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Books and Book Chapters

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The Case for Performance Support

THE PRODUCT OF OUR WORK AS A TEAM CAN TAKE MANY forms within the UC San Diego Library from supporting the design of in-person workshops to creating supplemental or stand-alone online learning objects. Learning objects take the form of interactive online tutorials or performance support materials. In this chapter, we will make the case for using performance support materials to teach information literacy skills.

What Performance Support Is (and What It Isn't)

Imagine stick figure drawings that tell you how to put a bookcase together. These simple instructions about how to complete a task (also known as “job aids”) are an example of performance support. Rossett and Schafer define performance support as a “repository for information, process, and perspectives that inform and guide planning and action.”¹ The purpose of performance support is to provide “just in time” instruction that informs and guides people through a task. Performance support tools address an immediate need to learn a procedure. Examples of performance support include step-by-step instructions (either verbal or pictorial), decision trees, and how-to videos. Although performance support materials provide information for an individual on how to perform a task, performance support is not instruction. Whereas instruction is a planned learning experience designed to increase “human capacity,” performance support is relevant to a discrete task.² Performance support is not determined by the delivery method (e.g.,

tutorial, in-person workshop, video, etc.), but by the content type (concepts, tasks, procedures, etc.) To help you think about performance support in more concrete terms, try the exercise below. The answers to this exercise are provided in appendix D.

Exercise *Using what you know about how performance support is defined, identify if the scenarios below are examples of performance support or instruction.*

| When you are teaching how to . . . | It is an example of . . . | |
|--|--------------------------------------|--|
| Use the research process | <input type="checkbox"/> instruction | <input type="checkbox"/> performance support |
| Use database search strategies | <input type="checkbox"/> instruction | <input type="checkbox"/> performance support |
| Recognize the importance of citation | <input type="checkbox"/> instruction | <input type="checkbox"/> performance support |
| Use Academic Search Complete | <input type="checkbox"/> instruction | <input type="checkbox"/> performance support |
| Create a research question | <input type="checkbox"/> instruction | <input type="checkbox"/> performance support |
| Write a citation using APA style | <input type="checkbox"/> instruction | <input type="checkbox"/> performance support |
| Read a book on an e-book platform | <input type="checkbox"/> instruction | <input type="checkbox"/> performance support |
| Use different types of sources | <input type="checkbox"/> instruction | <input type="checkbox"/> performance support |
| Distinguish between library catalogs and article databases | <input type="checkbox"/> instruction | <input type="checkbox"/> performance support |

Look for topics that are conceptual in the information presented in the exercise. These are the areas that require instruction whereas the task-based topics do not. Remember that performance support helps someone complete a task. An example would be helping a student to format citations in APA style, which does not result in a transformational understanding of the concept of plagiarism. It does not help a learner use a source appropriately. It is simply a research task that an individual must be able to perform in academic writing. Another example of performance support might be a graphic or video that illustrates how to access a full-text article. The object would likely show a database screenshot that highlights a PDF link, HTML link, or other ways to link to an article. This would not include how to find relevant

articles for a research topic or which keywords were used to find an article. It simply identifies which link in the database a student would click to acquire the article before moving on to the next task.

Examples of library-related materials that are not performance support include a list of databases on a LibGuide, a link to a chat reference service, or a graphic that explains the difference between primary, secondary, and tertiary sources. These examples do not illustrate how to do something. The database list and link to the chat reference service are simply access points to resources. The graphic that defines source types informs but has no connection to a task-based activity. Performance support does not teach someone how to apply a concept. Performance support tools can help supplement instruction but are not always the best option for replacing instruction.

When to Use Performance Support

Connie Malamed (also known as the eLearning Coach) identifies situations that benefit from performance support. These include those that require critical accuracy, task infrequency, frequent changes in procedures, and complex or tasks that are prone to error.³ Performance support tools are best used to address limitations of memory. In libraries, adding performance support tools to LibGuides or as handouts provides the refresher instruction that students might require after a library workshop to assist them at their specific time of need, regardless of where they are or what time of the day it is. Consider using performance support when:

- Accuracy is important (e.g., citation formatting).
- A task is performed infrequently, (e.g., requesting material through interlibrary loan).
- There are multiple decision points or many steps (e.g., using the library catalog to locate a book and retrieve it from the shelf).
- Procedures or task are changing (e.g., there is a change in a library procedure. At the UC San Diego Library we created a performance support object when we changed the software platform for course reserves).
- There are English language learners (ELL) in the audience. Performance support can be especially useful to ELLs because it provides nonnative speakers the ability to approach the material in their own time or seek clarification at a later date for vocabulary or processes that may be unclear.
- Training is not available for performing complex tasks. Performance support that is being used to replace unavailable training would likely

be a suite of objects. This would need to go beyond performance support materials and include perhaps an FAQ, decision-making support, or contact information.

To incorporate performance support into your instruction, start with well-written learning outcomes. Once the learning outcomes are created, imagine how you are going to teach the outcome. Do you need to explain concepts for learners to be able to complete the task? Do your learning outcomes describe a procedure? Your goal here is to categorize your learning outcomes into concepts and tasks. Think about the outcome: *Given a list of article databases with descriptions recommended for their course topics, students will be able to identify at least two databases that are relevant to their topic.* To complete this task, students would:

1. Go to the course guide with the list of article databases.
2. Read the descriptions for each database.
3. Select two that are relevant.

Next, determine if the learning outcome is procedural. In the steps you've outlined for your learning outcome, ensure that there are no hidden concepts that should be covered. If there are, performance support may not be suitable for this outcome.

Once you have determined that an outcome is suitable as a performance support object, determine the best mode of delivery. Remember that the performance support object must be readily available for the learner. For example, if performance support was included on a workshop handout that students had to turn in to their teaching assistant or faculty to prove workshop attendance, students would no longer have access to the performance support once the handout was turned in. The access point for the performance support after the workshop is less than ideal. The location needs to be accessible whenever and wherever the student may be. A link to the performance support object that is located on a LibGuide specifically used with the course workshop would be better placed. It is also important to place performance support objects in context and in locations that have relevance. Performance support that is difficult to find, takes many clicks to get to, or is not accessible in a way that makes sense to the learner will not be used.

Finally, consider the life of the performance support object. Performance support can be used in two distinct ways to assist memory. First, learners may use the performance support object until the process or steps are memorized and the performance support object is no longer necessary. Second, learners may choose not to memorize the information presented in the performance

support object because they know the object exists and will be there at the time of need. Think about how we rely on our cell phones and their ability to store phone numbers. Many of us no longer bother to memorize phone numbers and instead rely on our contact lists to do that work for us. Performance support for a learner may be used in the same way. This means a learner will likely use the performance support object multiple times. The strategic use of performance support to free up valuable in-class time so that an instructor can cover more conceptual topics only works well if the performance support object is accessible to the learner anytime and anywhere.



ID in Action

Most academic libraries have something similar to a one-shot “Library 101” workshop where the instructor shows students the library resources available for research, reviews the library’s website and available article databases, demonstrates how to access materials from off campus, and so forth. The assignment for the course requires students to use at least two scholarly articles. Based upon the instruction request, we have fifty minutes to cover how to

- use the library’s website, including where to go to get help from a librarian,
- differentiate between the library’s catalog and the article databases,
- search the catalog,
- find a database suitable for a research topic,
- define what scholarly articles are and how to find them,
- search databases,
- access resources from off-campus, and
- acquire articles in full-text.

For workshops where librarians are asked to cover too much content in too little time, the UC San Diego Library uses performance support to aid in content delivery. We have identified areas where performance support is appropriate. This means that in-person instruction time can focus on content that is better suited for face-to-face instruction. We use a suite of performance support material that is placed on a course guide as part of lesson planning, so we can spend more time talking about concepts associated with information seeking behavior and less time spent on clicking demonstrations. For example, instead of providing a catalog search demonstration this information is covered via a video performance support object that shows how to access the catalog,

do a basic search, and locate an item using call numbers. In the in-person instruction session, the instructor highlights the catalog learning object and explains the difference between the catalog and article databases but does not spend any actual time performing a catalog search. Table 3.1 illustrates what is addressed by instruction, communicated by lecture, or covered through active learning. The performance support is highlighted so students know they are available, but they are not part of the workshop. Some of the performance support items are also used by students during active learning sessions in the workshop so they can engage with the performance support material. Table 3.1 gives an overview of how performance support is integrated into the lesson.

TABLE 3.1 | **Integrating Performance Support into a Lesson**

| CONTENT ITEM | INSTRUCTION OR PERFORMANCE SUPPORT |
|------------------------|--|
| Library's website | Instruction—point and click demonstration. Includes how to access the performance support (LibGuide) for the course. |
| Catalog VS database | Instruction—lecture |
| Searching the catalog | Performance support—how-to video |
| Finding a database | Performance support—database list with descriptions |
| Scholarly articles | Instruction—lecture |
| Searching the database | Instruction—lecture and demonstration |
| Scholarly articles | Instruction |
| Articles in full-text | Performance Support |
| Off-campus access | Performance Support |

Benefits to Learners

To understand why performance support is such a useful tool for learners, you'll need a basic understanding of some learning theories and or models of cognitive psychology. The theories and models presented in this chapter are useful to instructional designers because they address the brain mech-

anisms associated with information processing, memory, and learning. The information presented about these theories is brief and designed to give you a reference point for our discussion of performance support and are in no way meant to be detailed or exhaustive.

Let's start with George Armitage Miller, a founding father in the field of cognitive psychology. Miller's contributions to the field focus on short-term memory. Miller set out to quantify short-term memory in order to document its limitations. In his now-famous experiment, he tested the ability of subjects to recall information that was presented to them and found that the capacity for short-term memory is limited to seven units of information plus or minus two.⁴ His work and the subsequent research in this area of neuroscience informs us that the human brain's short-term memory has a limited capacity to store information for a given amount of time. Short-term memory is often used interchangeably with working memory; however, there are theories that distinguish the two. The distinction between short-term memory and working memory is that short-term memory is used to describe the brief storage of information and working memory is used to describe the process of manipulating information. For the purpose of our simplified discussion, we will use the term working memory because it aptly describes the role memory plays in the learning process.

The Modal Model of information processing designed by Atkins and Shiffrin is a simplified way of looking at the role that memory plays in the learning process. It describes a linear process, much like that of a computer, to explain how new information is received, processed, and incorporated into knowledge. Sensory information is received by the learner through the senses (auditory, visual, etc.), then captured by short-term memory, where it is processed and then encoded into long-term memory to fit into existing or new frameworks of thought.⁵ The role of working memory is to make sense of new data and determine how it fits into existing knowledge or ways of thinking so that when it is transferred to long-term memory it is stored appropriately. Long-term memory acts as storage facility for knowledge. When you need to recall information, the process works in reverse. Information is retrieved by working memory and then output through the senses. In fact, the transfer of information between working memory and long-term memory is a two-way process in which information flows continuously. The workhorse in the Modal Model of information processing is working memory, despite its limited ability to store and retain information. If we integrate Miller and Shiffrin's findings about short-term memory's capacity to store four to nine pieces of new information into the Modal Model of information processing, we see that only limited amounts of information should be pre-

sented to learners during a learning experience so that they are able to effectively incorporate the new information into their long-term memory stores to access at a later time. Given the limited capacity of working memory, information that is not transferred to long-term memory is either replaced or lost. This sense-making process in which working memory prepares information for long-term memory transmittal and storage is referred to as cognitive load.

Building upon existing theories relating to information processing and memory, John Sweller introduced cognitive load theory, which recognizes the cognitive work load that working memory takes on and its inherent limitations. Cognitive load theory is concerned with reducing the amount of mental processing the brain must expend to facilitate the incorporation of new information into new or existing cognitive frameworks or schema through the use of instructional design.⁶ Cognitive load theory identifies three types of cognitive load:

1. Intrinsic: Associated with the effort to learn a specific topic
2. Extraneous: The way information is presented to a learner (format)
3. Germane: The work of working memory

Cognitive load can be reduced through instructional design by paying attention to the extraneous load or the format in which information is presented. One way to reduce cognitive load is to use performance support inside and outside the classroom.

Let's look at the memory and the learning process. Imagine taking a workshop where you will learn about something new. You attended a lecture (i.e., received auditory and visual sensory input). You took great notes, you had worthwhile discussions with your classmates, completed the handouts, and learned new vocabulary. All of this in-class work was being done by your working memory. Some of the concepts that were presented were immediately recognizable as being applicable to your work. These applicable concepts were easily added to your knowledge base (i.e., stored in long-term memory). Other concepts that you still have questions about or that were unclear, weren't added to your knowledge base as easily. After the workshop, you are excited about using and sharing the new information you learned. It is now a week later, and you are ready to put your new-found knowledge to use, but you only remember half of it. The reason for this is not that you are a poor learner. It has to do with cognitive load or the effort it takes for your brain to go through the cognitive learning process. Your working memory was tasked too heavily with all of the new information you were presented, and you were only able to internalize portions of it to add to your long-term memory stores for later recall.

The concept of cognitive load is important for both instructional designers and learners. Ruth Clark and David Taylor write that “when working memory has to hold even a small memory load, its ability to process new information degrades rapidly. This interferes with learning, which requires the processing of information. Thus, if you expect participants to learn, you cannot expect them also to hold information in working memory.”⁷ Cognitive load theory provides the framework for understanding how much content to present to a learner in order to create a cognitive environment that helps the learner learn effectively without overtasking the mental process. During the learning process, it is inevitable that some aspects of the lesson are forgotten because working memory is limited both in storage capacity and the length of time information can be retained. From a learner’s perspective, performance support is a welcomed learning aid. It provides relevant and practical directions at the time of need. It is a mental relief to have support material at the ready when you don’t remember exactly how to proceed. Performance support materials also reduce the emotion associated with mental stress by reducing the cognitive load of remembering tasks that are complex or involve many steps. It also minimizes the anxiety associated with admitting you don’t remember something you just learned and helps build confidence by using some of the self-help aspects associated with using the library.

Benefits to Instructors

Educators increasingly acknowledge that the majority of what people learn is through informal learning, not structured classroom environments. Jay Cross defines informal learning as “the unofficial, unscheduled, impromptu way people learn to do their jobs.”⁸ We would argue that this also includes the way our students learn content for their courses. Cross points out that over 80 percent of what people learn is through just-in-time instruction such as online videos, websites, and blogs.⁹ Therefore, it makes sense to include performance support as part of your instructional solution for those outcomes that meet your learners’ needs and preferences. It also allows you to potentially cover more content by delivering it online where learners can access it whenever they need it. Performance support can stand in for information that is not covered in class.

Notice we are saying a replacement for *information*, not *instruction*. Concepts such as effective keyword searching, using database search strategies effectively, and determining credibility are research-related skills that can benefit from some form of instruction. However, there are certain task-related research skills that can be covered via performance support, like acquir-

ing articles in the full-text by clicking a link. In one-shot instruction sessions, it can be extremely useful to integrate performance support in your lesson planning because it will provide a way to focus more time on information literacy concepts and less time on show-and-click demonstrations.

Using Performance Support in Libraries

In the classroom, lecture less and have students actively work with content by providing them with performance support. It is time consuming to do a click-and-point demonstration, then ask students to complete the same task that you just demonstrated. Instead, you could provide students with well-written performance support instructions and help them only when necessary. According to Clark and Taylor, another way to use performance support to reduce cognitive load in the classroom is to provide “facts or procedures that learners must know in order to complete practice exercises.”¹⁰ Finally, if you have content that is pertinent for students to know, but not something they are actively using during class time (e.g., how to access library resources from off-campus) skip it. Show students where to get the information but don’t cover the “how-to” in class.

After a lesson, accessible performance support materials allow an instructor to continue to provide assistance without making time to do so. It provides a learning continuum that extends the instructor’s reach beyond the classroom and provides targeted educational support when it is needed. Performance support objects may also help you to become more efficient in answering consultation or research questions. Librarians often find themselves answering the same types of how-to questions. Having a repository of performance support objects that an individual can pull from, link to, or attach to an e-mail or chat response saves time. It eliminates the need to create one-off responses to similar questions. Performance support may also help librarians make inroads into courses or subject areas that are not suited to formalized library instruction. It’s harder for faculty to say no to material that helps students improve their research skills and doesn’t take time away from faculty instruction.

We could do a better job of using performance support in our informal learning environments. For example, placing HTML helper text in the online catalog to provide instructions on how to read a Library of Congress call number would be helpful to students who have never physically been to an academic library. Performance support is not a new concept but is underutilized in libraries. Instruction takes place in a variety of venues outside of the classroom. It occurs at a variety of different service points (e.g., circulation

and information desks) and through consultations and reference transactions. When considering how to teach a new skill to library users, think about the content you need to deliver and consider using performance support as part of your overall learning solution.



PREVIEW OF CHAPTER 4

Chapter 4 will explore the development process for learning object creation at the UC San Diego Library and introduce you to the various modes of creating learning objects.

NOTES

1. Allison Rossett and Lisa Schafer, *Job Aids and Performance Support: Moving from Knowledge in the Classroom to Knowledge Everywhere* (San Francisco: Wiley and Sons, 2007) 4.
2. Ibid.
3. Connie Malamed, How to Get Started with Performance Support, www.thelearningcoach.com/elearning2-0/get-started-with-performance-support.
4. George A. Miller, "The Magical Number Seven, Plus or Minus Two: Some Limits on Our Capacity for Processing Information," *Psychological Review* 63, no. 2 (1956): 81–97.
5. R. C. Atkins and R. M. Shiffrin, "Human Memory: A Proposed System and Its Control Processes," *Psychology of Learning and Motivation* 2 (1968): 89–195.
6. John Sweller, "Cognitive Load during Problem Solving: Effects on Learning," *Cognitive Science* 12 (1988): 257–258.
7. Ruth Colvin Clark and David Taylor, "The Causes and Cures of Learner Overload." *Training* 31, no.7 (July 1994): 40–43.
8. Jay Cross, "Informal Learning: An Interview with Jay Cross," <http://thelearningcoach.com/elearning2-0/informal-learning-an-interview-with-jay-cross>.
9. Jay Cross, *Informal Learning: Rediscovering the Natural Pathways That Inspire Innovation and Performance* (San Francisco: Pfeiffer, 2007).
10. Clark and Taylor, "Learner Overload."