

City University of New York (CUNY)

CUNY Academic Works

Publications and Research

Kingsborough Community College

2016

Application of Cognitive Apprenticeship Model (CA) to Library Instruction

Elizabeth K. Tompkins

CUNY Kingsborough Community College

[How does access to this work benefit you? Let us know!](#)

More information about this work at: https://academicworks.cuny.edu/kb_pubs/22

Discover additional works at: <https://academicworks.cuny.edu>

This work is made publicly available by the City University of New York (CUNY).

Contact: AcademicWorks@cuny.edu

This document is the final post-refereed draft of this article. The recommended citation for “Application of Cognitive Apprenticeship Model” is as follows:

Tompkins, Elizabeth K. " **Application of Cognitive Apprenticeship Model (CA) to Library Instruction.**" *College & Undergraduate Libraries* (Forthcoming).

Application of Cognitive Apprenticeship Model (CA) to Library Instruction

Elizabeth K. Tompkins

Abstract: The cognitive apprenticeship model, which links apprenticeship-learning techniques and classroom practices, offers a flexible framework for planning and implementing library sessions. Originally developed by educators Collins, Brown, and Newman, cognitive apprenticeship illuminates the thought process of teachers and other experts while they deliver instruction in problem solving, close reading, critical thinking, or other higher order reasoning. This paper discusses how librarians can employ the cognitive apprenticeship model to collapse the thought process associated with library research into components that are comprehensible to all levels of students.

Keywords: cognitive apprenticeship, library instruction, teaching

Elizabeth K. Tompkins is Assistant Professor and Reader Services Librarian at Kingsborough Community College, City University of New York, Brooklyn, NY 11235-2398. (E-mail: etompkins@kingsborough.edu)

The author wishes to thank Florrie Cohen for her valuable comments and insight.

Application of Cognitive Apprenticeship Model (CA) to Library Instruction

“...things gain meaning by being used in a shared experience or joint action.” (Dewey 1929)

Introduction

To foster student learning, librarians regularly engage with a broad range of educational theories and associated teaching strategies. It follows that the library literature includes numerous studies that examine the application of learning theories to library instruction. For example, Cook and Sittler (2008) cover the pedagogical terrain by presenting case studies that include a mixture of direct and student-centered instruction. In this exploration, the author considers the cognitive apprentice model (CA), which unites the longstanding tradition of learning through apprenticeship programs with classroom practices such as modeling, coaching, and scaffolding. While this technique has had limited treatment in the library literature, it has been extensively represented in journals focusing on education, pedagogy, and the scholarship of teaching and learning.

One might ask why librarians need another teaching approach given the rich instruction literature available to date. The author believes that CA offers a flexible framework for planning and implementing library sessions from which all levels of students may benefit. What's more, CA has the potential to provide librarians with a structure to fall back on for what most consider a problematic type of library class, the one-shot session.

Much of the literature favors credit-bearing classes over one-shot sessions (Owusu – Ansah 2007). Furthermore, research has shown that information literacy outcomes for a one-shot class are weaker when compared with an online information literacy course (Mery, Newby, and Peng 2012). CA is an instructional technique that is a useful tool for librarians who, because of institutional preferences or restraints, find it necessary to deliver library instruction via the one-shot class.

The following discussion describes the CA model and its theoretical foundation along with the author’s application of the model for conducting a library session. In addition, the article presents the advantages and some difficulties that a librarian may encounter while engaging with CA, along with some thoughts about future applications. Overall, this examination focuses on describing a theory that librarians may add to their teaching repertoire for application in a variety of instructional settings.

Comment [OU1]: I reworked this paragraph to address the lack of connection.

Cognitive Apprenticeship (CA) Model

Collins, Brown, and Newman (1989) and subsequently Collins, Brown, and Holum (1991) developed CA as a method to illuminate the thought process of teachers and other experts while they deliver instruction in problem solving, close reading, critical thinking, or other higher order reasoning. To achieve this goal, CA united instructional techniques found in traditional craft apprenticeship programs to those practices enacted in a classroom. The resulting method comprises a learning environment that consists of four dimensions:

- A. Content - Strategies to acquire knowledge that involve not only obtaining the relevant concepts and facts associated with a subject, but also with the best approach for the acquisition of knowledge;

- B. Method – Tactics that synthesize modeling, coaching, and scaffolding teaching techniques with methods that promote articulation, reflection, and exploration;
- C. Sequencing - Approaches that support the increasing complexity of tasks combined with tools that develop skills necessary to master a subject;
- D. The sociology of a learning environment – Policies that create a community of interactive learners.

Within each of the above building blocks are numerous strategies that work to implement the basic CA practice of bringing to light the thought process of an expert. What follows is an examination of the theoretical groundwork for CA in conjunction with an exploration of the CA dimensions and how they can be adapted to library instruction.

Collins, Brown, and Newman (1989) developed CA in response to the dichotomy between learning in a classroom and the tangible activities that may result from professional practice or other real life situations. The authors argued that in some cases schooling reduces the activities, culture, and context that feed the development of knowledge. In school students learn abstract concepts, which often are separated from concrete situations and activity. CA works to counteract the division by moving students closer to actual behaviors and conditions related to content studied in the classroom.

CA's theoretical underpinnings derive from Lave's (1977) fieldwork that examined the practices of apprentices working in a traditional West African tailor shop. Seeking to determine if schooling is the only route to develop reasoning abilities, Lave gathered evidence that indicated apprenticeship training builds aptitude for problem solving. While observing master

tailors and apprentices, Lave (1982) isolated the approaches that contributed to the acquisition of knowledge, which can be summarized as observation, imitation, and feedback. Collins, Brown, and Newman (1989) reinterpreted these apprenticeship-learning strategies for incorporation into a classroom, resulting in the four dimensions of a learning environment mentioned earlier.

CA in the Classroom

Educators have implemented CA with positive results in a broad range of educational settings from kindergarten to 12th grade and beyond (Dennen and Burner 2008). In higher education, Schoenfeld (1980) documented his success of employing modeling, coaching, and scaffolding techniques to teach college students how to solve math problems. Shekoyan and Etkina (2009) called upon CA while introducing second semester physics students to a problem solving method that relied on scaffolding. CA proved useful as a model for structuring graduate and undergraduate chemistry education (Stewart and Lagowski 2003 and Elliott, Stewart, and Lagowski 2008). Austin (2009) brought CA back from basic science to research in a doctoral program in higher and adult education.

Comment [OU2]: 2008 reference added. See Elliott, M.J., K.K. Stewart and J.J. Lagowski

Academic librarian Frey (2008) employed situated learning concepts associated with CA to revitalize her information literacy sessions. To shift her students into the role of a professional researcher, Frey developed a narrative based upon creating a fictitious undergraduate student who is looking for information. After assigning a gender, name, age, and major to the invented character, students suggested possible research projects for inquiry. Frey, acting as a guide and coach, helped the students select the best research topic. Sitting in the student seating area, she provided encouragement while focusing on the needs of the fabricated student. In turn, the students gradually shifted into a role of research consultants, assisting the invented student with

defining information needs, developing strategies, and readjusting, when necessary, a course of action. Frey concluded from her classroom observations that this technique worked best with juniors, seniors, and graduate students.

Conversely, my interpretation harnesses the CA method to break down the thought processes associated with library research into components that are comprehensible to all levels of students. My interest in CA grew out of keeping a reflective teaching journal that focused on creating a greater awareness of my classroom practice (Tompkins 2009). Utilizing Jay and Johnson's (2002) schema for reflection, which encompasses descriptive, comparative, and critical dimensions, I recorded and analyzed written reflections after completing a series of library classes. The journal led me to scrutinize my in-class procedures and to think critically about how best to impart effective library instruction. As a result, I learned that library classes that commenced with a brief overview of the research process followed by an extensive hands-on session were most effective for engaging students. Consequently, I modified my classroom practice from mostly an instructor-led lecture to a student-centered workshop.

While students and associated faculty members responded favorably to my revised library workshops, the following question arose. How does one guide a student-centered workshop to assure a high level of comprehension? As Cook and Sittler (2008) contend, how one teaches informs what the students will come to learn. With that in mind, I took Pratt and Collins' Teaching Perspective Inventory (2013) to aid in identifying what Pratt (2005) calls a teaching perspective, defined as an interconnected collection of beliefs and intentions that interact to form actions in the classroom. Pratt's assessment revealed my strong affinity for an apprenticeship perspective based upon Collin, Brown, and Newman's work.

Adapting the CA Model to Library Instruction

To test out the feasibility of adapting the CA model for librarian instruction, I experimented during my library sessions held at Kingsborough Community College. What follows is an analysis that emerged from my reflections employing CA to facilitate library instruction sessions from 2007 to 2012. Table 1 is a summary of my adaptation of CA.

Table 1. CA Method for Library Instruction

CA Dimension	Teaching Technique	Library Instruction Application
Method	Modeling	Examples of search strategies using electronic databases
	Coaching	Suggesting search terms
	Scaffolding	Creating supports for searching
	Fading	Stepping away when the student can work on her own
	Articulation	Foster explanations of how to research a topic
	Reflection	Provide alternative research methods
	Exploration	Encourage expansion of research tools
Content	Domain Knowledge	Introducing subject headings
	Heuristic Strategies	Tricks of the trade
	Control Methods	How to select the best database for the research topic
	Learning Strategies	Develop awareness of how to gather information

Sequencing	Increasing Complexity	Introduce basic search platforms first
	Increasing Diversity	Introducing alternative databases and search strategies
	Global Before Local Skills	Presenting hands-on database searching early in session
Sociology of a Learning Environment	Situated Learning	Relating research to topics presented in class
	Community of Practice	Encourage sharing of information
	Intrinsic Motivation	Connect library research to what has personal meaning
	Exploiting Cooperation	Encourage students to help each other

Kingsborough, a public two-year college that is one of the twenty-three colleges and schools in the City University of New York (CUNY), offers credit and non-credit bearing courses in the liberal arts, sciences, and career education programs. Figures gathered from 2011 enrollment data show the following racial and ethnic breakdown: Asian/Pacific Islanders, 13.4%; Black, Non-Hispanic, 34.0%; Hispanic, 16.2%; White, Non-Hispanic, 36.2%; and American

Indians, 0.2%. Nearly 55% of Kingsborough students are foreign born and speak one or more of the seventy-three languages present on campus. Seventy-eight percent of the entering first-time freshmen have a high school grade average of 79 or below. Most of the student body requires some form of remediation in either English or mathematics, or both. Forty-four percent of the students expect to complete a degree, while 36% hope to transfer to a four-year college (Kingsborough Community College).

Faculty members at Kingsborough invite librarians to conduct a library class, which generally runs for one or two class periods. The sessions are most often for freshmen or sophomore English composition, for general education classes that are part of the writing across the curriculum program, or for a student development course for first semester freshmen enrolled in a learning community. The goal for the sessions is to introduce the students to library resources for obtaining sources to support an assignment, generally an essay or sometimes a speech or presentation. Usually the students attending the session have not had any prior experience using the library's resources. At Kingsborough, like many academic libraries, the larger institution goals, preferences, and constraints prevent the library from offering credit-bearing classes.

Deleted:

Method Dimension: Begin with Developing the Model

My entry point for engaging with CA focuses on the method dimension, which encompasses teaching strategies considered by Collins, Brown, and Newman (1989) to be the nucleus of CA. As discussed previously, the method component brings into play tactics that synthesize modeling, coaching, and scaffolding teaching strategies with techniques that promote student articulation, reflection, and exploration. Among these strategies, the modeling aspect

stands out as a critical component for introducing the students to library research. Collins, Brown, and Newman state that modeling “involves an expert’s carrying out a task so that students can observe and build a conceptual model of the processes that are required to accomplish the task” (1989, 481). This activity is deeply rooted in the apprenticeship process where new apprentices devote considerable time to pre-practice observation. For example, Japanese folk craft pottery apprentices spend one year or longer in serious observation before they attempt to use the potter’s wheel (Singleton 1989).

Creating an effective environment to promote observation and modeling for a library session hinges on having some level of communication with the professor who requested the session. At the bare minimum, it is helpful to have in advance of the class a copy of the assignment the students are working on, along with some understanding of the nature and scope of the library research required to complete the assignment. This assignment becomes the basis for a research model that I create, which lays out appropriate search strategies that captures my thought process as an expert researcher. As such, the model becomes the mechanism for an introduction to library research providing the students with a means to observe and recreate the model search strategies.

Setting up a model involves spending time how best to research a few of the topics students are using for their research papers. I comb through our library’s electronic resources to identify the best sources for the given topics and go on to devise relevant search terms, and appropriate limiters. The end result is a handout that provided to students at the beginning of class. Appendix A is an example of a research model for the topic “American Exceptionalism.” I purposely keep the handout straightforward, to ease students’ entry into online searching.

One could argue that I am doing the students' work for them. However, during the session, I stress that the search examples act as an entry point to the library's resources and as a means to gain familiarity with the resources. I encourage the students to make their own modifications to my model that will best correspond to their topic. Additionally, I suggest that the students apply the model to other research assignments and topics.

Following a brief introduction, I begin my library session by demonstrating the research model that I created for the class. Students initially observe the process and then follow along by recreating the search at their computers. Observation transitions into activity as I have detected that giving the students hands-on experience early in the session enhances engagement (Tompkins 2009).

Employing Coaching, Scaffolding, and Fading

As the students shift from replicating my CA inspired model to creating their own search strategies, I transition into the role of a coach. Coaching, according to Collins, Brown, and Newman, "consists of observing students while they carry out a task and offering hints, scaffolding, feedback, modeling, reminders, and new tasks aimed at bringing their performance closer to expert performance" (1989, 481). To accomplish this procedure, I move about the room, consulting individually with students, proposing alternative search terms, solving problems, and giving encouragement. Students, in turn, work on searching the library's proprietary databases using my model and presentation as a guideline.

Central to my actions as a coach is the technique of scaffolding. Introduced by Wood, Bruner, and Ross (1976), the construct of scaffolding in this context acts as a "tutorial process" or a procedure "whereby an adult or expert helps somebody who is less adult or expert." Stone

(1993) expanded upon the idea of scaffolding by linking the concept with Vygotskii and Cole's theory of zone of proximal development (ZPD). ZPD is defined by Vygotskii and Cole as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (1978, 86). Under Stone's (1993) interpretation, both student and "expert" are active participants, building understanding through an exchange that leads the learner to gain understanding from the teacher.

As I work individually with the students, I keep the ZDP theory in the forefront by looking for the student's current level of understanding. From that perspective, I am able to provide tips and guidance, which may consist of defining the type and range of information needed, proposing appropriate resources, and suggesting suitable keywords to use in a search. Once a student develops some mastery, I step back or engage in the fading technique, removing my support, and moving on to help other students or to observe as the class progresses through the research process. Often the modeling, coaching, scaffolding, and fading techniques intermingle as I modify my teaching strategies to fit the needs of the students. For example, I may return to demonstrating my search examples or models if many students appear unclear about a particular aspect of the research process.

Fostering Student Articulation, Reflection, and Exploration

Rounding out the method dimension are techniques to promote student articulation, reflection, and exploration. Collins, Brown, and Newman consider articulation to include "any method of getting students to articulate their knowledge, reasoning, or problem-solving process

in a domain” (1989, 482). Reflection in the CA context assists learners to compare their own performance with that of a teacher, another student, or their own thought process from the beginning of class. It stands to reason that after students have reflected upon and articulated what they have learned, they are ready for further exploration. Exploration is an outgrowth of the fading process, arising when students are ready to take on variations of the assigned tasks.

During my library sessions, I foster articulation by asking students to describe their search strategy and subsequent results. As the class winds down, I suggest that the students reflect upon what they learned. I inquire if they have located enough meaningful research. At the end of the session, I encourage further exploration by directing the students to additional library resources or to the reference desk for further assistance.

Consider Content

While the method dimension encompasses teaching techniques, the content dimension deals with the types of knowledge necessary for obtaining mastery over a subject area. Collins, Brown, and Newman (1989) identified the following four categories of knowledge that are relevant to CA:

1. Domain knowledge – concepts and facts associated with a particular discipline;
2. Heuristic strategies – approaches to solving problems often thought of as “tricks of the trade”;
3. Control strategies – methods for selecting the best problem-solving strategies;
4. Learning strategies – techniques for acquiring new knowledge.

To support the acquisition of key principles, Collins, Brown, and Holum (1991) examine heuristic and control strategies enlisted by Schoenfeld (1985), who employs heuristic strategies to solve mathematical problems, using the method to see if a solution for one problem can be applied to additional problems. During a library session, I engage with heuristic strategies by passing on some of my “tricks of the trade” or preferences for searching electronic databases. For example, I may explain my preference for starting with a broad search and then narrowing down the results, converting a keyword search into one using subject headings, or using a bibliography for finding additional sources.

Related to heuristic strategies are control techniques that establish how one carries out a task. As students gain more experience, they learn to select among various options for accomplishing a task. Selecting appropriate databases to find information for the assigned topic is but one example of using control strategies. Taken together, heuristic and control strategies combine to form learning strategies that students utilize to advance their acquisition of knowledge. My goal is to send students off with some basic learning strategies or awareness of how to use the library’s resources to gather information.

Sequencing

While the content dimension encompasses types of knowledge, sequencing techniques direct the progression of the learning activities, by setting up a chain of tasks that provides for increasing complexity and diversity. Collins, Brown, and Newman (1989) identified the following three sequencing activities that support learning:

1. *Increasing complexity* refers to the need for a greater number of skills and concepts to achieve expert functioning;

2. *Increasing diversity* pertains to the need for the range of choices of problem-solving strategies and/or skills;
3. *Global before local skills* involves providing students with supports, allowing them the opportunity to solve complex or interesting problems before they have mastered the individual steps.

Making use of the above strategies, I generally introduce students to proprietary databases that have fewer search options before moving on to databases that have more detailed interfaces. Likewise, I present a small set of pre-selected databases for students to search before pointing out the entire spectrum available. Most important to my instruction, however, is the tenet of global before local skills. Collins, Brown, and Newman (1989) indicate that this skill acts to help students build a “conceptual map.” Here, my application provides students with supports to search electronic databases prior to instruction about Boolean logic, subject headings, and other technical aspects.

Sociology of a learning environment

The final dimension of a CA classroom addresses the sociology of learning. Contributing to the sociology of the CA model are four related concepts: situated learning; community of practice; intrinsic motivation; and exploiting cooperation. Situated learning refers to the creation of an authentic learning environment similar to the experience of an apprentice in a craft shop who works alongside other apprentices and the master (Lave 1982). An authentic learning environment leads to the creation of a community of practice where knowledge is exchanged and shared. It follows that intrinsic motivation is fostered through learning environments where

students are working on projects that have personal meaning. Finally, exploiting cooperation grows out of encouraging students to work together to solve problems.

To develop a cooperative learning environment during my library sessions, I encourage students to help each other. Students are receptive to giving and receiving assistance from their peers and gain confidence in their abilities by sharing their knowledge with their classmates. The professor whose class is receiving the session also becomes part of the community of learners, as he or she moves about the computer lab, answering questions and giving advice. Paraphrasing Dewey (1929), the students begin to experience library research through the “shared experience or joint action.”

Discussion of CA in a Library Session

Addressing Concerns

Examining my application of CA, some readers may contend that these are familiar teaching strategies that librarians regularly utilize. I concede that CA does encompass some well-established educational practices. However, what Collins, Brown, And Newman (1989) impart is exploring classroom activities through the apprenticeship lens. Focusing on the elements found in a craft workshop (observation, modeling, and approximating the work of an expert) supplies a useful structure for a hands-on, one-shot, library workshop for students who have had no prior experience using the library’s resources.

What’s more, a CA session incorporating modeling, coaching, and fading operationalizes the minimalist library instruction sessions called for by Bodemer (2012), who argues that the research process is a higher-order mental activity integral to writing, advocates for library

sessions that introduce students to a few key aspects of searching the library's proprietary databases before launching them into the search process. A brief introduction to searching proprietary databases followed by hands on work allows students to engage in what Bodemer calls the "intertextual skills" that he contends are part of the processing of writing a research paper.

Additionally, one may argue that a CA-led library workshop may give short shrift to defining terms and describing information sources in great detail. However, Bodemer claims that library research makes the most sense when students begin engaging in actual practice. This notion corresponds to Brown, Collins, and Duguid's (1989) exploration of situated learning, where the authors contend that authentic activity gives rise to learning.

One may ask, why do librarians need another approach to instruction given the rich instruction literature available to date? More specifically, why should librarians employ the CA framework when numerous studies have already documented the success of another student centered learning theory, namely problem-based learning (PBL). Originally developed for medical students, PBL provides the opportunity to learn a specific subject by working in small groups to solve a real world problem (Savery 2006). While PBL and CA share similar goals of making the process of learning more transparent by solving authentic problems through collaboration, the PBL framework requires students to work in small groups and to take on the responsibility for their own learning. In a PBL session the librarian steps aside, acting as a facilitator (Kenney 2008). In contrast, librarians utilizing the CA techniques provide supports for students throughout the session by modeling, scaffolding, and coaching. It stands to reason

that CA offers a flexible framework useful for all levels of students as the librarian can adjust the level of support needed.

Finally, CA provides a suitable format for grappling with the time limitations of a one-shot session. The emphasis on applied instruction embedded in the CA model is compatible with Badke's (2009) argument that the best one-shot sessions are generally hands-on and focus on imparting "familiarization" with library resources. This is in contrast to an instructor-led session that may attempt to cover too much ground and loses the students' attention in the process. The modeling, coaching, fading techniques give the librarian the tools to bootstrap students who have had limited familiarity with library research.

Benefits for teaching

Accordingly, CA as an instructional strategy has much to recommend to librarians conducting library sessions. Frey (2008) observed that, at the conclusion of her CA-led session, learners behaved less like students and more like researchers who thoughtfully sought out relevant resources. Key benefits of implementing CA for a library session are:

1) Assists in working with students with various skill levels

Often students enter a library instruction classroom with varying degrees of knowledge pertaining to how to use technology and how to develop a research topic. CA-led instruction gives the stronger students the latitude to work on their own, while the librarian, acting as a coach, can work with the students who need more help;

2) Corrects misunderstandings

The interactive and hands-on elements of a CA-led session allow students to both make and correct mistakes as they start the research process;

3) *Students have opportunity to obtain research*

Practically speaking, the CA led session allows students to start collecting research for their assignments. This operates as a great motivator for busy students;

4) *Compatible with other teaching strategies*

The flexible nature of the CA allows librarians to introduce other teaching strategies into the framework. For example, one could consider implementing threshold concepts along with CA strategies to enhance instruction. Threshold concepts, developed by Meyer and Land (2005), are core concepts and ideas related to an academic discipline. Librarians Townsend, Brunetti, and Hofer (2011) used the concepts to enhance the formation of information;

5) *Adaptability to a variety of classes and topics*

CA strategies work equally well with a range of topics. In my library sessions I have structured classes using CA for themes relating to business (company research, management theory), health (topics related to diseases), social issues (education, effects of Hurricane Katrina), politics and government (failed states), and themes embedded in literature.

Difficulties with CA

Like any instructional technique, drawbacks do arise while implementing CA. Now and then, I have developed an inappropriate model as a result of a mismatch or misunderstanding of

an assignment. At other times, the model may match the assignment, but the scheduling of the class may not be desirable. For example, students may have completed the assignment or conversely have not been introduced to the topic. Occasionally a faculty member may not provide an assignment, leaving me to formulate a research topic that may or may not correspond to class content. Furthermore, there is no guarantee that all students will work with my research model. A few students will continue to search Google for their research needs despite my best efforts at modeling and coaching.

Future Directions

Going forward, librarians might consider how the foundational principles of CA (content, method, sequencing, and sociology) can provide a theoretical framework for library instruction in an online learning environment. For example, educators Stockhausen and Zimitat (2002) applied the concepts of CA to their Internet-based database that operated as a discussion forum focused on developing the thought process of students into those of expert practitioners. Likewise, Cawthon, Harris, and Jones (2010) harnessed the CA method to teach the research process to graduate students enrolled in an online psychology lab. Comparatively, librarians may find CA useful to structure an online tutorial or an online instruction session. Scaffolding and sequencing may be especially helpful tools in an online educational setting.

Moreover, an examination of impressions gathered from students participating in a CA structured library session would contribute to evaluate learning. Collecting comments from her students participating in a first-year doctoral seminar in a higher education program, Austin (2009) learned that CA furthered the development of scholarly practices by fostering greater self-confidence in determining key problems and framing corresponding research questions.

Likewise, Linkon (2005), who adapted CA to assist her literature students with a critical cultural reading of novels, collected feedback from students' writing portfolio. Currently, I am evaluating various qualitative techniques for the purpose of gaining a better understanding of students' reactions to a CA led library session.

One might also use the CA method as a springboard to achieve greater collaboration between librarians and teaching faculty. Librarians could present their use of the CA method in forums sponsored by an on-campus teaching and learning center or conferences that are attended by faculty members. Such educational opportunities could help address some of the difficulties that arise while implementing CA such as misunderstandings regarding an assignment requiring research and the timing of when an assignment is due.

Conclusion

Why do librarians need another teaching approach given the already abundant instruction literature? I believe that CA offers librarians who conduct single-session library instruction classes the means to launch students who have had little library experience into the domain of the library's resources. Not all research strategies will be covered or all questions answered, but I have observed students leaving a CA-led class with two or three relevant articles to support their essay together with an emerging understanding of how to access the library's resources.

The poet Mary Oliver (1994) encourages her students to model contemporary poets, whose treatment of language is comprehensible for beginning writers. Imitation, according to Oliver, trains the inexperienced poet in the basics, until her own writing style emerges. The CA method works in a similar way, conveying the thought process of an expert or teacher to the

Comment [ET3]: Added to the reference list

learner. As an instructional technique, CA deserves a place in a librarian's instructional repertoire, alongside problem-based learning and other student-centered practices.

Bibliography

- Austin, Ann E. 2009. "Cognitive Apprenticeship theory and its Implications for Doctoral Education: A Case Example from a Doctoral Program in Higher and Adult Education." *International Journal for Academic Development* 14 (3): 173-173-183.
- Badke, William. 2009. "Ramping Up the One-Shot." *Online* 33 (2): 47.
- Bodemer, Brett B. 2012. "The Importance of Search as Intertextual Practice for Undergraduate Research." *College & Research Libraries* 73 (4): 336-348.
- Brown, John Seely, Allan Collins, and Paul Duguid. 1989. "Situated Cognition and the Culture of Learning." *Educational Researcher* 18 (1): 32-42.
- Cawthon, Stephanie W., Alycia Harris, and Robin Jones. 2010. "Cognitive Apprenticeship in an Online Research Lab for Graduate Students in Psychology." *International Journal of Web-Based Learning and Teaching Technologies* 5 (1): 1-15.

Collins, Allan, John Seely Brown, and Ann Holum. 1991. "Cognitive Apprenticeship: Making Thinking Visible." *American Educator* 1:1-18.

Collins, Allan, John Seely Brown, and Susan E. Newman. 1989. "Cognitive Apprenticeship: Teaching the Crafts of Reading, Writing, and Mathematics." In *Knowing, Learning, and Instruction: Essays in Honor of Robert Glaser*, edited by Lauren B. Resnick and Robert Glaser, 453-494. Hillsdale, NJ: Laurence Erlbaum.

Cook, Douglas and Ryan Sittler. 2008. *Practical Pedagogy for Library Instructors: 17 Innovative Strategies to Improve Student Learning*. Chicago: Association of College and Research Libraries.

Dennen, Vanessa P. and Kerry J. Burner. 2008. "The Cognitive Apprenticeship Model in Educational Practice." In *Handbook of Research on Educational Communications and Technology*, edited by J. Michael Spector, M. David Merrill, Jeroen Van Merriënboer, and Marcy P. Driscoll. 3rd ed., 425-439. New York: Lawrence Erlbaum Associates.

Dewey, John. 1929. *Democracy and Education; an Introduction to the Philosophy of Education*. New York: The Macmillan Company.

Elliott, M. J., K. K. Stewart, and J. J. Lagowski. 2008. "The Role of the Laboratory in Chemistry Instruction." *Journal of Chemical Education* 85 (1): 145-149.

Frey, Susan M. 2008. "Constructing Narrative to Situate Learning in Library Instruction: Counseling an Imaginary Undergraduate." In *Practical Pedagogy for Library Instructors: 17 Innovative Strategies to Improve Student Learning*, edited by Douglas Cook and Ryan Sittler, 95-102. Chicago: American Library Association.

Jay, J. and K. Johnson. 2002. "Capturing Complexity: A Typology of Reflective Practice for Teacher Education." *Teaching and Teacher Education* 18 (1): 73-85.

Kenney, Barbara Ferrer. 2008. "Revitalizing the One-Shot Instruction Session using Problem-Based Learning." *Reference & User Services Quarterly* 47 (4): 386-391.

Kingsborough Community College. "About Kingsborough Community College: Enrollment Data Profile." <http://www.kbcc.cuny.edu/EnrollmentDataProfile/index.htm>.

Lave, Jean. 1977. "Cognitive Consequences of Traditional Apprenticeship Training in West Africa." *Anthropology & Education Quarterly* 8 (3): 177-180.

———. 1982. "A Comparative Approach to Educational Forms and Learning Processes."
Anthropology & Education Quarterly 13 (2): 181-187.

Linkon, Sherry. 2005. "The Reader's Apprentice: Making Critical Cultural Reading Visible."
Pedagogy 5 (2): 247-273.

Mery, Yvonne, Jill Newby, and Ke Peng. 2012. "Why One-Shot Information Literacy Sessions
are Not the Future of Instruction: A Case for Online Credit Courses." *College &
Research Libraries* 73 (4): 366-377.

Meyer, Jan, and Ray Land. 2005. "Threshold Concepts and Troublesome Knowledge (2):
Epistemological Considerations and a Conceptual Framework for Teaching and
Learning." *Higher Education* 49 (3): 373-388.

Oliver, Mary. 1994. *A Poetry Handbook*. New York: Harcourt Brace & Company.

Owusu-Ansah, Edward. 2007. "Beyond Collaboration: Seeking Greater Scope and Centrality for
Library Instruction." *portal: Libraries & the Academy* 7 (4): 415-429.

Pratt, Daniel D., ed. 2005. *Five Perspectives on Teaching in Adult and Higher Education*.
Malabar, FL: Krieger Publishing Company, Inc.

Pratt, Daniel D., and John D. Collins. ~~2014~~, "TPI- Teaching Perspectives Inventory."
<http://www.teachingperspectives.com/drupal/>.

Deleted: Year

Savery, John R. 2006. "Overview of Problem-Based Learning: Definitions and Distinctions."
Interdisciplinary Journal of Problem-Based Learning 1 (1):1-13.

Schoenfeld, Alan H. 1985. *Mathematical Problem Solving*. Orlando, FL: Academy Press.

———. 1980. "Teaching Problem-Solving Skills." *The American Mathematical Monthly* 87
(10): 794-805.

Shekoyan, Vazgen, and Eugenia Etkina. 2009. "Using Cognitive Apprenticeship Framework and
Multiple-Possibility Problems to Enhance Epistemic Cognition." In *Physics Education
Research Conference*, edited by M. Sabella, C. Henderson and Ch Singh, 269-272.
Melville, NY: American Institute of Physics.

Singleton, John. 1989. "Japanese Folkcraft Pottery Apprenticeship: Cultural Patterns of an Educational Institution." *In Apprenticeship: From Theory to Method and Back Again*, edited by Michael William Coy, 310. Albany: State University of New York Press.

Stewart, K. K., and J. J. Lagowski. 2003. "Cognitive Apprenticeship Theory and Graduate Chemistry Education." *Journal of Chemical Education* 80 (12): 1362-1366.

Stockhausen, Lynette, and Craig Zimitat. 2002. "New Learning: re-Apprenticing the Learner." *Education Media International* 39 (3-4): 331-338.

Stone, C. Addison. 1993. "What is Missing in the Metaphor of Scaffolding?" In *Contexts for Learning: Sociocultural Dynamics in Children's Development*, edited by C. Addison Stone, Norris Minick, and Ellice A. Forman, 169-183. New York: Oxford University Press.

Tompkins, Elizabeth K. 2009. "A Reflective Teaching Journal: An Instructional Improvement Tool for Academic Librarians." *College & Undergraduate Libraries* 16 (4): 221-238.

Townsend, L., K. Brunetti, and Amy R. Hofer. 2011. "Threshold Concepts and Information Literacy." *portal: Libraries and the Academy* 11 (3): 853-869.

Vygotskii, L. S., and Michael Cole. 1978. *Mind in Society: The Development of Higher Psychological Processes*. Cambridge: Harvard University Press.

Wood, D., J. S. Bruner, and G. Ross. 1976. "The Role of Tutoring in Problem Solving." *Journal of Child Psychology and Psychiatry, and Allied Disciplines* 17 (2): 89-100.

Appendix A

RESEARCH GUIDE

Steps for finding outside sources for your research paper

1. Validate Kingsborough I.D. Card. at the circulation desk on the 2nd floor of the library.
2. Visit Library homepage at <<http://www.kbcc.cuny.edu/kcclibrary>>.
3. Click on 'Databases - Articles' – A-Z list of databases.
4. Choose the best database for your topic (see suggestions below).
5. Select search terms that best define your topic (see back page for suggestions).

Electronic databases for your topics

Suggested Databases:

- *Gale Academic OneFile*
- *Academic Search Complete (EBSCO)*
- *Opinion Archives*
- *Business Source Complete*
- *Ethnic News Watch (ProQuest)*

Selected search terms

Examples of search terms for finding articles that discuss **American Exceptionalism**:

- Exceptionalism AND United States
- Exceptionalism AND United States AND history
- National Characteristics AND American

Political concepts related to **American Exceptionalism**:

- Imperialism AND United States
- Anti-imperialism AND United States
- Isolationism AND United States
- Intervention AND international law AND United States
- Nationalism AND United States
- Political Culture AND United States
- Foreign policy AND United States AND history

Public figures and **American Exceptionalism**

- Tocqueville AND Exceptionalism
- John Winthrop AND Exceptionalism
- John F. Kennedy AND Exceptionalism
- Ronald Reagan AND Exceptionalism
- Bill Clinton AND Exceptionalism
- George W. Bush AND Exceptionalism

Exceptionalism and wars or conflicts:

- World War II AND Exceptionalism
- Cold War AND Exceptionalism
- Vietnam War AND Exceptionalism
- Middle East AND Exceptionalism

Exceptionalism in the Twenty-first century:

- War on terror AND Exceptionalism
- Immigration AND Exceptionalism
- Health care reform AND Exceptionalism
- Humanitarian AND Exceptionalism