Transforming Technical Services through Training and Development

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Contents

Introduction

AT THE 2020 ALA VIRTUAL EVENT, THE EDITORS OF THIS BOOK INTRODUCED the idea of the technical services learning organization. They proposed that by borrowing methods and best practices from instructional design, lean management, and "training within industry" (TWI), libraries could develop a learning culture. By incorporating formal and informal staff development into the everyday work of their employees, libraries could achieve continuous improvement in service delivery.

The editors could not have anticipated the COVID-19 pandemic and the subsequent pivot to remote work and learning, which required the rapid development of new skills. However, they saw parallels with TWI, a program created by the U.S. Department of War as a response to the need for skilled workers during World War II. Between 1941 and 1945, 1.6 million people were trained in the production of war materials. The statistics collected by the program showed not only increased productivity and reduced training time, but also a significant reduction in grievances by workers. In addition to all the other positive results, training helps employees cope with stress and deal with uncertainty (Graupp and Wrona 2016, xxiv–xxvi).

TWI emphasizes training the trainer, and the TWI program produced a lot of documentation related to selecting potential trainers, teaching them, and providing job aids for them to use in organizing training. The editors had experience applying these methods in the technical services context, during a major cross-training project in 2017. Subject matter experts across several

functional areas created standard work documentation, and then developed and delivered training based on the documentation. Training involved not just learning procedures, but also identifying experts and engaging in hands-on practice immediately following training, using the documentation. TWI considers the practice phase an opportunity to make improvements in the procedures and in subsequent training programs.

One of the key components of TWI is its approach to job instruction. In this approach, instructors learn to break down jobs into clearly defined steps. This is also one of the principles of instructional design. Breaking down job functions into discrete tasks and skills not only helps the trainer; it also helps the adult learner manage the cognitive load of learning something new. Before beginning the cross-training project, the editors and their colleagues invested time in identifying basic and advanced tasks and skills in each functional area of technical services. These tasks formed the basis for standard work documentation, and instructional design principles enabled trainers to turn these tasks and skills into learning outcomes for training.

There are many instructional design models used across various industries, but they do share some common characteristics. Many are iterative processes, such as ADDIE (Hodell 2006) and the Dick and Carey Model (2009). Most of the models involve analysis and evaluation steps that inform learning design and assessment; for example, backward design (Wiggins and McTighe 2005) and Cathy Moore's action mapping. An initial analysis step can involve evaluating learners' skills and training needs, examining the organization's goals and any gaps or areas for improvement, and identifying problems to solve. Not every problem can be solved with training, and it is important to eliminate issues of motivation, physical environment, corporate culture, or knowledge gaps. For example, employees may be repeating mistakes that a job aid or cheat sheet could fix, or there could be inefficiencies due to the physical arrangement of the work space.

If the initial analysis has revealed gaps in identified skills, then those skills can inform the development of learning outcomes and training plans. Most learning outcomes follow a kind of formula, inspired by Robert Mager's 1962 book *Preparing Instructional Objectives*. They answer the question: "What does right look like?" One method for learning outcomes involves the mnemonic ABCD: Audience, Behavior, Condition, Degree (see figure 0.1 for examples).

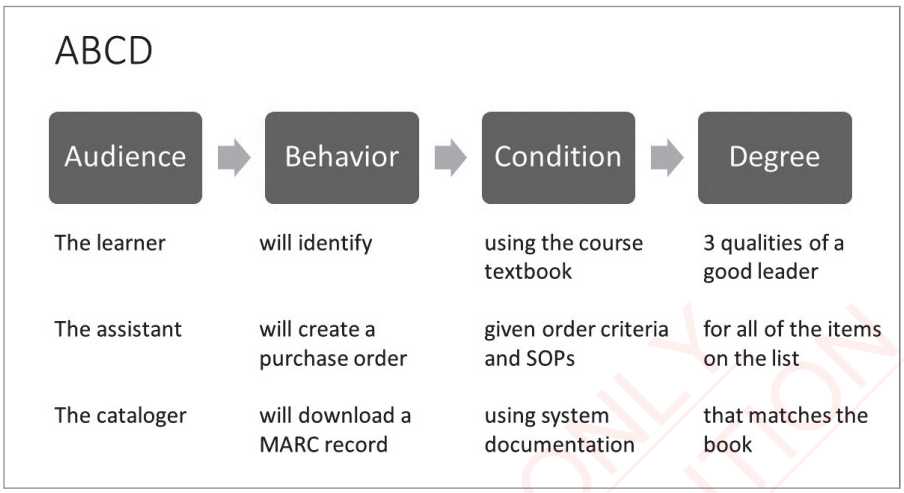

FIGURE 0.1
ABCD learning outcome examples

Another mnemonic for learning outcomes is SMART: Specific, Measurable, Attainable/Achievable, Relevant, Time-bound (Chatterjee and Corral 2017). For example:

> *By the end of this training (Time-bound), the learner will be able to describe (Specific, Measurable) the process for setting holdings in OCLC (Attainable/Achievable, Relevant).*

Here is an example of a learning outcome that is not SMART:

> *The learner will understand cataloging.*

While the overall goal of training may be for employees to understand the fundamental functions of their department, understanding itself cannot be measured. How would anyone know whether someone understands cataloging? It can help to think of things (tasks, skills, observable behaviors) that successful catalogers can do—and then ask, what does successful cataloging look like? A successful cataloger might be able to find a matching MARC record for an item, transcribe an item's title with correct capitalization and punctuation, or add

a Cutter number to a call number. This kind of analysis can lead to a SMART learning outcome such as:

> *At the end of the training, the cataloger will use matching record documentation to select and export OCLC records.*

Following these principles will lead more readily to success because learners will better understand what is expected of them, what they will be able to accomplish through learning, and how they might be evaluated. Writing learning outcomes as part of an overall strategy for learning in technical services will also help managers, supervisors, and trainers develop documentation (including training materials), and could also be a part of job classification or employee evaluation.

This book contains multiple examples of how TWI, lean management, instructional design, and other strategies can be used in training in cataloging, acquisitions, e-resources management, circulation, digitization, and preparation for a library service platform migration. (Almost all the examples in this book focus on a migration from a previously used platform to Ex Libris's Alma.) The editors' goal was to collect different training methodologies and case studies in order to offer technical services managers and trainers useful examples for creating a learning culture in their departments. The book's chapters cover academic and public libraries and consortia and are an indication that training needs are universal across different types of libraries and departments.

The book starts with two chapters ("Growing a Technical Services Learning Culture at NC State University Libraries" and "Establishing a Positive Training Culture") that discuss not specific training projects, but the importance of creating a positive training culture. The term *culture* is key here because the success of training is contingent on its collaborative and supportive nature. Learning can occur in many different ways, and in addition to improving quality and increasing productivity, it helps to build bridges and form cross-departmental relationships. Laura Sill's chapter on the community of practice model is one example of how to establish an organization-wide learning community around metadata work.

The potential approaches to training discussed in the book—Deming, just-in-time management, Vygotsky's scaffolded approach, information literacy concepts—all emphasize the same elements: identifying and creating training

opportunities, deliberately incorporating training into everyday workflows, and selecting and using appropriate training methods (structured courses, lectures, micro-learning, self-directed learning, cross-training, hands-on practice, etc.). Identifying the staff's gaps in skills and knowledge is often a first step in any training effort. A few chapters address using industry core competencies in defining skill gaps and training needs ("Growing a Technical Services Learning Culture," "Mind the [Training] Gap," "Training Tech Services Using Concepts from Information Literacy Instruction"). Depending on their particular needs, some chapter authors selected different approaches, which ranged from creating a comprehensive in-house course on cataloging ("Practicing Partnerships") to providing micro-learning opportunities as a response to problems with help desk tickets or e-mail questions ("Just-in-Time Training").

Documentation is a key component of a learning culture. Many chapters of this book demonstrate that successful training is impossible without a strong emphasis on current, up-to-date, and complete documentation ("Technical Services Staff Training and Documentation during and after a Transition from Voyager to Alma"). Examples of a course curriculum ("Practicing Partnerships"), lesson plans ("Establishing a Positive Training Culture," "Cross-Organizational Learning through a Community of Practice"), and workflows and procedures ("Reactive and Proactive Approaches in the Training Program") are included throughout the book to make it practical and usable in real-life training projects.

The importance of using available technological and project management tools to organize the training is evident throughout the book. Several chapters describe using Trello, MS Teams, Zoom, and learning management systems to deliver training and monitor progress. The use of Trello for tracking cataloging training progress ("Looking Back to Move Forward") and for student training and management ("Reinvention of Student Worker Training") shows that it could be a versatile and flexible tool that is adaptable to many different contexts. A learning management system with capabilities for self-graded assessment and participation tracking can be used to deliver both a comprehensive cataloging course ("Practicing Partnerships") and circulation services training ("Circulation Services Training in a Remote Work Environment"). Zoom and MS Teams are just a few of the many different tools that are used to collaborate or deliver training virtually.

The book includes several examples of theoretical approaches and practical strategies. What emerges from each and every chapter, however, is the integral role that training plays in the success of technical service departments and libraries in general.

The editors hope that the following chapters provide useful information to all types of libraries and help with organizing successful training on a departmental, library-wide, or consortial level.

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1

Growing a Technical Services Learning Culture at NC State University Libraries

Beth Ashmore, Maria Collins, Xiaoyan Song, and Lynn Whittenberger

OVER THE PAST TWO DECADES, TECHNICAL SERVICES AT NORTH CAROLINA State University Libraries (hereafter, NC State Libraries, or the Libraries) have evolved quickly due to changing work and reductions in staff. In addition, the increased need for effective electronic resources management ushered in a new work culture characterized by automation and system-driven support. Establishing strategies for continuous learning to meet these challenges was a critical factor in developing a resilient staff able to respond to changes not only in the work itself but in their approach to work. Due in part to North Carolina State University's training efforts, staff have learned to approach their jobs as problem-solvers, and they are willing to tackle a larger portion of the resource life cycle rather than just serving as functional experts on more narrow tasks or processes. The strategies discussed in this chapter, such as cross-training, exposure training, targeted learning, informal training, core competencies training, learning groups, and cross-unit teams, have created a pathway for building a continuous learning culture that has enabled staff to adapt and make quick changes within a supportive framework rather than a fearful one.

CROSS-TRAINING

The technical services operations at NC State Libraries merged in June 2011 to form a single department, Acquisitions & Discovery (A&D). A&D staff are

responsible for all aspects of acquisitions, serials management, cataloging, electronic resources management, database maintenance, and metadata services. One of the key components of the merger was cross-training for all staff. Catalogers learned acquisitions work and vice versa. To prepare for cross-training, managers held focus groups to identify questions to address, workflows affected, and action items or intended outcomes. (See figure 1.1 for an example of a focus group's charge.) All staff participated in multiple focus groups, which were successful in getting them involved in conceptualizing and visualizing upcoming changes in their work. This participatory process eased staff fears and resulted in collated decisions and recommendations for each of the various areas affected by the merger.

A training team was identified to create department-wide training content for cross-training all staff. Responsibility for the delivery of this content was divided among the members of the training team. Staff members with expertise in the areas identified for training were then asked to lead small groups that facilitated and provided support for practice activities. Consequently, a significant number of staff participated in leading aspects of the cross-training. Dedicated time was taken each week for staff to participate in both training sessions and group activities, so the pace of training was intense and occurred over the course of a year. These training sessions proved critical in establishing a knowledge baseline that created consistency and allowed staff to quickly adjust to their new work assignments resulting from the merger. These efforts also normalized regular delivery and participation in training throughout the department. Positioning learning as a foundational work activity allowed management to continue training beyond the initial merger and cross-training period.

EXPOSURE LEARNING

A&D managers also deployed lightweight learning strategies such as exposure learning to introduce new ideas and trends to the department. A&D defines exposure learning as learning about library topics that currently do not impact daily work but have the potential to impact technical services work in the future. The NC State Libraries provide funding for staff development, which department heads can request. To support exposure learning, A&D encourages staff to be on the lookout for learning opportunities, and if something looks

Project Summary

Goal: Perform an environmental scan of all of the ways serial physical materials enter, move through, and exit Acquisitions and Discovery (A&D) and the rest of technical services. Information gathered will be used to inform the creation of a workflow map that will then be used to make decisions on the handoff of materials in transitioned unit work and at Hunt Library.

Initial Questions

1. Where is material located before it enters A&D?
2. Where is material located after it exits A&D?
3. Where does material live at each stage of the workflow?
4. How does the material move within each unit (Acquisitions vs. Cataloging)?
5. How does the material move between each unit (Acquisitions vs. Cataloging), i.e., what are the handoff points?
6. Who is responsible for each movement?

Workflows Addressed

- Journals
- Standing orders and continuations
- Serial life cycle management, including new orders, cancellations, cessations, bibliographic changes, etc.

Focus Group

- Project manager—Serials Specialist
- Group members—Technician Journey (Serials), Technician Advanced (Preservation), Technician Journey (Preservation), Technician Advanced (Serials)

FIGURE 1.1
Example of a focus group's charge to assist with the merger of operations

interesting, to share information on the opportunity with their supervisor. If the department head agrees that the topic looks promising, a request will be submitted to the Libraries for funding. All A&D staff are invited to participate in these learning opportunities. Generally, the A&D Department has tended to register for webinar presentations or workshops, as these provide the broadest opportunity for participation, and recordings of them are usually provided

that can be shared internally. A&D keeps a local file of archived recordings that staff can view at their convenience. Past exposure learning topics have included linked data, programming languages and technologies, and alternative metadata schemas.

TARGETED TRAINING OR LEARNING

When staff need additional skills or knowledge to be successful in their work, their manager will often create a targeted training plan. Typically, targeted training is spurred by changes in the technical services environment (RDA, for example). The authors have found that targeted training is most successful when there are clearly stated expectations for participation and managers are prepared to shift, delay, or otherwise manage staff workloads when all or part of a staff member's workday is devoted to training and learning. In the past, selected staff would meet as a unit or group for training together. This had the benefit of colleagues being able to assist and support each other as a learning cohort. Examples of targeted training topics have included cataloging with RDA and using MarcEdit.

INFORMAL TRAINING

Probably the most common type of training in the department is informal training, or the apprenticeship approach. As a need arises for training on a particular task, staff who are experienced or skilled in that task will provide an informal training session for the staff member requiring that information. A&D management has encouraged staff to take on trainer roles, creating documentation on process and delivering one-on-one or small-group training as needed. Management supports staff that take on training roles by adjusting work assignments for the duration of the training and by recognizing training work done or new skills learned in staff members' annual appraisals. Any documentation created for training is retained in our department's shared Google Drive and may also be linked to on our internal wiki for future reference. Informal training examples include batch record loading and electronic theses cataloging.

CORE COMPETENCIES TRAINING

The cross-training that followed the department merger revealed several gaps in the department's previous approach to training. A reliance on informal or ad hoc training mostly for new staff had resulted in inconsistent knowledge and practice. The cross-training efforts after the merger created a shared understanding of accepted practices in the department, which resulted in improved communication and efficiencies. Following this experience, A&D supervisors decided to take a more thoughtful approach to training by analyzing the different types of training needed by the department, which primarily fell into two different camps—training requiring a systematic and cyclical approach, and one-off training that could be provided at the point of need. In addition, managers also needed to identify future job skills required for carrying out ever-changing technical services work, such as quality control work for automated processes and query writing to manage and analyze data outputs.

In an effort to identify current and future training needs as well as design a cohesive training framework that would address the need for more systematic and cyclical training, a team of A&D managers was charged with evaluating core competencies from a variety of relevant professional organizations, such as the American Library Association and NASIG. Through an analysis of these core competencies, the group evaluated what skills the department needed, who needed them, and how to create learning programs to ensure both competency and continued development in those areas. The department chose to review seven core competencies documents relevant to the department's core work:

- LLAMA Foundational Competencies (ALA)
- Core Competencies for Cataloging and Metadata Professional Librarians (ALA)
- New Skillset for Metadata Management (OCLC)
- Linked Data Competency Index (LD4PE)
- Core Competencies for Electronic Resources Librarians (NASIG)
- Core Competencies for Scholarly Communication Librarians (NASIG)
- Core Competencies for Acquisitions Professionals (ALA)

The individual skills and competencies in these documents were first categorized according to broad skills or knowledge sets, including both soft- and

domain-skill designations such as communication or metadata assessment. The individual competencies were also categorized by their importance to the department, the staff positions that had the skill, the number of staff who needed the skill, and additional training needs (see figure 1.2).

The categorization helped to identify common themes in soft-skill areas like communication, customer service, and project management, as well as domain knowledge areas like metadata, financial data, and technology. Scoring the importance of a skill, as well as the number of department members who needed a certain skill, helped to identify future training work for the department. With all of this information, the management team spun off a smaller training team to identify immediate areas to address and the resources needed to provide training, including internal workshops, webinar recordings, outside

FIGURE 1.2
Example of categorized core competencies

Category	Source	Skill or Knowledge	
Communication & relationship	LLAMA Foundational Competencies	Communication skills	
Domain knowledge: metadata	Core Competencies for Cataloging and Metadata Professional Librarians	Ability to create and edit consistent data; understanding of the importance of data standardization	
Domain knowledge: data management service	OCLC New Skillset for Metadata Management	Management of research data	
Domain knowledge: linked data	Linked Data Competency Index	Knows the subject-predicate-object component structure of a triple	
Domain knowledge: systems and tools	Core Competencies for E-Resources Librarians	Technology: knowledge of standards, protocols, and structures (IP, FTP, OpenURL/z39.50, Shibboleth, OAI-PMH, EDI)	

speakers, and online training tools like LinkedIn Learning. With regard to department-wide training, the first topic chosen was change management. This topic was selected as a way to set the stage and prepare the staff for ongoing training activities. The team provided the staff with short readings, a list of training videos from LinkedIn Learning, and an asynchronous exercise to prepare staff for an in-person workshop on change management. Unfortunately, due to the COVID-19 pandemic, the change management training was postponed. The pandemic provided great lessons in change management in real time, demonstrating how capable department staff are at managing change, learning new skills, and thriving in complicated times. As work schedules stabilize, the training team will begin to tackle creating a systematic training schedule for core competencies that fall within domain-specific areas.

	Importance to A&D	Who has it?	Who needs it?	Training Schedule
	5. Very important	Everyone	Everyone	Continuous
	5. Very important	Dept. catalogers / database maintenance people	Dept. catalogers / database maintenance people	Onboarding & periodic for new standards and systems
	2. A little important	Some librarians	Anyone who partners with Research Facilitation Services	Periodic training as part of Research Facilitation Services partnership
	3. Somewhat important	Librarians working on Linked Data projects	Anyone who serves on a linked data project	Possible exposure training for all; periodic professional development for Linked Data team
	4. Important	Librarians	Librarians	Periodic training as new standards and tools are implemented

LEARNING GROUPS

In addition to planned learning opportunities, there are often training topics that evolve on their own through staff needs or interests. Learning groups are one way A&D has responded to supporting those educational interests. Typically, a learning group has been created by a member of A&D who has an interest in a topic, and who has gotten support for group development from their supervisor and the head of A&D. The group then forms organically, through an open call for participation, usually an e-mail sent to the department and any other interested parties. One current example is our Python learning group. Python is a popular programming language in the acquisitions and metadata communities, and a number of staff and librarians in the department were independently investigating how they might use Python to improve existing automation and develop ways to further automate the department's processes. Led by Xiaoyan Song, electronic resources librarian for A&D, the Python learning group was created as a cohort learning group to give individuals with an interest in developing Python skills a place to get together and share their projects and learning resources and support each other. The group even attracted members from other departments within the Libraries. The group's members also presented a session to the department on what they learned, and the skills they developed while working together.

Learning a new task can be difficult to fit into an already packed schedule, no matter how valuable that new skill may ultimately be. By creating a structure like a learning group to support a common interest, staff have hopefully found it easier to dedicate time and prioritize the development of those skills, as well as inspire one another.

CROSS-UNIT TEAMS

Now that the A&D Department is ten years out from the 2011 merger, some of the flexibility gained from the initial cross-training has lessened. Although this is likely a normal reaction as people's roles stabilize, it does create a barrier to change. As a means of establishing a more fluid and nimble approach to working across unit lines in the department, A&D has begun the process of creating and implementing cross-unit teams. In addition to addressing the

need to create a flexible organizational structure for the department, these teams allow the department to provide dedicated support to areas of growth as well as problem areas. These teams are designed to address several challenges:

- They allow staff from different units to work and learn together, thus breaking down unit-specific boundaries.
- They allow staff to use their domain expertise on new areas or problems outside of technical services.
- They allow staff to broaden their work experience and gain new skills.
- They allow technical services staff to more readily partner with stakeholders across the Libraries.

This last purpose is especially critical because it pushes staff toward a more outward-facing technical services approach, one in which staff are essentially using honed skill sets for performing traditional technical services work in new or nontraditional areas across the Libraries. This has smoothed the way for technical services staff to offer consultation services and support for other units in the Libraries.

A&D was asked by the Libraries administration to provide twenty hours a week in support of the Libraries' statistical data work, so A&D managers decided to use this request to pilot the idea for A&D's first cross-unit team. This enabled A&D to pull staff from multiple units to support this work. Two team leads were identified to pull together a charge for the group and form an implementation and training plan. The team leads are also responsible for project management and communication. The pilot team, called the Library Impact Analysis cross-unit team, supports the Organizational Strategy Department in the collecting, cleaning, and reporting of statistics. In its initial stages, this team identified a number of areas for training. Some of these areas were specific to using tools for data collection, and only those who would be executing that data would require that training. Other skills, like new Excel skills for aggregating and visualizing data, have potential applications in regular A&D work and will be shared throughout the cross-unit team. As the team develops and assists with more bespoke data and visualization requests, the team looks forward to using new tools like Datawrapper and Tableau and being able to bring those skills back to the rest of the department to share, either through workshops or through learning groups.

Other cross-unit teams are in various stages of implementation. These include:

ILS Audit: This team will identify, evaluate, and maintain the integrity of the data curated by A&D in the ILS suite of systems.

ERM Strategy: This team will evaluate and define a unified strategy and establish priorities for electronic resources management for A&D.

Website Metadata: This team will support the work of A&D that intersects with the Libraries' website.

A&D Statistics: This team will facilitate and coordinate communication for the collection, management, and display of departmental statistics.

Special Collections: This team will provide support to A&D's collaborations with Special Collections.

Project Management: This team will establish best practices and provide project management support.

These teams will also form a communication plan to follow to ensure that direct supervisors are kept in the loop about resource needs. Even with just a few of these teams deployed, A&D has noticed increased interactions with stakeholders, as well as improved redundancy and knowledge retention within the department when staff have left the organization, both of which are important when onboarding and training new staff.

CONCLUDING THOUGHTS

Overall, A&D's multifaceted approach to learning has resulted in a technical services department that embraces a learning culture where staff feel comfortable both in delivering and in receiving training, and where staff recognize that learning new skills is part of their regular work. These strategies have contributed to a learning culture that allows A&D staff to succeed in responding quickly, adapting, and innovating in an ever-changing environment.

Index