting with other people as a valid method of searching. Library anxiety is characterized by feelings of stress when library users enter the library, use library services, or interact with librarians, which causes the user to avoid the library altogether (Mellon, 1986). Anxiety in users can hamper their playfulness (Bateson & Martin, 2013). However, play provides social benefits (Barnett, 2011; Gordon, 2014) and providing a space welcoming play may be able to reduce this anxiety (James, 2021; Kowalski et al., 2021). Kurtz (2011) describes the change in affect among teenage students:

> active engagement in goal-directed communicative activity, situated and meaningful language use, playfulness, creativity, and improvisation play an important role in improving learners' willingness to speak, and that they (largely positively) affect learners' readiness to engage in more autonomous and more extended interaction. (p. 135)

Creating a welcoming space has been identified as a major method of decreasing library anxiety (Larsen et al., 2019; Robbins, 2014; Wallis, 2014). James (2021) identifies playful space as creating a welcoming atmosphere, free of judgment, self-consciousness and shame. Creating an atmosphere where playfulness is allowed, including exhibiting and modeling a playful attitude in the classroom and library, will increase the comfort of students in approaching librarians at their moment of need.

Disposition: 'Recognize the value of browsing and other serendipitous methods of information gathering'

Occasionally, a user will locate a known item in the stacks of the library, but will notice useful titles sitting next to it on the shelf. This is a phenomenon called serendipitous discovery, or unplanned uncovering of information usually in the context of looking for other information. Brown and Vaughan (2009) describes serendipity as a process of discovery:

Most often, new discoveries and new learning come when one is open to serendipity, when one welcomes novelties and anomalies, and then tries to incorporate those outlying results into the broader field of knowledge… The state that most promotes these serendipitous moments and makes us open to anomalies is one of play. (p. 142)

While these 'happy accidents' generally elicit positive reactions in the user, librarians have questioned whether the accidental nature of serendipity reveals the failure of a library's online catalog to notify the user of the item's existence before they traveled to the stacks (Carr, 2015). Many Online Public Access Catalogs (OPACs) attempt to recreate this serendipity by including virtual shelves, listing titles and book covers as they would appear on the shelf.

For a student user, though, an important point remains: the library's catalog and databases are not the only places to find information. They may be the preferred source of information in this context, and there are legitimate pedagogical reasons for a professor to limit sources to a database for an assignment. But information comes in a variety of different packages and distribution methods (see Information Creation as Process), and being playful is to be open to crossing package barriers, even ones so simple as online vs physical. The user who finds the item they need to answer the question and stops looking misses the opportunity to find more. Fournier (2011) calls this process 'creative inquiry–purposely exploring options to see which offer the most promise' (p. 192).

Disposition: 'Persist in the face of search challenges, and know when they have enough information to complete the information task'

Intrinsic motivation is one of the most commonly mentioned aspects of play (Bateson & Martin, 2013; James & Nerantzi, 2019, 134, 309; L'Abate, 2009; Pellegrini, 2011; Whitton, 2015). For most students searching for resources for a research paper, their motivation is extrinsic; the resource is required for a good paper, a good paper is required for a good grade, a good grade is required for passing the class, and passing the class is required for their overall academic success. Gross (1995) identifies extrinsically motivated searches as 'imposed inquiries'; questions that are assigned to students by their professors to complete a task. At some level, every assignment is imposed on a student, although the amount of freedom will differ at their teacher's discretion. Deitering and Rempel (2017) identify that even a small amount of choice does not exclude extrinsic motivation; students who need good grades will pick 'safe'

topics that will guarantee a good paper, and will in turn search only for enough information to satisfy the requirement of the paper. Therefore, giving the students an environment where they can explore and play riskier topics will increase their motivation.

Even when students are motivated, they will continue to face barriers and failures, as discussed in earlier knowledge practices and dispositions. Play, according to Bateson and Martin (2013), 'provides a mechanism for generating new forms of behavior or new ideas, enabling the individual to discover new solutions and ways of breaking out of a rut (p. 123). When a user runs into such a rut, they can 'improvise new rules or conditions so that the play doesn't have to end' (Brown and Vaughan (2009, p. 18). Rather than giving up or trying the same search over and over, a user can back up and find something to change in their search, from their keywords, the parameters of the search, or even the place they're searching.

Recommendations

Active and interactive learning has long been recommended as powerful methods of teaching information literacy (Mattson & Oberlies, 2018; Swanson & Jagman, 2015), and play and playfulness are methods of achieving active learning (Francis, 2017; Walsh, 2018). Kowalski et al. (2021) found that by 'employing fun activities, we were able to alleviate some student anxiety around research and the library' (p. 116). A common challenge among instruction librarians is the lack of the time available to teach information literacy skills, especially when they are limited to a one-shot session of perhaps 30 minutes. In the case that there is time, giving students time, permission, and the environment to play provides powerful methods of learning (Sawyer, 2019, p. 25; Walsh, 2019). Flipped classrooms, in which students are given tutorials ahead of class, can free up time within class to focus on active exercises and play. In describing the importance of curiosity in the classroom, Deitering and Rampel (2017) recommend long-term collaborations between professors and librarians, also known as embedding, so that students can 'see curiosity modeled for them over and over' (n.p.). Playfulness, too, must be modeled as a way of thinking.

In order to model playfulness, be playful yourself, and give yourself room to fail. Pre-selected search terms are good for demonstrating how a database is supposed to work, but students will be coming up with search terms and trying them out on the fly. To demonstrate how you search a database, take suggestions from the class and improvise. Ask them what they need to research right now, maybe even from another class, and see what you can find. When your initial search won't come up with anything good (just like in real life), use that opportunity to explain that failure is part of an exploratory process, and explain how you're modifying the keywords, scope, subjects or any other aspect to produce better results. Demonstrating how you play with the database will give students an example of what they can do when they hit a roadblock.

Improvisation is nearly synonymous with play, being an unpredictable, active, spontaneous, voluntary, and generally pleasurable activity. Applied improvisation 'rediscover the creative and collaborative skills they had as children' (Lobman, 2011, p. 78). Gordon (2009) quotes improv pioneer Viola Spolin, where she explains that

spontaneity 'causes enough excitation for the student to transcend himself or herself—he or she is freed to go out into the environment, to explore, adventure, and face all dangers unafraid' (p. 8). Several librarians have identified applied improvisation as a method for developing playful skills related to instruction and user services. Stamatoplos (2009) approaches improv as a set of practical applications toward libranship, leading Stamatoplos and Trout (2010) to develop exercises for building skills for information literacy instruction. Markgraf (2017) runs a blog on applying improv techniques in libraries. Dohe and Pappas (2016, 2017a, 2017b) have developed a series of workshops for librarians, which inspired Hosier (2019) to attend improv workshops in New York to develop her approach to teaching information literacy. In addition to practical application to interdepartmental collaboration, user services, reference services and instruction, Edwards (2020) suggests that an improvisational approach to a database searching can be made through applying the formula 'Yes, And', metaphorically considering the database an interactive partner that takes input ('Yes') and responds with search results ('And').

While use of play as an instructional tool is important, we must also acknowledge that playfulness is also a powerful method of understanding information literacy, particularly when imparting this understanding to students. The world of information is not limited to a narrow selection of strategies, sources or services. Rather, these are ever-changing tools for their use to explore and access the world of information. By using the language of play, we can encourage students to experiment with filters, explore the results, play around with search terms, and be curious. McKay et al. (2021) suggest the idea of 'playful literacy,' a framing of play as a skill or ability (p. 26). Like other literacies, such as information, health, or computer literacy, a play literacy would be the ability to play and be playful, a skill typically lost in adulthood (Lobman, 2011). Even if there are limited opportunities to interact with students, bringing up play frequently at every stage of the search and research process will help imprint the idea of openness and flexibility.

According to Sutton-Smith (1997), 'almost anything can allow play to occur within its boundaries' (p. 3). In this way, students can find opportunities for play even in assignments with defined parameters; choosing a topic within a subject, finding resources from a single database, and writing a paper with a specified argument structure all provide students the agency to do as they will, so long as they stay within (or lightly push) the boundaries. The amount of room within the assignment, as well the flexibility of its parameters, are at the discretion of the professor.

Experimentation with playful approaches to information literacy will help solidify best practices and identify areas for development. Unfortunately, experimentation with both playfulness and the *Framework* is challenging due to their vague and highly conceptual natures. Designing testing around a framework of specific playful traits, such as the Adult Playfulness Trait Scale by Shen et al. (2014) can help focus research, but no known framework accounts for all aspects of play without becoming too broad. In research of particular interest to teaching college students, Barnett (2011) found that playfulness was applicable to any leisure activities, but left open the question of whether

playfulness be applied to any activities, such as work or study, or whether play is a mutable, and therefore learnable, trait.

Contributions of playful approaches to teaching information literacy will enhance ongoing conversations in the information literacy community of practice. The ACRL *Framework for Information Literacy Sandbox* (2016) is a collection of librarian-generated activities for teaching information literacy skills based on the Framework. The collection is searchable and browsable, and instructors are encouraged to submit their own activities to share and discuss ideas with each other.

Finally, although this paper focused solely on Searching as Strategic Exploration, which contains the most active and interactive knowledge practices and dispositions, further examination of the other frames may uncover more relationships between play and information literacy.

Conclusion

The ACRL's Framework for Information Literacy for Higher Education was developed with the intention of being a dynamic and interactive foundation for teaching information literacy. In doing so, the ACRL developed a document that calls for more freedom, flexibility, engagement and risk. They also developed a document that is more ambiguous, conceptual, and open to interpretation. The core concepts at the center of the Framework– Authority Is Constructed and Contextual, Information Creation as a Process, Information Has Value, Research as Inquiry, Scholarship as Conversation, and Searching as Strategic Exploration–describe the complex world of information that the information literate user must grasp in order to participate. Although the first five frames occasionally reference playful concepts, the sixth frame, Searching as Strategic Exploration, heavily weaves concepts of play such as flexibility, creativity, divergent thinking, and exploration, to encourage users to persist and engage in the world of information.

Several of the knowledge practices and dispositions under Searching as Strategic Exploration refer to several concepts directly related to play and playfulness, such as divergent thinking, flexibility and creativity, and browsing and serendipity. Play and playfulness are indirectly related to several other knowledge practices and dispositions. Playfulness helps the user recover from failure, allowing them to refine their topics or strategies and persist in the face of barriers. Playful and exploratory behaviors help the user understand the information environment, including identifying existent resources, understanding controlled vocabularies, and learning how information systems are constructed. Creating a playful environment will also encourage users to seek guidance from experts. A few knowledge practices and dispositions do not benefit from play or playfulness, such as the need to record and manage their search attempts, but rather support the user's discoveries made through playfulness.

Both information literacy and play involve a balance between structure and freedom, strategy and open exploration, recognizing boundaries and the flexibility to traverse them, divergent and convergent thinking, previous

knowledge and continued learning, extrinsic and intrinsic motivation, safety and risk. The Framework is inherently playful, encouraging library users to find freedom within the boundaries of information, and even question the boundaries of information.

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