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# Resource-Based Learning and Course Design: A Brief Theoretical Overview and Practical Suggestions

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*Ms. Butler argues that librarians teaching legal research should follow resource-based learning pedagogical strategies. Her article provides a background in constructivist educational theory and resource-based learning before identifying useful instructional strategies regarding course design decisions related to goal setting, assignments, rubrics, and assessment.*

Introduction . . . . .	219
Resource-Based Learning . . . . .	221
Problem-Based Learning . . . . .	223
Developing Metacognitive Skills . . . . .	224
Instructional Strategies: Questioning Students and Scaffolding . . . . .	225
Building Schemata to Maximize Working Memory . . . . .	229
Benefits of Resource-Based Learning . . . . .	232
Course Design Decisions . . . . .	234
Setting Goals . . . . .	234
Instructional Strategies . . . . .	238
Assignments, Rubrics, and Assessment . . . . .	240
Assignments . . . . .	240
Rubrics . . . . .	240
Assessment . . . . .	241
Conclusion . . . . .	244

### Introduction

¶1 The best methodology for teaching students legal research is a subject of debate within the law librarian community.<sup>1</sup> Though the debate existed before the current push in legal education to improve law students' practical and ethical

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\* © Margaret Butler, 2012. This is a revised version of the winning entry in the new member division of the 2011 AALL/LexisNexis Call for Papers competition. The article was presented at the 2010 Boulder Conference on Legal Information: Scholarship and Teaching, and I would like to thank the conference participants for their feedback and support in drafting it.

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1. For a history of the debate, see Paul D. Callister, *Beyond Training: Law Librarianship's Quest for the Pedagogy of Legal Research Education*, 95 LAW LIBR. J. 7, 8–9, 2003 LAW LIBR. J. 1, ¶ 4.

understandings of the law,<sup>2</sup> law librarians' analysis of the best ways to teach legal research is seeing more prominence.<sup>3</sup> Like law professors, however, law librarians do not generally have pedagogical training.<sup>4</sup> Most pedagogical training for law librarians comes in the form of on-the-job training, presentations at professional conferences,<sup>5</sup> and professional literature.

¶2 Although some people may be described as “natural teachers,” that gift is rare. But teachers can be trained in the mechanics of teaching, ultimately improving the education delivered.<sup>6</sup> Through training, teachers may learn to consider instructional, or pedagogical, theory as they develop their courses. Kristin Gerdy has suggested that adult learning theory—the learning theory relevant to law students, rather than elementary school students—should be considered in the development of legal research courses.<sup>7</sup>

¶3 Adult learners share some traits that should be considered when designing a course. First, adult learners are able to choose options that best suit their learning needs.<sup>8</sup> When preparing lessons for adult learners, instructors should briefly provide an overview and context, and summarize the “big picture” for students—this

2. The MacCrate Report and the Carnegie Report both represent efforts to improve legal education. AM. BAR ASS'N, SECTION OF LEGAL EDUC. & ADMISSIONS TO THE BAR, LEGAL EDUCATION AND PROFESSIONAL DEVELOPMENT—AN EDUCATIONAL CONTINUUM: REPORT OF THE TASK FORCE ON LAW SCHOOLS AND THE PROFESSION: NARROWING THE GAP (1992) [hereinafter MACCRATE REPORT]; WILLIAM M. SULLIVAN ET AL., EDUCATING LAWYERS: PREPARATION FOR THE PROFESSION OF LAW (2007) (Carnegie Report). Though not as a direct result of those reports, the law librarian community has engaged in conversation about the best way to teach legal research, through debates around bibliographic instruction and process (the Berring and Wren debate) as well as other topics. Recently, the Berring and Wren debate was revisited by Berring: “Almost 20 years later, one might wonder what all the fuss was about. In hindsight, the Wrens espoused a more important role for legal research training and they felt it was best done in an environment where the student was learning how to use the research tools.” Robert C. (Bob) Berring Jr., *Twenty Years On: The Debate over Legal Research Instruction*, 17 PERSPECTIVES: TEACHING LEGAL RESEARCH AND WRITING 1, 3 (2008).

3. The annual Conference on Legal Information: Scholarship and Teaching, which began in 2009, is the product of a discussion among librarians about legal information scholarship and instruction, looking toward the development of a “theoretical foundation of a signature pedagogy for legal research education.” Conference on Legal Information: Scholarship and Teaching, The Boulder Statement on Legal Research Education (June 22, 2009) (unpublished manuscript), available at <http://www.colorado.edu/law/events/legalResearchEducation.pdf>. The conversation was broadened beyond Boulder Conference participants through programs at the Annual Meeting of the American Association of Law Libraries (AALL) in 2009 and 2010.

4. Job postings for academic reference librarians (who are generally the librarians involved in teaching legal research) typically require a J.D. degree as well as a degree in library or information science. Degrees in education (for either child or adult learners) are not mentioned in these job postings, and are not generally required of librarian instructors. See generally *Employment Opportunities*, LAW LIBRARIAN BLOG, [http://lawprofessors.typepad.com/law\\_librarian\\_blog/employment\\_opportunities/](http://lawprofessors.typepad.com/law_librarian_blog/employment_opportunities/) (last visited Dec. 21, 2011).

5. The AALL Annual Meeting usually provides several tracks of programs, based on competencies, one of which is teaching. See, e.g., *Program Track: Teaching*, 2011 AALL ANNUAL MEETING AND CONFERENCE, <http://aall11.sched.org/subject/Teaching> (last visited Jan. 30, 2012).

6. Elizabeth Green, *Can Good Teaching Be Learned?*, N.Y. TIMES, Mar. 7, 2010, § MM (Magazine), at 30.

7. Kristin B. Gerdy, *Making the Connection: Learning Style Theory and Legal Research Curriculum*, 19 LEGAL REFERENCE SERVICES Q. nos. 3/4, 2001, at 71, 73–77.

8. *Id.* at 74.

enables students to learn experientially. Many law librarians have noted that student interest in “real world” questions is very high;<sup>9</sup> this interest is important because students learn best when they see the relevance of the research to the tasks they know they will be expected to perform, whether as summer associates, interns, or practicing attorneys. Accordingly, a good legal research instructor should contextualize legal research and allow students to learn by using legal research resources—whether electronic or print—to answer questions, so students can draw their own conclusions about the relevance or utility of the information presented by the teacher.

¶4 In other words, legal research students will benefit from a resource-based or a problem-based approach to teaching. These approaches, which are discussed more fully below, require students to engage with resources, such as primary and secondary legal sources, and problems to learn to conduct legal research. But these approaches to teaching, by themselves, are not all that instructors should consider when seeking to improve their teaching skills. Teaching strategies; course design decisions; and assignments, rubrics, and assessment plans must be considered when one hopes to improve one’s teaching. This article addresses the pedagogical benefits of resource-based and problem-based learning in the legal research classroom and offers theoretical and practical suggestions for course design decisions, including the use of teaching strategies, the development of assignments, the benefits of rubrics, and assessment techniques.

### Resource-Based Learning

¶5 In the resource-based learning model described in British academic legal literature, teachers must pay “careful attention to pedagogy, including learning outcomes to be achieved by students from the project and methods of feedback.”<sup>10</sup> In this model, “students learn by using resources,”<sup>11</sup> with information and communications technology “used to support learning in more flexible ways.”<sup>12</sup> The language of “resource-based learning” and resource-based learning as a pedagogical approach are also used in the United States, though not usually in law-specific contexts.<sup>13</sup>

¶6 Resource-based learning approaches have great potential to be helpful not only in research courses in which students are asked to consider challenging problems, but also in clinical work and other project-based law school coursework. “Resource-based learning involves establishing contexts for, tools for acting on and with, and scaffolds to guide the differentiated interpretation, use, and understanding of resources in ways that are consistent with the epistemology, foundations, and assumptions of a given learning model.”<sup>14</sup> “[R]esource-based learning is a peda-

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9. *Id.* at 76–77.

10. Paul Maharg & Abdul Paliwala, *Negotiating the Learning Process with Electronic Resources*, in *EFFECTIVE LEARNING AND TEACHING IN LAW* 81, 84 (R. Burridge et al. eds., 2002).

11. *Id.* at 82.

12. *Id.* at 83.

13. For example, a search in HeinOnline’s Law Journal Library for “resource-based learning” OR “resource based learning” returned only five results.

14. Michael J. Hannafin & Janette R. Hill, *Resource-Based Learning*, in *HANDBOOK OF RESEARCH ON EDUCATIONAL COMMUNICATIONS AND TECHNOLOGY* 525, 528 (J. Michael Spector et al. eds., 3d ed. 2008).

gological approach associated with inquiry- and project-based learning in which [students work with] ‘a wide range of learning resources rather than from class exposition.’”<sup>15</sup>

¶7 Resource-based learning presents an attractive pedagogical approach for teaching legal research for several reasons. First, resource-based learning lends itself to virtual learning, and it is often associated with distance or virtual learning in educational literature.<sup>16</sup> Although law school accreditation rules limit the ways in which law schools may implement distance education,<sup>17</sup> many law school courses contain some virtual components if they use TWEN, BlackBoard, or other web course technology.<sup>18</sup> Resource-based learning also may be used with a variety of epistemological models, or models of peoples’ ways of knowing.<sup>19</sup> In particular, those who oppose the “banking model” of education, in which an all-knowing teacher stands at the front of the room and “data dumps” knowledge into awaiting (empty) student minds,<sup>20</sup> may find resource-based learning appealing, as it “is underlain by the philosophical assumption that allowing the learner to achieve learning outcomes in a more flexible and independent manner is inherently better than the traditional learning methodology, epitomized by the ‘banking’ concept of education criticized by [Paolo] Freire.”<sup>21</sup>

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15. Barbara A. Greene & Susan M. Land, *A Qualitative Analysis of Scaffolding Use in a Resource-Based Learning Environment Involving the World Wide Web*, 23 J. EDUC. COMPUTING RES. 151, 152 (2000) (quoting G.C. Rakes, *Using the Internet as a Tool in a Resource-Based Learning Environment*, 36 EDUC. TECH. 52, 52 (1996)).

16. See STEVE RYAN ET AL., *THE VIRTUAL UNIVERSITY: THE INTERNET AND RESOURCE-BASED LEARNING* (2000). Because of the correspondence between resource-based learning materials and virtual or online learning materials, some of the teaching approaches suggested here are adapted from materials that address the development or teaching of online or virtual courses.

17. See AM. BAR ASS’N, *STANDARDS AND RULES OF PROCEDURE FOR APPROVAL OF LAW SCHOOLS* 27–28 (2011–2012) (Standard 306) (requiring distance education courses to be approved using the same process as traditional courses and limiting students to no more than four credit hours per term, for a maximum of twelve credit hours, with distance learning functionally prohibited in the first-year curriculum).

18. Features available within Westlaw’s TWEN system include polling, online discussion forums, wiki pages, an electronic grade book, and the ability to post files and external links, allowing students to access podcasts and external video content. ADMINISTRATOR’S GUIDE TO TWEN, (Aug. 2011), available at <http://lscontent.westlaw.com/images/content/documentation/2011/adminiguide2011.pdf>. The features available through LexisNexis Web Courses include online discussion forums, chat, anonymous grading, and the ability to add files and external links, allowing students to access podcasts and external video content. INSTRUCTOR’S QUICKGUIDE: LEXISNEXIS WEB COURSES (2009), available at [http://www.lexisnexis.com/documents/LawSchoolTutorials/20090824041047\\_small.pdf](http://www.lexisnexis.com/documents/LawSchoolTutorials/20090824041047_small.pdf).

19. Hannafin & Hill, *supra* note 14, at 528.

20. A less inflammatory description of this type of teaching would be direct instruction. Teaching may involve a variety of approaches, so a constructivist might spend five to seven minutes of direct instruction teaching a mini-lesson on a narrow topic, possibly in response to a student question; but the banking model of education suggests that the bulk of learning should be done by direct instruction.

21. Bernard Lisewski & Chris Settle, *Integrating Multimedia Resource-Based Learning into the Curriculum*, in *RESOURCE-BASED LEARNING* 109 (Sally Brown & Brenda Smith eds., 1996). Paolo Freire is perhaps best known for *Pedagogy of the Oppressed*, a brief but compelling work addressing the role of power in the classroom. PAOLO FREIRE, *PEDAGOGY OF THE OPPRESSED* (30th anniv. ed. 2007).

¶8 Resource-based learning is one type of constructivist pedagogical theory.<sup>22</sup> Constructivism has, at its base, the assumption that “Knowledge is not transmitted: it is constructed.”<sup>23</sup> Within constructionist schools, there are individual constructivists and social constructivists. The individual constructivists generally believe that “Learning results from a personal interpretation of knowledge,” while social constructivists generally hold that “Learning is collaborative with meaning negotiated from multiple perspectives.”<sup>24</sup> Some constructivists would add an element of contextualism to their philosophy, recommending “presenting problems in situations that are realistic to learners and common to everyday applications of knowledge,” thus providing students with opportunities for “authentic learning.”<sup>25</sup>

¶9 Understanding constructivist theory, its underlying principles, and how it relates to resource-based learning may help instructors in creating, planning, and teaching a course. Resource-based learning may be described as a constructivist approach incorporating valuable instructional strategies that should be considered in the professional discussion of the development of a pedagogy of legal research.<sup>26</sup>

### Problem-Based Learning

¶10 Problem-based learning is similar to resource-based learning. In problem-based learning, “students work in small collaborative groups and learn what they need to know in order to solve a problem. The teacher acts as a facilitator to guide students through the learning cycle.”<sup>27</sup> Problem-based learning originated in medical education, though it has been adopted by other fields.<sup>28</sup> Both resource-based

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22. This article is, at least in part, a response to Paul Callister’s call for increased discussion of pedagogical theories in law librarian professional literature. See Callister, *supra* note 1. As noted by Nolan Wright, however, “few have taken up his call and responded in scholarly writings of their own. . . . illustrat[ing] the basis for this author’s concern about the lack of publicly aired scholarly dialogue within the profession, let alone between the profession and other disciplines.” Nolan L. Wright, *Standing at the Gates: A New Law Librarian Wonders About the Future Role of the Profession in Legal Research Education*, 27 LEGAL REFERENCE SERVICES Q. 305, 322–23 (2008). Perhaps part of the reason that the literature is more heavily weighted toward scholarship describing particular teaching choices at particular institutions, rather than toward a discussion based in pedagogical theory, is that librarians—even law librarians—are not generally trained in pedagogical theory. See Paul D. Callister, *Time to Blossom: An Inquiry into Bloom’s Taxonomy as a Means to Ordered Legal Research Skills*, 102 LAW LIBR. J. 191, 194–95, 2010 LAW LIBR. J. 12, ¶¶ 8–9.

23. PATRICIA L. SMITH & TILLMAN J. RAGAN, INSTRUCTIONAL DESIGN 15 (2d ed. 1999).

24. *Id.*

25. *Id.* at 16.

26. In describing a pedagogical model for legal research, Callister suggests that a complete model requires (1) an identifiable and fully understood objective in teaching legal research (which objective must distinguish between the kinds of research done by attorneys, scholars, and librarians); (2) a theory and understanding of the nature of legal source materials (which contemplates changes in volume, accessibility, “gestalt,” etc.); (3) a theory of mathematics, or the nature of students and how they learn (with emphasis on the provision of conceptual models for internalizing research techniques); and (4) a methodology consistent with the previous elements.

Callister, *supra* note 1, at 8–9, ¶ 4.

27. Cindy E. Hmelo-Silver, *Problem-Based Learning: What and How Do Students Learn?*, 16 EDUC. PSYCHOL. REV. 235, 236 (2004).

28. When students enter the medical school they are divided into groups of five and each group is assigned a facilitator. The students are then presented a problem in the form of a patient entering with presenting symptoms. The students’ task is to diagnose the patient and be able to provide a rationale for that diagnosis and recommended treatment.

JOHN R. SAVERY & THOMAS M. DUFFY, PROBLEM-BASED LEARNING: AN INSTRUCTIONAL MODEL AND ITS

and problem-based learning rely on student experience as the locus of learning, treating the teacher as a facilitator, though problem-based learning often has an additional expectation that students are working collaboratively, rather than individually.<sup>29</sup> Problem-based learning focuses on the development of critical thinking skills,<sup>30</sup> making it a tempting pedagogical approach in the legal research context. However, it is extremely time intensive and does not lend itself to easy use in a first-year legal research course.<sup>31</sup>

¶11 For problem-based learning to be effective, the problems generated and used in instruction should meet several criteria: problems should be complex and present open-ended questions, and they should “be realistic and resonate with the students’ experiences” while also presenting students with opportunities to evaluate their knowledge and their approach to the problem.<sup>32</sup> By definition, an effective problem raises student interest in the subject matter and engages students with the information necessary to solve the problem as well as with problem-solving strategies. The problem-based learning approach may be particularly successful in an adult education context because the realistic nature of the problems serves to motivate students.

### Developing Metacognitive Skills

¶12 The MacCrate and Carnegie Reports both call for the development of lawyering skills and values.<sup>33</sup> Resource-based learning, as well as problem-based learning, to the extent that they can be implemented in a law school setting, can be used to advance students’ ability to become effective problem solvers, employing the tools that they will ultimately work with in practice as they develop the skills necessary to approach a client’s problem from a legal perspective. Using resources and hypothetical problems can provide instructors with the opportunity, as well, to engage students in dialogue about their professional responsibilities to clients. For example, an instructor may make an ethical question about the representation of a client’s interests the basis for both a research problem about the state’s administra-

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CONSTRUCTIVIST FRAMEWORK 7 (Ctr. for Res. on Learning and Tech., Tech. Rep. No. 16-01, 2001).

29. Hmelo-Silver, *supra* note 27, at 239.

30. *Id.* An instructional strategy that might be helpful would be “discussing problems in a [problem-based learning] group (before beginning to research learning issues) [to] activate[] relevant prior knowledge and facilitate[] the processing of new information. Students are better able to construct new knowledge when they can relate it to what they already know.” *Id.* (citations omitted).

31. Problems in the medical educational context may last from one to three weeks, and students are taught using problem-based learning for two years. SAVERY & DUFFY, *supra* note 28, at 10. Legal research courses, when they are separate from legal writing courses, are often limited to one credit, which means law students have only 700 minutes of class time, as required under ABA accreditation standards. AM. BAR ASS’N, *supra* note 17, at 23 (Interpretation 304-4).

32. Hmelo-Silver, *supra* note 27, at 244.

33. The MacCrate Report identifies particular skills and values that are integral to lawyering. MACCRATE REPORT, *supra* note 2, at 138–41. And, as the Carnegie Report indicates, “Students cannot become effective legal problem-solvers unless they have opportunities to engage in problem-solving activities in hypothetical or real legal contexts.” SULLIVAN ET AL., *supra* note 2, at 95 (quoting ROY STUCKEY ET AL., BEST PRACTICES FOR LEGAL EDUCATION 109 (2007)).



tive law and authority regulating lawyers, and a theoretical question about lawyers' professional responsibilities to zealously represent their client's interests.

¶13 Both problem- and research-based learning motivate students by providing them with real-life, or at least realistic, problems.<sup>34</sup> Legal research instruction must prepare students to continue learning, even after the required legal research course is completed.<sup>35</sup> The development of metacognitive skills, defined as "executive control process of planning one's problem solving, monitoring one's progress, and evaluating whether one's goals have been met,"<sup>36</sup> is a critical function for a legal researcher.<sup>37</sup> Callister notes that "the final skill is meta-cognition—the ability to assess, not only the result, but the schemata, including the processes leading to the result. It is a kind of self-awareness and reflection of the research experience."<sup>38</sup> Both problem-based and resource-based learning encourage students to develop an awareness of the research process as they may encounter it in professional practice. The ability of a researcher to explain how an answer was reached—for example, why one resource was preferable—rather than simply stating the answer is a critical metacognitive task developed in resource-based and problem-based learning.

### Instructional Strategies: Questioning Students and Scaffolding

¶14 In both the resource-based and the problem-based learning environments, the teacher plays the role of facilitator, modeling appropriate behavior for students and guiding students to use learning or instructional strategies such as thinking aloud when generating a list of index or search terms related to a research problem.<sup>39</sup> This process of thinking aloud develops students' metacognition when

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34. Hmelo-Silver, *supra* note 27, at 236 (discussing problem-based learning). Shawn G. Nevers and David Armond have described the value they have found in creating a Practitioners' Council, as it connects "real world" researching practitioners with legal research instructors, allowing for better motivation of students. Shawn G. Nevers & David Armond, *The Practitioners' Council: Connecting Legal Research Instruction and Current Legal Research Practice*, 103 LAW LIBR. J. 575, 593–94, 2011 LAW LIBR. J. 36, ¶¶ 68–70.

35. When researching, whether as students or attorneys, motivation to address a research question may be either internal—curiosity or self-interest—or external—a client question, a boss's demand for an answer, an ethical obligation, etc. Most important is that the researcher perform adequately regardless of motivation. Students in legal research classes may be motivated by learning of the risks of malpractice for failure to perform adequate legal research.

36. Hmelo-Silver, *supra* note 27, at 240.

37. See Kristina L. Niedringhaus, *Teaching Better Research Skills by Teaching Metacognitive Ability*, 18 PERSPECTIVES: TEACHING LEGAL RES. & WRITING 113, 115 (2010) ("A student who is metacognitively aware will be better able to assess what knowledge they have not learned thoroughly. These students will be able to develop a plan for relearning the material using techniques that speak to their preferred methods of learning. These students, by reflecting on what they have learned and filling the gaps, will not only be better students but will be able to contribute more fully to the classroom experience.").

38. Callister, *supra* note 22, at 210, ¶ 39. See also Kristin B. Gerdy, *Teacher, Coach, Cheerleader, and Judge: Promoting Learning Through Learner-Centered Assessment*, 94 LAW LIBR. J. 59, 64, 2002 LAW LIBR. J. 4, ¶ 21 (noting that to complete the learning cycle, "learners and teachers must assess and evaluate the learning that has occurred"; without this metacognitive step, learners are not as likely to retain their learning).

39. Greene & Land, *supra* note 15, at 153. The Carnegie Report states that expert teachers may "advance dialogue" in their classrooms "by making cognition visible" through modeling. SULLIVAN ET AL., *supra* note 2, at 61.



addressing the research problem. Within instructional literature, *scaffolding* is used to describe “instructional procedures designed to support learning so that a student can improve beyond his or her current level of understanding with guidance from a peer, teacher, or instructional aid.”<sup>40</sup> An instructor may provide procedural scaffolds in the form of guiding questions for students to consider as they approach a problem.<sup>41</sup> In a legal research course, such questions may encourage students to reflect on why they chose to consult a primary resource, rather than a secondary resource. Another example of scaffolding in the classroom would be when a class solves a problem as a whole group, perhaps with the instructor thinking aloud through the problem; the class then goes on to solve a new problem with a similar structure. The similarity of the problems and the opportunities for collaboration are scaffolding—opportunities for students to apply their knowledge about how to solve one problem to another problem.

¶15 Instructors may use different strategies of questioning students to scaffold student learning.<sup>42</sup> A historical review of questioning in the classroom noted the importance of questioning in teaching. The author explained that the teacher has been called “‘a professional question maker’ and claimed that the asking of questions is ‘one of the basic ways by which the teacher simulates student thinking and learning.’”<sup>43</sup>

¶16 Many in the law librarian community are familiar with the questioning format known as the Socratic method, in which “the teacher asks students for a position on an issue, then asks appropriate follow-up questions to probe the student’s position.”<sup>44</sup> Of course, in the Socratic method, “the teacher has the ‘right’ answer and it is the student’s task to guess/deduce through logical questioning that correct answer.”<sup>45</sup> The notion that the teacher has the “right” answer and is querying students to guide them logically<sup>46</sup> to that right answer is inconsistent with the “teacher as facilitator” model of both resource-based and problem-based learning. Under those theories, instructor questioning should push students to the “leading edge” of their thinking.<sup>47</sup> However, as Callister has suggested, Socratic questioning may have a place in the legal research classroom, because it may force the learner to examine her own frameworks for how she understands and solves problems. “[T]he Socratic method is an appropriate and perhaps even necessary tool to facilitate the learning experience of law students studying legal research.”<sup>48</sup> In other words, the Socratic method may be used to help students engage in metacognition,

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40. Greene & Land, *supra* note 15, at 153.

41. *Id.* at 159.

42. Hmelo-Silver, *supra* note 27, at 246.

43. Meredith D. Gall, *The Use of Questions in Teaching*, 40 REV. EDUC. RES. 707, 707 (1970) (quoting M.J. McCue Aschner, *Asking Questions to Trigger Thinking*, NEA J., Sept. 1961, at 44, 44).

44. *Id.* at 711.

45. SAVERY & DUFFY, *supra* note 28, at 5.

46. For a description of the Socratic method in a legal education context, including a discussion of its strengths and weaknesses, see Peggy Cooper Davis & Elizabeth Ehrenfest Steinglass, *A Dialogue About Socratic Teaching*, 23 N.Y.U. REV. L. & SOC. CHANGE 249 (1997).

47. SAVERY & DUFFY, *supra* note 28, at 5.

48. Callister, *supra* note 1, at 33–34, ¶ 59.

thinking about and understanding the research process that will best address the research question at hand.

¶17 The Socratic method may not immediately come to mind as a strategy one would use in the context of resource-based learning, as it usually casts the instructor as expert and challenges the learner's grasp of the material. However, "the facilitator scaffolds student learning through modeling and coaching, *primarily through the use of questioning strategies*."<sup>49</sup> A "good question," one that encourages students to learn, "is always on the edge of what an individual knows—on the edge of one's construct (or schema) of reality. To be able to see that edge—to recognize when one is approaching it—is the beginning of all inquiry and a necessary skill."<sup>50</sup> For first-year students in a legal research course, the edge of their knowledge on the first day of class may be that Google is the best way to find the answer to a question. A good demonstration of scaffolding would be to take students to that edge and teach them to see the resources that exist in addition to Google, showing them that their familiarity with using Google may help them learn how to use other research tools.<sup>51</sup>

¶18 Teachers can also be trained to improve the questions that they ask students.<sup>52</sup> Of course, questions should be aligned with learning goals, and they should ideally enable students to achieve these learning goals.<sup>53</sup> Less helpful questions might require only that students recall facts, rather than encouraging them to engage more deeply with the material.<sup>54</sup> Gall noted that elementary school teachers who went through a training program had "many highly significant changes in [their] questioning behavior."<sup>55</sup> Some of the positive changes included an increased frequency of questions "designed to have a number of students respond to one student's original question," "thought questions," and "questions which require students to improve or elaborate on their original response."<sup>56</sup> Teachers can also be taught to minimize "poor questioning habits," such as repeating questions, repeating student answers, answering their own questions, and interrupting students as they answer questions.<sup>57</sup>

¶19 Teacher questioning may take many forms. One of the most commonly discussed models for questioning is based on Bloom's taxonomy. Benjamin Bloom published a handbook in 1956 classifying educational goals and objectives in three ways, cognitive, affective, and psychomotor.<sup>58</sup> In this article, I focus on the cognitive skills described by Bloom, leaving others to address his categorization of affective

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49. Hmelo-Silver, *supra* note 27, at 245 (emphasis added).

50. Callister, *supra* note 22, at 200, ¶ 20.

51. As described in the Carnegie Report, scaffolding "provid[es] support for students who have not yet reached the point of mastery." SULLIVAN ET AL., *supra* note 2, at 61.

52. Gall, *supra* note 43, at 717–18.

53. *Id.* at 711.

54. "About 60% of teachers' questions require students to recall facts; about 20% require students to think; and the remaining 20% are procedural." *Id.* at 713.

55. *Id.* at 717.

56. *Id.*

57. *Id.*

58. TAXONOMY OF EDUCATIONAL OBJECTIVES: THE CLASSIFICATION OF EDUCATIONAL GOALS (Benjamin S. Bloom ed., 1956).

and psychomotor skills. Since Bloom’s handbook was first published, it has been subjected to discussion, study, and refinement.<sup>59</sup> Based on the most recent and widely accepted refinement, the cognitive skills, from the lowest level of thinking to the highest, are remembering, understanding, applying, analyzing, evaluating, and creating.<sup>60</sup> The following list shows Bloom’s original cognitive skills and their revised counterparts:<sup>61</sup>

Original Version	Revised Version
Evaluation	Creating
Synthesis	Evaluating
Analysis	Analyzing
Application	Applying
Comprehension	Understanding
Knowledge	Remembering

¶20 Educators find Bloom’s taxonomy (original and revised)<sup>62</sup> useful for both questioning and goal setting.<sup>63</sup> Bloom’s taxonomy helps teachers to develop appropriate questions for students—questions that will help deepen student understanding of subject material. In the context of a legal research course, the deepened understanding may reflect the difference between simply knowing that there is a service to help legal researchers identify whether a legal opinion remains “good law,” and understanding the significance of a yellow flag in KeyCite or Shepard’s.

¶21 Each level of cognitive skill in Bloom’s taxonomy is associated with verbs that may be useful when posing student questions. For example, the lowest-level cognitive skill, remembering (whether the student can recall or remember information), can be associated with the following verbs: define, duplicate, list, memorize, recall, repeat, reproduce, and state.<sup>64</sup> Higher-order cognition, such as evaluating, may be associated with verbs such as appraise, argue, defend, judge, select, support, value, and evaluate.<sup>65</sup>

¶22 Although these verbs may be used in questioning students, for example by asking a student to defend a decision to rely on a case for which a citator shows a yellow warning signal, student answers may not rise to the higher level of cognition sought by the instructor.<sup>66</sup> It is at this point that a teacher’s ability to ask follow-up

59. See Mary Forehand, *Bloom’s Taxonomy*, in EMERGING PERSPECTIVES ON LEARNING, TEACHING, AND TECHNOLOGY (M. Orey ed., 2005), <http://www.coe.uga.edu/epltt/bloom.htm>. Callister has called for a professional discussion to refine Bloom’s taxonomy for legal research pedagogy. Callister, *supra* note 22.

60. Richard C. Overbaugh & Lynn Schultz, *Bloom’s Taxonomy*, [http://www.odu.edu/educ/roverbau/Bloom/blooms taxonomy.htm](http://www.odu.edu/educ/roverbau/Bloom/blooms%20taxonomy.htm) (last visited Dec. 22, 2011).

61. Adapted from *id.*

62. From this point forward, unless otherwise noted, the discussion of Bloom’s taxonomy relates to the revised taxonomy of cognitive skills.

63. The role of Bloom’s taxonomy in goal setting is discussed *infra* ¶ 45. Considering questioning before considering goals may be putting the cart before the horse, in terms of curriculum design. The best practice in instructional design is to first identify the educational objectives and then develop “questions which enable the student to reach each objective.” Gall, *supra* note 43, at 711.

64. Overbaugh & Schultz, *supra* note 60.

65. *Id.*

66. “A weakness of the cognitive-process approach to question classification is that these processes are inferential constructs. Therefore, they cannot be observed directly.” Gall, *supra* note 43, at

questions becomes critical. A follow-up question may challenge a student whose response is at the level of recall to engage with the material and answer at a more critical level. Question classification systems such as Bloom's taxonomy do not specifically take question sequence into account.<sup>67</sup> Though it is tempting to assume that an instructor would begin asking questions at the lowest (recall) level and move through the cognitive stages to the higher-order thinking levels, the levels of Bloom's taxonomy do not simply present a linear progression for instruction.<sup>68</sup> As in research, an instructor may need to loop back and ask simpler questions to ensure students all move toward the ultimate goal of full engagement and understanding.

### Building Schemata to Maximize Working Memory

¶23 A difficulty for instructors of legal research arises from the large amount of information that students must be able to recall in order to learn how to research effectively.<sup>69</sup> When planning a course, an instructor must balance the need to give students information about resources with the need to teach students how to conduct research (think, analyze, refine the query, etc.).<sup>70</sup> A researcher needs an adequate toolbox of resources that may be consulted to address a research question, but instruction that focuses too closely on resources may resemble the worst form of bibliographic instruction: data dumping. On the other hand, a researcher familiar with the research process is stymied if she does not know what resources to consult. Legal information is changing, and it is critical that students understand not only the value of the information, but how the resources are used.<sup>71</sup> Bob Berring has described the approach he and Kathleen Vanden Heuvel take to teaching advanced legal research as a "functional approach."<sup>72</sup> A student who understands the purpose of a citator and how a citator works, for example, will be able to figure out how to use a citator that becomes available in a new format.<sup>73</sup>

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710. Questions developed with Bloom's taxonomy in mind may be designed as higher-order questions, such as one asking students to compare the LexisNexis and Westlaw citators, but a student's answer may demonstrate only recall (of material from a textbook or a class discussion). *Id.* In other words, the best laid lesson plans may go awry.

67. *Id.* at 712.

68. Just as research does not always follow a linear path, so does instruction deviate.

69. For example, AALL's *Core Legal Research Competencies* is 113 pages, not an insignificant volume of information. RESEARCH INSTRUCTION CAUCUS, AM. ASS'N OF LAW LIBRARIES, CORE LEGAL RESEARCH COMPETENCIES: A COMPENDIUM OF SKILLS AND VALUES AS DEFINED IN THE ABA'S MACCRATE REPORT (Ellen M. Callinan ed., 1997), available at <http://www.aallnet.org/sis/ripssis/PDFs/core.pdf> [hereinafter CORE LEGAL RESEARCH COMPETENCIES].

70. Callister notes that researchers' needs may differ, depending on their status. Students research different questions, with different constraints, than do lawyers, clerks, judges, or librarians. He suggests that legal research instruction should prepare students to research effectively in a variety of contexts. Callister, *supra* note 1, at 23–24, ¶¶ 37–38.

71. Berring, *supra* note 2, at 3.

72. *Id.* "Though we could not foresee the future, we could guess that new formats and new tools were coming." *Id.* By emphasizing the function of resources, Berring and Vanden Heuvel hoped to prepare students to continue to use and evaluate new resources and access methods as they became available.

73. *Id.* The introduction of Bloomberg Law to the legal market is just such an example. As they explore the options available on Bloomberg Law, students will have to use their existing knowledge of

¶24 From a learning theory perspective, the challenge of designing a legal research course that conveys all that information is daunting because of the way that knowledge develops in the human brain. According to one explanation of human cognitive architecture, a person can generally hold no more than seven new pieces of information in working memory.<sup>74</sup> “[B]ecause working memory is most commonly used to process information in the sense of organizing, contrasting, comparing, or working on that information in some manner, humans are probably only able to deal with two or three items of information simultaneously when required to process rather than merely hold information.”<sup>75</sup>

¶25 Not only is the working memory limited in the number of pieces of information it can hold, it is also limited in its duration. Studies suggest that the brain is able to hold information in working memory for only ten to twenty seconds.<sup>76</sup> To hold information for longer, the information must move from working memory to long-term memory. This transfer of information is “the most critical process of all the information processing to those who are interested in learning.”<sup>77</sup> The process of making meaning from information helps learners to retain information. “[T]he more ‘deeply’ information is processed, the more likely it is to be remembered.”<sup>78</sup>

¶26 How is information processed deeply? According to schema theory, the long-term memory stores knowledge in the form of a schema that “categorizes elements of information according to the manner in which they will be used.”<sup>79</sup> In other words, for information to move from working memory to long-term memory, the student needs to develop a schema in which to store the information. The schema may be newly created, or it may relate to an existing schema. This is likely why encouraging students to relate new information to information that they already know is an effective teaching strategy.<sup>80</sup> The more comfortable a person is using a schema, the more automatic using that schema may be, the more working memory may be available for new information and learning.<sup>81</sup> “From an instruc-

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citators on the LexisNexis and Westlaw platforms to learn and evaluate the efficacy of the Bloomberg Law citator.

74. John Sweller et al., *Cognitive Architecture and Instructional Design*, 10 EDUC. PSYCHOL. REV. 251, 252 (1998).

75. *Id.*

76. SMITH & RAGAN, *supra* note 23, at 21.

77. *Id.*

78. *Id.* Some might say that deeper processing of information is associated with the higher-order cognitive skills of Bloom’s taxonomy.

79. Sweller et al., *supra* note 74, at 255.

80. The use of a schema can be distinguished from the strategy of scaffolding. Scaffolding generally refers to the support that a learner may receive from a teacher or a fellow student in learning. A “student’s partner could also provide a coaching and scaffolding role . . . . The teacher did not take an intentional role in providing conceptual or metacognitive scaffolding, but provided support when it was requested.” Jan Herrington & Ron Oliver, *An Instructional Design Framework for Authentic Learning Environments*, EDUC. TECH. RES. & DEV., Sept. 2000, at 23, 40. “Students benefit from the opportunity to articulate, reflect and scaffold with a partner, and they will seek these opportunities covertly if they are not available by design.” *Id.* at 42.

81. “With automation, familiar tasks are performed accurately and fluidly, whereas unfamiliar tasks—that partially require the automated process—can be learned with maximum efficiency because the working memory is available.” Sweller et al., *supra* note 74, at 258.

tional design perspective, it follows that designs should not only encourage the construction of schemas, but also the automation of schemas that steer those aspects of a task that are consistent from problem to problem.”<sup>82</sup>

¶27 Another theory is based on mental models, which are like schemata, but which also “contain information about task demands and task performances that are used for problem solving.”<sup>83</sup> In short, information stored in long-term memory is organized, and good teaching creates opportunities for students to undertake the organizational process of moving information from working memory to long-term memory. To put that theory in the context of legal research pedagogy, as students encounter and interact with new resources, which may include learning not only the name for the resource but also how the source is created, its authority, how to access and use the source, and how to properly cite the source, they are creating schemata or mental models for the new information.

¶28 Creating opportunities for students to build schemata in which related sources are explicitly compared may help students more quickly learn resources and move that knowledge from working to long-term memory. Drill problems, though generally out of favor,<sup>84</sup> may also allow students to practice research skills so that aspects of the use of particular resources become automatic, increasing the availability of working memory to consider a research problem. For example, after developing a schema and a bit of research practice, students may automatically seek the “current-as-of” information for a statute or regulation, while a student just learning about statutes will more likely have to stop and consider the question: “What next?” before remembering to check the currentness of a statute.

¶29 What does all of this mean for the development of a pedagogy for legal research?<sup>85</sup> Keep in mind that pedagogy has two definitions. One refers to “the art or profession of teaching,” while the second refers to “preparatory training or instruction.”<sup>86</sup> A more complete definition of pedagogy as an art or profession describes it as the “study of teaching methods, including the aims of education and

82. *Id.*

83. SMITH & RAGAN, *supra* note 23, at 21.

84. “All evidence, from the laboratory and from extensive case studies of professionals, indicates that real competence only comes with extensive practice. . . . The instructional task is not to ‘kill’ motivation by demanding drill, but to find tasks that provide practice while at the same time sustaining interest.” John R. Anderson et al., *Applications and Misapplications of Cognitive Psychology to Mathematics Education*, TEX. EDUC. REV., Summer 2000, at 21–22.

85. Consideration of learning theory in the law librarian literature is typically discussed in terms of student learning styles or pedagogy, though Kristin Gerdy properly uses the term *andragogy* to refer specifically to adult learners. Gerdy, *supra* note 7, at 73. Law librarians are concerned about whether students are able to successfully integrate research skills. In her historical review of the development of the theory of andragogy, Sharan Merriam explains:

The five assumptions underlying andragogy describe the adult learner as someone who (1) has an independent self-concept and who can direct his or her own learning, (2) has accumulated a reservoir of life experiences that is a rich resource for learning, (3) has learning needs closely related to changing social roles, (4) is problem-centered and interested in immediate application of knowledge, and (5) is motivated to learn by internal rather than external factors.

Sharan Merriam, *Andragogy and Self-Directed Learning: Pillars of Adult Learning Theory*, in THE NEW UPDATE ON ADULT LEARNING THEORY 5 (2001).

86. AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE 1299 (5th ed. 2011).



the ways in which such goals may be achieved. The field relies heavily on educational psychology, or theories about the way in which learning takes place.”<sup>87</sup> The development of a pedagogy of legal research, then, refers to more than simply the teaching of legal research. It includes the study of teaching methods as well as the instructional goals that are set for law students, and it encourages the consideration of learning theory from other fields, such as educational psychology, to ensure that students have the best learning experiences possible. Paul Callister has called for open dialogue and scholarly engagement within the law librarian professional community regarding the “underlying pedagogy at the heart of legal research instruction.”<sup>88</sup>

### Benefits of Resource-Based Learning

¶30 Law students will benefit from the constructivist, resource-based learning approach, particularly if elements of problem-based learning are included. Unfortunately, the limited time available for basic or first-year legal research instruction does not provide enough opportunity for students to be exposed to the number and variety of problems that would be necessary to meet first-year legal research requirements.<sup>89</sup> However, a resource-based approach may incorporate the use of limited real or realistic problems to increase student interest and the sense that research skills are relevant to their future needs. Providing students with a mix of tasks that allows for the practice necessary to automate research skills and also encourages the development of schemata or mental models regarding research is critical. Those tasks should include a variety of instructional formats and types—ranging from drill exercises<sup>90</sup> to computer-assisted legal instruction to in-class group assignments to individual problems. The mix of tasks should optimally promote “not rote learning but learning with understanding.”<sup>91</sup> Students should have adequate opportunities to engage with resources, such that the use of those resources becomes automatic.

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87. Edwin A. Peel, *Pedagogy*, ENCYCLOPAEDIA BRITANNICA, <http://www.britannica.com/EBchecked/topic/448410/pedagogy> (last visited Feb. 13, 2012).

88. Callister, *supra* note 22, at 192, ¶ 4. General educational pedagogical theories, such as constructivism or behaviorism, may underlie a legal research instructor’s decision to emphasize a bibliographic or process-based approach to legal research (though she may not realize it if she has not studied educational philosophy). A constructivist approach would lend itself to process-based teaching.

89. See Nancy P. Johnson, *Best Practices: What First-Year Law Students Should Learn in a Legal Research Class*, 28 LEGAL REFERENCE SERVICES Q. 77 (2009).

90. So-called treasure hunt research exercises, in which the student researcher is given a problem with a clear and correct answer, enabling the researcher to self-check the accuracy of the research process, may also be described as “drill and kill.” For example, student researchers could be asked to find particular cases from particular courts and decided on particular dates, to familiarize them with the digest system. Proponents of the treasure hunt point to students’ ability to gain confidence in their skills as well as the automation of research skills. The treasure hunt exercise is complemented by the process-type problem, which often does not have a clear-cut answer. Proponents of the process problem believe that the problems present students with realistic research experiences, particularly learning to address the indeterminacy of legal research.

91. Anderson et al., *supra* note 84, at 31.



¶31 A full discussion of legal pedagogy should include a major determinant in the success of any pedagogy: the motivation of the learner. Resource-based learning techniques are particularly appropriate for adult learners, who benefit from the motivational aspects of the pedagogy. Student motivation is increased “when they believe that the outcome of learning is under their control.”<sup>92</sup> Law students should “learn most effectively when new information is connected to and built upon a student’s prior knowledge and real-life experiences,” and students “tend to do well when allowed to have some control over the learning environment, and respond best to collaborative learning environments.”<sup>93</sup> For a pedagogy of legal research to be successful, it must at a high level activate student interest in learning. Interest may be generated a number of ways, ranging from explicit application of problems and learning to real life to involving students in the creation of their own educational goals.<sup>94</sup> “Students encouraged to ask questions [when introduced to a new topic of study] will learn more than a group of students deprived of this opportunity.”<sup>95</sup> Most important, “there is almost universal consensus that only the active learner is a successful learner.”<sup>96</sup>

¶32 Resource-based learning reflects elements of both process and bibliographic methods of teaching legal research. For example, students may be given problem-based projects (which require them to read through facts and determine which resources to consult to answer the question, akin to a process-oriented approach),<sup>97</sup> but instructors are also encouraged to “make the resources part of the culture of [their] teaching and learning,” advice which would be expected to accompany a bibliographic approach to teaching.<sup>98</sup>

¶33 Resource-based learning is a pedagogy particularly suited to legal research courses. Although legal research courses may be taught with an emphasis on bibliographic instruction or with an emphasis on the research process, in both cases students need to develop and build skills using resources to become successful researchers. The need to be conversant with basic resources exists for all researchers, whether they are planning on print or electronic research. Additionally, legal

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92. Hmelo-Silver, *supra* note 27, at 241.

93. Gershon Tenenbaum et al., *Constructivist Pedagogy in Conventional On-Campus and Distance Learning Practice: An Exploratory Investigation*, 11 LEARNING & INSTRUCTION 87, 90 (2001).

94. Goal setting, like asking students questions at the beginning of a learning experience, can raise student interest. Unfortunately, instructional designers, “especially those who hold deterministic beliefs and set goals about learning,” have a difficult time allowing students to generate goals. *Id.* at 108. Perhaps the discomfort experienced by instructional designers arises from distrust that students will generate adequate goals and fear that students will not be able to reevaluate and amend goals as they may be found wanting. This is contrary to the resource-based learning goal of developing students’ metacognitive skills.

95. Gall, *supra* note 43, at 716.

96. Anderson et al., *supra* note 84, at 32. Though it is tempting for instructors to take the approach that “you can lead a horse to water, but you can’t make it drink,” such an attitude is self-defeating and overlooks an instructor’s responsibility to create an educational environment that motivates students.

97. Maharg & Paliwala, *supra* note 10, at 100.

98. *Id.* at 102.

research classes also provide instructors with an opportunity to teach students how to approach both new, unknown problems and new, unknown resources.<sup>99</sup>

### Course Design Decisions

¶34 When creating and teaching a class, a teacher's path is filled with choices. Although some of those choices may be dictated—consciously or not—by the pedagogical theory espoused by the instructor, other choices may stem from instructional or institutional mandates. Instructional or pedagogical choices may be as basic as whether to begin with electronic or paper resources, or they may be more complicated, such as how to implement an electronic web course. Underlying teaching decisions are choices about content—what must be included, and what the teacher believes students should “know” on completing the course.

¶35 For many courses, including research courses, there are textbooks readily available. A “good” textbook may be chosen based on popularity, the institutional affiliation of its author, or the instructional biases underlying the textbook.<sup>100</sup> For example, a professor may be tempted to use *The Process of Legal Research* because the title suggests a process emphasis, rather than a bibliographic instruction emphasis. Selecting a textbook without first considering course design, however, may lead the instructor to invest in a book that doesn't support his instructional choices.

¶36 The following sections describe some of these choices, first addressing theoretical concerns regarding the development of instructional goals, the implementation of instructional strategies that provide students guidance and support in their work, and course evaluation, and then offering suggestions regarding praxis. Suggestions cover syllabus design, assignments, and student assessment. The analysis that follows presumes a loosely constructivist pedagogy.

### Setting Goals

¶37 The first step in planning a course, whether it is doctrinal or focuses on a skill such as research or drafting, is to identify learning goals. This critical step is not as obvious as it sounds. To begin with, what are learning goals? Learning goals are the goals that a student should have achieved on successful completion of the course. Sounds like nonsense, right? Rephrasing that definition makes the meaning a bit more apparent, and much more helpful: A student should be able to perform

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99. Berring's discussion of the “functional approach to legal information,” in which researchers understand the nature of the information itself, not the specific format in which it is delivered, is germane to the changing nature of the delivery of information today. Berring, *supra* note 2, at 3. Student researchers—and law librarians—are constantly adjusting to changing formats and changing interfaces. The WestlawNext platform and concomitant debate are one example of the ongoing nature of change. See Ronald E. Wheeler, *Does WestlawNext Really Change Everything? The Implications of WestlawNext on Legal Research*, 103 LAW LIBR. J. 359, 2011 LAW LIBR. J. 23.

100. The commonly used textbooks are identified in the literature. Ann Hemmens, *Advanced Legal Research Courses: A Survey of ABA-Accredited Law Schools*, 94 LAW LIBR. J. 209, 228–29, 2002 LAW LIBR. J. 17, ¶¶ 49–50. See also Nancy P. Johnson, *Should You Use a Textbook to Teach Legal Research?*, 103 LAW LIBR. J. 415, 428–35, 2011 LAW LIBR. J. 26, ¶¶ 48–85 (reviewing a number of recent legal research texts).

the course learning goals, meeting certain performance standards, on successful completion of a course. An instructor who is hopeful that, by the end of the class, students will be able to recognize that a federal regulation is the proper source to consult to answer a research question and to locate the regulation on point for the research problem, may have as a learning goal that students will understand the authority of federal regulations and be able to navigate the *Code of Federal Regulations*, including the steps necessary for updating. Setting learning goals for students before commencing the course will more likely ensure that the instruction will meet the goals. Ideally, an instructor's overall course goals are met by the subsidiary goals associated with units and individual lessons.

¶38 Recognizing the importance of course goals is relatively easy, but how does one generate those course goals? It depends. The guiding question is what the student should be able to do (or know) at the end of the course. Does the course prepare the student for a subsequent course? Are there several sections of the same course taught, such that the students across all sections should have a core common experience or knowledge? Should the students who complete the course be able to meet skills/knowledge levels of peers at other institutions? A first-year criminal law course, for example, raises all of these questions—the course may prepare students, at a basic level, for a subsequent criminal procedure course. There may be multiple sections of the course in one institution, and all the students should likely be able to define *mens rea* and *actus reus*, regardless of the theoretical biases of the instructors. At least one meeting of all the course instructors will help ensure that they all address the basic issues. Additionally, the students are likely paying their tuition with the expectation that they will learn what they need to know to pass the bar exam and successfully practice law; this expectation stems from a reasonable belief that all accredited law schools will teach certain core materials.<sup>101</sup> These same questions arise in the context of research courses.

¶39 One of the easiest ways to identify learning goals is to consider educational standards. Although states have developed educational standards and goals for students in elementary and secondary education,<sup>102</sup> such standards and goals have not been developed for law students.<sup>103</sup> In the law school context, educational standards

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101. Student expectations are complex. A professor may reasonably guess that students will expect to learn materials necessary for passing the bar exam and successfully practicing law. But other factors may affect students' expectations as well. A student's reasons and motivations for enrolling in a course—at as basic a level as whether the course was required or an elective—may affect the student's enthusiasm and goals. For example, a student taking a one-credit weekend research course because that one credit will enable the student to graduate that semester may simply want to “get through it,” while a student electing to take an advanced research course to prepare for a summer job or externship may bring different expectations.

102. State standards exist for many subjects and for every grade. In New York State, for example, standards are meant to help teachers identify what their students need to know and be able to do in order to succeed on mandatory state testing. *New York State Learning Standards and Core Curriculum*, NYSED.GOV (last updated Jan. 23, 2012), <http://www.emsc.nysed.gov/ciai/cores.html>.

103. One could argue that the minimum standards for law students have been set by the multistate bar examination, as that test is the most common shared experience of law students across the country. That exam, however, does not address research skills.

are in their infancy.<sup>104</sup> Absent external standards that have been ratified by an institution such as the American Bar Association or the Association of American Law Schools, an instructor in a research course may begin by identifying any community standards that may exist.<sup>105</sup> Thankfully, tools exist to assist in the development of course goals for research courses.

¶40 Professional associations, such as AALL, may provide guidance. Following the release of the MacCrate Report, the AALL Research Instruction Caucus produced the *Core Legal Research Competencies*, setting forth the information that students should know about researching by the time they graduate from law school.<sup>106</sup> Another source to consider is professional literature on the subject. For example, Nancy Johnson memorialized her view of what first-year law students should learn, based on her twenty-five years of teaching.<sup>107</sup> On the premise that a syllabus will reflect learning goals, one might also consult syllabi for research courses. These may be accessed by searching the World Wide Web,<sup>108</sup> by conferring with colleagues in person, or by soliciting syllabi on a listserv.

¶41 Generating goals for a first-year legal research course does not have to be complicated.<sup>109</sup> Goals are written with student performance in mind. When generating a set of goals, start with an idea of what students should know, or what they should be able to do, and then consider Bloom's taxonomy and the verbs associated with the different cognitive thinking levels. For example, for a lesson about using annotated statutes, a lower-level goal might be that students will be able to "describe the types of annotations one may find in an annotated statute." A higher-level goal might be that students will be able to "evaluate whether an annotated statute or an official code would be a more appropriate resource to consult, given a variety of circumstances."

¶42 When developing a class, an instructor may find it easier to develop micro-level goals (e.g., at the lesson level, as in the example above) and then build them up to macro-level goals, such as "students will be able to consult a state statute, using search/index terms to identify the relevant section(s), and evaluate the statute to determine its applicability to a research question and the currentness of the statute." Others may find it easier to begin with broad learning goals and break the broad goals down into component goals. However developed, learning goals

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104. The American Bar Association sets forth standards and Rules of Procedure for Approval of Law Schools, which are relevant for law school accreditation, but those standards are not very helpful for designing learning goals. See AM. BAR ASS'N, *supra* note 17.

105. This discussion presupposes an instructor who is either new to teaching research or who is teaching a new course. A veteran teacher with significant experience may benefit from considering instructional goals, but may not need to do much work to identify community standards.

106. CORE LEGAL RESEARCH COMPETENCIES, *supra* note 69. Because the competencies express ideal student knowledge on graduation, they may have limited value for determining what should be included in a first-year legal research course. Presumably some of the knowledge or skills captured by the competencies would be learned in later law school courses or activities.

107. Johnson, *supra* note 89.

108. E.g., AALL's Foreign, Comparative, and International Special Interest Section makes syllabi available. 2011 Syllabi and Course Materials Database, available at <http://www.aallnet.org/sis/fcilsis/syllabi.html> (last visited Mar. 22, 2012).

109. Goals for an advanced legal research course would be different, because students in an advanced course are presumably more experienced than first-year law students.

should be made explicit to students, so they know what to expect to learn.<sup>110</sup> It may be that one class session has several goals—or even several separate lessons. The goals (and lessons) presented in one day of instruction may address several topics. Ideally, no single lesson should be broken up into two class sessions, but a larger goal may have subsidiary lessons that span two class sessions. In such a case, spending a minute or two to review the prior lesson is a good use of class time.

¶43 Once the learning goals are set, the instructor may engage in backward planning, identifying the intermediate steps necessary to reach the educational goal.<sup>111</sup> For example, if students should learn how to locate cases using a digest,<sup>112</sup> the instructor needs to plan when in the course to introduce the subject of digests. To understand or use a digest, a student needs to understand the elements of a case and the working of the reporter systems. Consequently, the introduction of digests should happen after the introduction of cases.<sup>113</sup>

¶44 The logical sequencing of learning goals for a course will ideally be reflected in a course syllabus.<sup>114</sup> Though goals may be inferred from the syllabus, a better practice is to state them explicitly. A syllabus may contain a section called “Course Goals,” in which the instructor describes what students will learn in the class. The syllabus may then be broken down into units (e.g., cases, statutes, secondary sources), and each unit and individual lesson should have its own objectives. Consistently generating learning goals and expectations regarding what students will take away from a unit or lesson ensures that students know how to meet the course goals.<sup>115</sup>

110. When learning goals are made explicit to learners, learners are better able to evaluate their progress toward reaching the goals and may be able to adjust accordingly.

111. See, e.g., Bay Area School Reform Collaborative, *Inquiry in Curriculum Design 3* (Oct. 5, 1999 rev.), <http://www.sfsu.edu/~teachers/download/Inquiryframework.pdf>. This is one example of the abundant pedagogical materials provided for K–12 educators that are freely available on the web. Though some adaptation of the materials may be necessary for adults, many of the core instructional strategies or planning ideas are sound.

112. “Unfortunately, most students do not share the professors’ passions for the West key number system. Some students never really understand digests, which is unfortunate because digests provide an effective and efficient method for finding cases.” Johnson, *supra* note 89, at 85. Though students may not understand the digest system as it appears in print, students using the online interface for the LexisNexis and Westlaw case digest systems may stumble across the value of these systems by clicking on the hyperlinks. How the new WestlawNext interface will affect student searchers’ use of the West digest system remains to be studied.

113. Students come to research class familiar with the idea of cases, at least, even if they have never seen a written judicial opinion prior to their first day of law school. They are much less likely to have interacted with a digest system. Keeping in mind that it is easier for students to learn when building on existing knowledge, beginning with cases and following with digests is appropriate.

114. In his interesting discussion of Bloom’s taxonomy, Callister includes a table relating learning types (Bloom’s taxonomy levels) to research competencies and activities. He explains that “it is the beginning of a syllabus.” Callister, *supra* note 22, at 218, ¶ 43. Though his table is quite useful, particularly with regard to assessment ideas, others might find it more helpful to develop a syllabus beginning with learning goals (closely related to his student competencies), rather than with learning types. His chart suggests that learning is a linear process, in which students begin with lower-level thinking and move ultimately to higher-level thinking tasks. In fact, learning often involves revisiting prior knowledge to build new knowledge and skills.

115. On the other hand, too much emphasis on course goals can be detrimental.

Publication of pre-specified learning outcomes in course materials may inadvertently stifle creativity and originality in both staff and students. Used rigidly, there is a danger that learning outcomes

¶45 Bloom's taxonomy can be useful when generating learning goals because the cognitive skills, from the lowest level of thinking to the highest, are associated with verbs describing student learning behaviors.<sup>116</sup> Associating learning goals with particular student behaviors will enable both the student and the instructor to evaluate whether the learning goal has been met. For example, the lowest level cognitive skill of remembering can be associated with the verb "recall," so that a student who has participated in a lesson about case law research ought to be able to recall the component parts of a judicial opinion by the end of the lesson. A secondary benefit of clearly stated learning goals is that they encourage student engagement with the material. Learning goals may both make clear to students the lacunae in their knowledge and provide students with the ability to assess their own progress toward filling in the gaps.

### Instructional Strategies

¶46 Educational training materials suggest that, after identifying learning goals, an instructor's next step in designing a course is the selection of an instructional strategy or strategies (also called instructional methods).<sup>117</sup> Instructional strategies are described in a variety of ways. A brief and simple definition is "decisions about teaching sequences and tactics."<sup>118</sup> Johnson and Aragon, who developed an online master's degree program in human resources, identified the following strategies as necessary in creating an effective learning environment: (1) address individual differences, (2) motivate the student, (3) avoid information overload, (4) create a real-life context, (5) encourage social interaction, (6) provide hands-on activities, and (7) encourage student reflection.<sup>119</sup> For purposes of this discussion, instructional strategies are the approaches and decisions made by an instructor to ensure that students are able to engage with, comprehend, and learn material.

¶47 Strategies used in the classroom may vary depending on the goal of the lesson.<sup>120</sup> Although constructivist theory places a premium on the preexisting knowledge of the learner and places the instructor in the position of facilitator, the instructor may choose to use direct instruction. Another strategy might be to ask students to "think, pair, share." In this type of exercise, students are given a research

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become the driver of classroom interactions and prevent discussion of ideas or questions that do not clearly relate to the set outcomes for the course/module.

Angela Maher, *Learning Outcomes in Higher Education: Implications for Curriculum Design and Student Learning*, 3 J. HOSPITALITY, LEISURE, SPORT & TOURISM EDUC. 42, 49 (2004).

116. Overbaugh & Schultz, *supra* note 60.

117. See SMITH & RAGAN, *supra* note 23, at 6.

118. RYAN ET AL., *supra* note 16, at 47.

119. Scott D. Johnson & Steven R. Aragon, *An Instructional Strategy Framework for Online Learning Environments*, 100 NEW DIRECTIONS FOR ADULT AND CONTINUING EDUCATION 31, 34 (2003).

120. Searching Google for instructional strategies provides over a million results that may inspire instructors as they plan their classes. Although many online course design materials are hosted by school districts, some universities and colleges of education, not to mention other non-profit sites, make course design materials, including goal-setting and instructional strategies, freely available. See generally Glossary of Instructional Strategies, <http://glossary.plasmalink.com/glossary.html> (last updated Aug. 28, 2010) (containing 988 instructional strategies); Saskatoon Public Schools, Instructional Strategies Online, <http://olc.spsd.sk.ca/de/pd/instr/index.html> (last visited Jan. 3, 2011) (links from this page describe direct instruction, interactive instruction, indirect instruction, independent study, experiential learning, and instructional skills).



problem and a set amount of time to think about the problem independently. Students then pair up to discuss the problem, and finally a couple of student pairs are invited to share their answers with the class. In a research context, the answer might be a research process, such as, “We started with the *United States Code Annotated*, but we realized that we needed a regulation, so we turned to the *Code of Federal Regulations*, which had our answer. Last, we updated the regulation on the Internet.”

¶48 Encouraging students to put their understanding of a subject into action using a graphic organizer is another valuable instructional strategy. Graphic organizers are “visual displays teachers use to organize information in a manner that makes the information easier to understand and learn.”<sup>121</sup> An example of a graphic organizer is a T chart (a chart with two columns and a heading or question on top), which may be used for comparisons.<sup>122</sup> For example, students often wonder whether LexisNexis or Westlaw is “better.” Asking students to test the services, evaluate their citator products (a higher-order skill), and chart the results in a T chart allows them to more deeply process information. Assigning students to create or use a graphic organizer encourages them to develop metacognitive skills—“help[ing] students work through the ideas and connections.”<sup>123</sup>

¶49 Strategies often involve the creation of a product. The learning product may be intangible, such as the think-pair-share response, or it may be tangible, such as a chart comparing Shepard’s to KeyCite. These learning products may be used by both the instructor and the student to evaluate—or assess—learning.<sup>124</sup> The learning product, such as an answer to a question or follow-up question, may be informally assessed. An answer to a written exam may be formally assessed.

¶50 One of the more difficult tasks in teaching is evaluating student understanding. A major source of this difficulty is that the process of evaluation is never complete. While teaching, whether acting as a facilitator or providing direct instruction, an instructor must continually assess student comprehension and interaction with the material. When the students are quiet, does that reflect deep contemplation of a higher-order question, or does it mean they are intently reading the latest celebrity antics on Facebook? How does an instructor find the right balance when part of the class understands the lesson and would be able to perform

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121. Gloria A. Dye, *Graphic Organizers to the Rescue! Helping Students Link—and Remember—Information*, 32 TEACHING EXCEPTIONAL CHILDREN 72, 72 (2000) (quoting E.L. MEYEN ET AL., STRATEGIES FOR TEACHING EXCEPTIONAL CHILDREN IN INCLUSIVE SETTINGS 132 (1996)). Graphic organizers may be especially useful for teaching students relational knowledge. See Vonnice M. DiCecco & Mary M. Gleason, *Using Graphic Organizers to Attain Relational Knowledge from Expository Text*, 35 J. LEARNING DISABILITIES 306 (2002).

122. Graphic organizers are often used in elementary and secondary education, and many are freely available on the web. See Houghton Mifflin Harcourt, Classroom Resources: Graphic Organizers, <http://www.eduplace.com/graphicorganizer/> (last visited Nov. 30, 2011).

123. Niedringhaus, *supra* note 37, at 117.

124. The Carnegie Report uses different language; rather than providing interim assessment, the instructor coaches students, “providing guidance and feedback.” SULLIVAN ET AL., *supra* note 2, at 61. Whichever language is used, the pedagogical purpose is that students receive feedback on their performance as they are learning, so they can engage in the metacognitive analysis necessary to improve their performance.



the learning goal and the rest of the class does not and would not? If an instructor is not evaluating student success, both informally and formally, she is not even going to begin to ask these critical questions.

### Assignments, Rubrics, and Assessment

¶51 Assignments, rubrics, and assessment are integrally related. They may be imagined as three sides of a triangle: each side is necessary for the triangle to exist, and though the sides may look a lot alike, they are distinguishable.

#### Assignments

¶52 For purposes of this discussion, an assignment is a task assigned by an instructor, the function of which is to reinforce the learning objective for a particular lesson or unit. A few example assignments include answering a research question, writing a description of a research process, or participating in an online course discussion. The assignment should reflect the instructor's learning goals; an assignment that relates to a subject or issue unrelated to the learning goals is likely a waste of time.<sup>125</sup> Assignments are typically listed in a syllabus, and the portion of the course grade that is attributable to a particular assignment is also made clear in the syllabus.

#### Rubrics

¶53 Instructional rubrics are rarely seen in law school;<sup>126</sup> they are, however, very helpful in making clear to students an instructor's expectations about performance. An instructional rubric is a short document—ideally one or two pages—that “giv[es] students informative feedback about their works in progress and . . . give[s] detailed evaluations of their final products.”<sup>127</sup> Generally, a rubric is organized as a table, with assignment quality along one axis and particular criteria for the assignment along the other. The rubric should be generated by the instructor and distributed to the students at or about the same time as the assignment.

¶54 Rubrics have several instructional benefits. The first is clarity. Students and instructor alike should see the alignment of the learning goals with the criteria described in the rubric. Students undertake assignments with a clearer understanding of their instructor's expectations, and the rubric encourages the instructor to consider whether the questions asked by the assignment are, in fact, the questions the instructor intends the students to answer. Students appreciate understanding in advance the issues of concern for a particular assignment.<sup>128</sup> If, for example, an

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125. In addition to wasting students' time completing the task and the instructor's time grading or reviewing students' work, an assignment unrelated to course goals runs the risk of making students think of all the assignments in a course as a waste of time—even those that are integral to the completion of the course goals.

126. Students in doctrinal courses are more likely to be given model answers or old exams for practice, rather than rubrics.

127. Heidi Goodrich Andrade, *What Do We Mean by Results? Using Rubrics to Promote Thinking and Learning*, EDUC. LEADERSHIP, Feb. 2000, at 13, 13.

128. Gerdy notes that “legal research teachers must not only create learning outcomes but also publicize them by providing their students with a list of important concepts and skills that they will

instructor is not concerned with citation style for in-class assignments, but cares deeply about it on a take-home assignment (and grades accordingly), the rubrics for in-class assignments would make that clear to students, who could then focus their learning energy appropriately.

¶55 Rubrics have also been shown to support student learning. Within the context of a constructivist pedagogy, a rubric encourages students to develop metacognitive skills. As noted earlier, students may have difficulty realizing that they have found “the answer,” or sometimes even *an* answer, to a particular research question. When using a rubric, students can stop and evaluate their progress toward completing an assignment,<sup>129</sup> encouraging them to monitor their own thinking about the assignments<sup>130</sup> and their progress toward achieving learning goals.<sup>131</sup> In addition to developing metacognition, rubrics have been shown to improve both the development of content learning and critical thinking, and the development of skills.<sup>132</sup>

### Assessment

¶56 The third leg of the triangle is assessment.<sup>133</sup> As discussed earlier, an instructor may assess student progress or understanding formally, with assignments and examinations, or informally, through questioning. Like assignments and rubrics, assessment should reflect learning goals, to ensure that instructional time and student out-of-class work time are both being used to promote student learning. Assessments that are not aligned with goals are neither fair nor equitable.<sup>134</sup>

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be responsible for and that will be measured in an assessment. Presenting this information ‘up front’ is key.” Gerdy, *supra* note 38, at 73–74, ¶ 55.

129. Students who have not used rubrics in their prior education will benefit from a brief lesson in how to read and use a rubric. I have used rubrics in an upper-division legal research course, without explicitly describing to students how they could use the rubrics to their advantage. During an office visit regarding an assignment, a student indicated that it would have affected his performance if he had actually read the rubric in advance of completing the assignment. In a law school setting, students may also benefit from participating in the creation of a rubric.

130. See Andrade, *supra* note 127, at 15.

131. James W. Pellegrino, Rethinking and Redesigning Curriculum, Instruction and Assessment: What Contemporary Research and Theory Suggests 6 (Nov. 2006), available at <http://www.skillscommission.org/wp-content/uploads/2010/05/Rethinking-and-Redesigning.pdf>.

132. Andrade, *supra* note 127, at 16. Although the studies involved middle school students, there is no reason to believe that rubrics would not provide similar value to law students.

133. Gerdy describes assessment as answering two questions: “What have my students learned and how well have they learned it? How successful have I been at accomplishing the goals and objectives I have set (for a single class period, a particular skills set, or an entire course)?” Gerdy, *supra* note 38, at 65, ¶ 25. I disagree with Gerdy’s characterization of both questions as relating to assessment. In my view, the question of student learning is assessment. The second question, about the instructor’s success at accomplishing goals and objectives, is course evaluation. Gerdy’s discussion of learner-centered assessment, however, is enlightening. *Id.* at 68–78, ¶¶ 38–68.

Assessment of learning goals should not be confused with assessment of teaching goals (i.e., course evaluation). If one’s teaching is to be observed and evaluated, whether for an annual evaluation, promotion, or tenure, it is advisable to review the evaluation form prior to the scheduled observation. An example of a form used in the teaching development program at the University of Missouri–Kansas City School of Law (UMKC) is instructive. UMKC Law Teaching Observation Evaluation Form, <http://law2.umkc.edu/faculty/profiles/glesnerfines/Classroom%20Observation%20Form.pdf> (last visited Mar. 22, 2012).

134. Lisewski & Settle, *supra* note 21, at 109; Pellegrino, *supra* note 131, at 9.

Additional factors to consider when planning assessment in a legal research course include whether the measurement is effective (does it measure what it purports to measure), whether the assessment may be used to improve both teaching and learning, and whether the assessment provides a snapshot or a continuing picture of student development over time.<sup>135</sup>

¶57 Assessment may be used in a legal research class to both excite student interest and evaluate students' prior knowledge and understanding. A preliminary assessment, given to students before class begins<sup>136</sup> or on the first day of class, offers several benefits. The assessment results can help an instructor plan the amount of time necessary to adequately address required topics. It may also help an instructor identify students who would be able to explain research process concepts or research resources to other students.<sup>137</sup> Students, upon realizing the depth of their ignorance, may be more motivated to actively participate in a course.<sup>138</sup> A preliminary assessment may complement a course's final assessment. By comparing the two assessments for a particular student, it is possible to evaluate the degree of improvement—the student's success at achieving the course's learning goals.<sup>139</sup>

¶58 Assessment can be used to facilitate individualized instruction. Ideally, students should receive feedback on all the assessments they complete. Feedback can be verbal correction of a misunderstanding demonstrated by a student's answer to an in-class question.<sup>140</sup> Alternatively, it can take the form of detailed comments on a research exercise, perhaps combined with a model answer or a rubric. Instructional technologies can be especially useful in this respect.<sup>141</sup> Course management systems enable instructors to provide immediate feedback on assessments by including specific explanations about answers and why they are (or are not) correct. An example of this is the exercises available online at the Center for Computer-Assisted Legal Instruction (CALI).<sup>142</sup> Additionally, instructors may direct students to particular resources that would improve their understanding in an area in which they failed to achieve learning goals.

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135. Pellegrino, *supra* note 131, at 8.

136. By giving an assessment as an assignment prior to the first class session, the instructor can better target the initial class session to the students. The assessment may also include some questions that will help the instructor remember students' names.

137. Encouraging students to explain difficult concepts to each other is an effective instructional strategy. Sometimes students are more attentive to and better able to understand an explanation delivered by a peer, rather than by an instructor. Conducting a pre-assessment may help target students who bring valuable (and accurate) prior knowledge to a classroom. Alternatively, a pre-assessment may help an instructor create learning groups. Students may be grouped and assigned different tasks, depending on the prior knowledge they bring to the course.

138. The preliminary assessment may both gain students' attention and help them to see the relevance of the instructional goals. The teaching in response may build confidence and satisfaction. See Niedringhaus, *supra* note 37, at 115–16.

139. According to Ann Hemmens's survey, only 26.8% of advanced legal research courses use a research exam to evaluate students. Hemmens, *supra* note 100, at 234, ¶ 58. Hemmens's survey is from 2000 though; assessment strategies may have changed since then.

140. Green, *supra* note 6.

141. Pellegrino, *supra* note 131, at 11–12.

142. CALI makes interactive, online lessons on a variety of topics available to law students. A number of research skills lessons are available, some of which are targeted to specific subjects or jurisdictions. See CALI, <http://www.cali.org> (last visited Jan. 4, 2012).

¶59 Final examinations are a typical form of law school assessment. Doctrinal law school courses, particularly those in the first year, assess students primarily by a comprehensive final exam at the end of the semester.<sup>143</sup> Some first-year course professors may offer students in first-year courses an opportunity to take a mid-term exam, thus giving them exposure to the high-stakes testing that is typical in law school.

¶60 Other options may exist for assessing students in a legal research course. Nancy Armstrong advocates that instructors of legal research courses consider implementing an oral final exam. She explains that the goal of such an exam is to have students talk about research techniques or actually demonstrate their research strategies and skills.<sup>144</sup> She advises instructors who wish to try this method that they should estimate the amount of time they think is needed to complete the exam and then double it. When proctoring her exams, she usually schedules students for one hour, with forty-five minutes spent working in the library and fifteen minutes debriefing the exam together in the office.<sup>145</sup> Such an exam may please learners who have a variety of learning styles, but it may be more time-consuming to proctor than a more typical take-home research problem set or pathfinder.

¶61 A pedagogical question not yet discussed, but raised by assessment, is what constitutes a “right” answer. Assume an instructor designed a question that would require a student to identify a section in the *Code of Federal Regulations*, read the section, and provide an answer to a legal question. If the instructor’s pedagogical goal is simply that students can identify appropriate resources and navigate those resources when faced with a research problem, the student might earn complete credit for identifying a proper resource and locating the relevant section(s) in the source, regardless of the accuracy of the answer to the legal question. Another instructor, having designed the same question, might only give partial credit for the same student answer, on the basis that the student failed to correctly read and analyze the source when answering the legal question. The better practice would be to consider the accuracy of the analysis, at least in part because the use of legal resources to answer questions requires analysis and evaluation at many stages in the research process (developing the initial research query, reviewing results for responsiveness to the problem, revising the query).<sup>146</sup> Proponents of the opposing view might argue that the legal research instructor’s job is to teach research, rather than writing and analysis. Regardless of the pedagogical perspective of the instructor, the assessment is not complete if it does not include adequate feedback.<sup>147</sup>

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143. According to Hemmens, advanced legal research courses are remarkably standardized in their methods of assessment. Though there are a variety of assessment options used in advanced legal research courses, 88.7% of the courses use library exercises or research assignments, while 69% of the courses require students to create pathfinders. Hemmens, *supra* note 100, at 234 tbl.15.

144. Nancy A. Armstrong, “Tell Me More About That . . .”: Using an Oral Exam as a Final Assessment Tool, 25 LEGAL REFERENCE SERVICES Q., nos. 2/3, 2006, at 117, 119.

145. *Id.* at 119–20.

146. In the interest of transparency, students should understand—from instructions or a rubric—whether or not the accuracy of analysis will be a factor in the grading of the question.

147. Richard Higgins et al., *The Conscientious Consumer: Reconsidering the Role of Assessment Feedback in Student Learning*, 27 STUD. IN HIGHER EDUC. 53, 54 (2002).

¶62 Legal research courses are not required to follow the doctrinal course model of formal assessment, in which students are graded based solely on a summative examination at the end of a course; they have a panoply of assessment options available.<sup>148</sup> A student could be assessed based on his performance in relation to instructor questioning—the student’s answers could be the basis of a higher grade at the end of the semester. The instructor might also give additional assignments that are the basis of the student’s final grade. Additional assignments could include treasure hunt questions, process-based research questions, completion of CALI lessons, or required “lab time” in which students are taught computer-assisted legal research skills. The doctrinal course model provides students with little or no feedback about their progress toward achieving learning goals; a well-designed legal research course should provide students with ongoing feedback, encouraging the development of schemata and metacognitive skills.

### Conclusion

¶63 The pedagogy of legal research is an important issue for law librarians to consider, in no small part because law librarians are experts in legal research, including the resources and strategies that may best be used to answer a research question. Even without formal pedagogical training, law librarians can improve their teaching by reading professional literature and engaging in the burgeoning conversation about teaching. By considering both the theory of teaching strategies, such as the use of scaffolding, schema theory, and the role of questioning, as well as the practical application of teaching strategies, such as the think-pair-share technique and related questioning strategies, law librarians can improve their effectiveness in the legal research classroom. Further, by articulating course design decisions through learning goals and the use of rubrics and assessments, legal research instructors can provide students with helpful tools for developing metacognitive skills, enabling students to continue to improve their legal research skills later in law school.

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148. The options implemented may be limited by the type of class offered; an advanced legal research course with an enrollment of fourteen students lends itself to different assessment tools than a first-year basic legal research course with an enrollment of sixty (or more) students.