EXPANDING OUR CLASSROOM WALLS: ENHANCING TEACHING AND LEARNING THROUGH TECHNOLOGY*

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I. INTRODUCTION

A wide range of factors supports a decision to incorporate technology into law teaching. These factors range from the theoretical to the practical and from pedagogical to professional, but three factors are particularly important: trends in law practice, technical experience of law students, and cognitive processing. First, technology is particularly well suited for legal education, and especially for legal research and writing instruction, because the nature of law practice is becoming increasingly technical.[1] Modern lawyers need a much higher level of technological competence to succeed—it is no longer enough to employ a legal secretary to type briefs. Current trends toward electronic filing, digital presentation of evidence, and electronic conferencing and collaboration require the lawyer to possess a level of technical competence.[2] This is the responsibility of legal educators to prepare students for the realities of practice, and that includes an introduction to the realities of technology in the law.[3]

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[1] Stephen M. Johnson, *www.lawschool.edu: Legal Education in the Digital Age*, 2000 Wis. L. Rev. 85, 101–103.

[2] *See* Maria Perez Crist, *Technology in the LRW Curriculum—High Tech, Low Tech, or No Tech*, 5 Leg. Writing 93, 96–97 (1999).

[3] Johnson, *supra* n. 1, at 101; *see generally* Pamela Lysaght & Danielle Istl, *Integrating Technology: Teaching Students to Communicate in Another Medium*, 10 Leg. Writing 163 (2004) (describing the reasoning behind and implementation of a technology unit within

Second, most modern law students have used computers both in the classroom and at home since their early elementary school days, leading them to expect technology to play a role in their legal education as well.[4] According to a report published by the National Center for Education Studies in 2003, about 90% of American children and teenagers, ages five through seventeen, used computers in 2001, with nearly 60% using the Internet.[5] By the time they reach high school, nearly three-quarters of American students are online.[6] Use of computers and the Internet in educational settings has increased significantly since the early 1980s. In 1984, 27% of students from elementary school through college used computers in school. In 1989, 43% of students used computers at school, and by 1997 69% of students reported using computers in their classes.[7] According to a 2002 study on Internet use by college students conducted by the Pew Internet Project, 20% of college students were introduced to computers by the time they were eight years old, and all were using computers by the time they turned eighteen.[8] The vast majority (86%) of college students use the Internet, compared to nearly 60% of the general U.S. population.[9]

Increasingly, Internet use is becoming part of the undergraduate educational experience. For example, during Winter Semester 2004, Brigham Young University reported that more than 80% of its undergraduate students utilized the online course software Blackboard.[10] American college students find the Internet central to their educational experience, using it to communicate with teachers and other students, to research and to access library ma-

the law school's legal writing course; the unit requires students to use and assess technology for research and as a vehicle for communicating with clients.).

[4] Johnson, *supra* n. 1, at 101.

[5] Matthew DeBell & Chris Chapman, *Computer and Internet Use by Children and Adolescents in 2001: Statistical Analysis Report* iv (U.S. Dept. Educ., Natl. Ctr. for Educ. Stud. 2003) (available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2004014).

[6] *Id.* at 3.

[7] *Id.*

[8] Steve Jones, *The Internet Goes to College: How Students Are Living in the Future with Today's Technology* 2 (Pew Internet & Am. Life Project 2002) (available at http://www.pewinternet.org/reports/toc.asp?Report=71). The project surveyed more than 2,000 undergraduate and graduate students at twenty-seven colleges and universities between March and June 2002. *Id.* at 21. Survey data has a margin of error of plus or minus two percentage points. *Id.*

[9] *Id.* at 2.

[10] Data provided by Brigham Young University Center for Instructional Design. E-mail from Candace Berrett, Evaluation & Research Asst., BYU, to Kristin Gerdy, Assoc. Prof. & Dir., Rex E. Lee Advocacy Program, BYU, *Blackboard Information* (May 26, 2004) (copy on file with Authors).

terials, and to handle administrative tasks like reporting absences.[11] These students overwhelmingly report that Internet use has positively impacted their college experience.[12]

The Internet has also changed the way students approach their education. For example, while students used to depend on the campus library for the majority of their research needs, today's students opt for Internet searching, with almost three-quarters using the Internet more than the library and slightly less than 10% preferring the library.[13] Because these trends are escalating in secondary and undergraduate education, more and more law students will enter law school expecting, if not demanding, that professors incorporate technology into their courses. This trend will increasingly be true as more and more undergraduate universities incorporate technology into their curricula.

The third and perhaps most important reason to consider implementing technology into legal education is that the advent of e-mail, instant messaging, and readily accessible Internet browsing has influenced the way students learn. According to Carole A. Barone, head of the National Learning Infrastructure Initiative, students who regularly use these technologies expect their learning to be more "hands on" than passive ("they expect to try things rather than hear about them"), and they tend to learn more visually and socially.[14] Because of their familiarity with the Internet and the way it "links" information, today's students expect and learn best from information presented in a "non-linear, dynamic, and interactive way."[15] The online-cyber environment presents information in multiple formats, such as text, pictures, video, and graphics, and allows users to link information from various locations throughout the Internet seamlessly and dynamically. This connectivity, and students' experience with it, has changed the way students conceive of information and learn from it.[16] Law stu-

[11] Jones, *supra* n. 8, at 2–3.

[12] *Id.* at 3. Slightly more than one-third of surveyed students (34.3%) strongly agreed with the proposition that the Internet had a positive impact on their college academic experience in general, while an additional 44.2% agreed with the proposition. *Id.* at 8 tbl. 3. Sixteen percent were "neutral" and only 3.5% disagreed. *Id.*

[13] *Id.*

[14] Carole A. Barone, *Technology and the Changing Teaching and Learning Landscape,* "Students Think Differently," http://aahebulletin.com/member/articles/educause.asp?pf=1 (accessed Feb. 27, 2005).

[15] Rogelio Lasso, *From* The Paper Chase *to the Digital Chase: Technology and the Challenge of Teaching 21st Century Law Students*, 43 Santa Clara L. Rev. 1, 22 (2002).

[16] *Id.* at 23.

dents' experiences are arguably no different.[17] In this Article, we will provide a brief overview of learning theory, discuss the thoughtful use of technology, and describe four specific projects we have created at BYU Law School.

II. LEARNING THEORY AND LEARNING STYLE

To more fully understand how technological advances impact learning, it is useful to consider a short summary of learning theory, focusing particularly on learning styles and student-centered learning principles.[18] Learning has been described as the "process of progressive change from ignorance to knowledge, from inability to competence, and from indifference to understanding."[19] The way learners progress through the spectrum from ignorance to knowledge is often referred to as a learning style.[20] In his leading work on learning styles, educational theorist James W. Keefe defined learning style as "characteristic cognitive, affective, and psychological behaviors that serve as relatively stable indicators of how learners perceive, interact with, and respond to the learning environment."[21] Learning style does not reflect upon a person's intelligence, and one style is not superior to another. While learning style is likely to be relatively stable throughout a person's life, it is not unalterable and often must be adjusted to enable the student to learn in a less than ideal environment.

Professor Paula Lustbader summarized: "Theories about learning styles indicate that learners have a preferred mode of learning, that people learn in different ways, that a variety of

[17] *See id.* at 23, 30 (discussing the "communication revolution" during the second half of the twentieth century, arguing that such a revolution significantly affected the learning style of twenty-first century law students, and explaining how law faculty can incorporate electronic technology into the curriculum to advance legal education).

[18] For an extended discussion of learning styles, adult or student-centered learning theory, instructional preferences, and the Kolb model of experiential learning, see Kristin B. Gerdy, *Making the Connection: Learning Style Theory and the Legal Research Curriculum,* 19 Leg. Ref. Servs. Q. 71 (2001).

[19] Cameron Fincher, *Learning Theory and Research,* in *Teaching and Learning in the College Classroom* 47–48 (Kenneth A. Feldman & Michael B. Paulson eds., Ginn Press 1994).

[20] *See generally* Rita Dunn & Kenneth Dunn, *Teaching Secondary Students through Their Individual Learning Styles: Practical Approaches for Grades 7–12* (Allyn & Bacon 1993); Robin A. Boyle & Rita Dunn, *Teaching Law Students through Individual Learning Styles*, 62 Alb. L. Rev. 213 (1998); M.H. Sam Jacobson, *A Primer on Learning Styles: Reaching Every Student*, 25 Seattle U. L. Rev. 139 (2001).

[21] James W. Keefe, *Learning Style Theory and Practice* 5 (Natl. Assn. of Secondary Sch. Principals 1987).

learning styles will be present in any classroom, and that no one teaching method is effective for all students."[22] The idea that people learn in different ways emerged in educational literature as early as 1892; however, the specific phrase "learning style" was probably first used in the 1950s by Thelan in his discussion of the dynamics of work groups.[23] Since that time many educational theorists and researchers have explored the concept of learning style, leading to the creation of numerous models and theories.[24] This multiplicity of theories all categorized under the same descriptor often leads to confusion. To comprehend learning style theory more accurately, it is necessary to understand that learning style theories exist on four different levels. According to Professor M.H. Sam Jacobson, "Learning styles are affected by a number of characteristics, including a person's intelligence, personality, information processing mechanisms, social interaction needs, and instructional preferences."[25] The deepest layer of learning style theory focuses on personality models.[26] Learning style at the personality level tends to be the most stable throughout a person's life.[27] A second layer assesses how students process information while learning.[28] The third layer is behavioral and focuses on how students interact in learning settings.[29] The fourth layer explores learners' instructional preferences—the ways in which they like to be taught.[30] The four levels are not isolated since each influences the others.[31]

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[22] Paula Lustbader, *Teach in Context: Responding to Diverse Student Voices Helps All Students Learn,* 48 J. Legal Educ. 402, 405–406 (1998).

[23] Keefe, *supra* n. 21, at 7.

[24] *See e.g.* David A. Kolb, *Experiential Learning: Experience as the Source of Learning and Development* 20–21 (Prentice Hall 1983). Basing his theory of experiential learning on the work of three earlier educational researchers, including Dewey, who saw "learning as a dialectic process integrating experience and concepts, observations, and action," Lewin, who placed emphasis on experience to test abstract concepts and on feedback processes, and Piaget, who believed the key to learning "lies in the mutual interaction of the processes of accommodation of concepts or schemas to experience in the world and the process of assimilation of events and experiences from the world into existing concepts and schemas," David A. Kolb's learning theory emphasizes the central role of experience in the learning process. *Id.* According to Kolb, true learning combines experience, perception, cognition, and behavior. Under this theory, "knowledge is continuously derived from and tested out in the experiences of the learner." *Id.*

[25] Jacobson, *supra* n. 20, at 146.

[26] Charles S. Claxton & Patricia H. Murrell, *Learning Styles: Implications for Improving Educational Practices* 7 (Jonathan D. Fife ed., Assn. for Study of Higher Educ. 1987).

[27] *Id.*

[28] *Id.* at 21.

[29] *Id.* at 46.

[30] *Id.* at 36.

[31] *Id.* at 7.

Although learning style is linked to the individual student, understanding the concept of learning style is arguably as important to the teacher, and its application can dramatically improve teaching, especially when the teacher attempts to incorporate technology into class activities. Traditional theories of education were based on the model that teachers, as repositories of information, were simply responsible for dispensing that information to their students. If a student did not learn the material, it was viewed as the student's fault entirely. That teaching paradigm did not include adapting teaching style to facilitate learning when students failed to learn; students alone were expected to adjust. With the introduction and acceptance of learning style theories, this paradigm has shifted, and overall education is improving—beginning with the individual student's recognition of how he or she learns and progressing to the teacher's ability, if not responsibility, to adjust teaching style to best facilitate learning.[32]

Although understanding and adapting teaching to accommodate different learning styles is advisable, taking the concept to the extreme can be detrimental. If students are allowed to learn using only their preferred style because it feels comfortable, they can be seriously hindered in their ability for future learning and development. Students can, and should, learn to use different learning strategies, but they are most comfortable with assignments within their learning style preference. Students can feel alienated if they are forced to stay out of their comfort zone too long, and this discomfort may be significant enough to interfere with their learning. Thus, one of the objectives of true education should be to teach students to learn in both their preferred and less preferred styles.[33] Although formal assessment of a learner's style is unrealistic in many situations, merely acknowledging and understanding that there are different learning styles is the first step in accommodating those styles. One seemingly constant characteristic of law student learning style is that law students can be classified as "adult learners" and learn best when they are able to incorporate principles of adult or student-centered learning.

In the early 1970s, Malcolm Knowles introduced adult learning theory.[34] Called "andragogy," his theory outlined the distinct

[32] *See* Keefe, *supra* n. 21, at 31–32; *see also* Jacobson, *supra* n. 20, at 142–146 (discussing the significant ways in which teaching to diverse learning styles helps all students learn).

[33] Richard M. Felder, *Matters of Style,* 6 ASEE Prism 18, 18 (Dec. 1996).

[34] *See* Malcolm Knowles, *The Adult Learner: A Neglected Species* 39–63 (4th ed., Gulf

characteristics distinguishing how adults learn from traditional pedagogical theory used with children—"andra" meaning adult as opposed to "peda" meaning child. Modern educational literature refers to these concepts by the less age-specific term, student-centered learning. Student-centered learning is based on four main premises.[35]

The first premise posits that learners are self-directing, meaning that they prefer to make their own decisions and manage themselves rather than having the will of the teacher imposed upon them.[36] Thus, learning is enhanced by mutual inquiry by student and teacher.[37] One means of including self-direction is by providing flexibility and options when possible, thereby allowing individual students to decide for themselves the option that works best for them. Flexibility that allows the student to be self-directed enhances learning and is perfectly suited to learning activities that involve technology. Students can use technological learning tools at their own pace and often can self-select the sequence and timing of their learning.

The second premise of student-centered learning is that learning occurs best experientially.[38] This premise particularly holds true for older students (including law students) who can call upon greater reservoirs of experience, the most effective basis for learning. Students learn most efficiently and effectively when material is introduced sequentially—taking the student step-by-step from simple concepts through complex concepts while relating those concepts to the students' experience. Students encounter more learning difficulties when new information is presented without such context. The best way to provide context is to begin with an overview of the material to be presented and to end with a summary of how it all fits together. But it is not enough to provide a context solely within the scope of the material to be covered in the class; learners need a framework tied to information or experience

Publg. 1990) [hereinafter *Adult Learner*]; Malcolm S. Knowles, *The Modern Practice of Adult Education: From Pedagogy to Andragogy* 41 (Follett Publg. Co. 1980).

[35] *See generally* Stephen D. Brookfield, *Understanding and Facilitating Adult Learning: A Comprehensive Analysis of Principles and Effective Practices* (Open U. Press 1986); K. Patricia Cross, *Adults as Learners: Increasing Participation and Facilitating Learning* (Jossey-Bass Inc., Publishers 1981); Jack Mezirow, *Transformative Dimensions of Adult Learning* 189 (Jossey-Bass Publishers 1991); Robert M. Smith, *Learning How to Learn: Applied Theory for Adults* (Follett Publg. Co. 1982).

[36] *See* Knowles, *Adult Learner*, *supra* n. 34, at 57–58.

[37] *Id.* at 53–60.

[38] *See id.* at 55–60.

already within their grasp in which to place the information they receive. With such a framework the learners can see how each individual skill or concept fits into the overall structure or "big picture" that extends beyond the scope of the course itself and how it fits into their existing experience. In fact, a key to successful adult learning is the use of examples or questions—small and insignificant as they may seem—that cause students to examine their experience and recall a context into which new information can be placed. Electronic materials, particularly those posted on Internet sites or on internal course pages, allow students access to such context and examples. Technological tools are well-suited for providing background information and other "big picture" summaries that do not require extended discussion.

The third premise of student-centered learning is that the student must be "ready to learn."[39] Knowles asserts that curriculum must be timed to coordinate the subjects or skills taught with the concurrent tasks facing the student.[40] Students learn best when they understand the importance of material they are learning and see that it is linked to performance that is expected of them in their social role. They must be motivated to learn,[41] and that motivation comes from a belief that what they are learning is relevant and important to their lives—both short term (in preparing for and succeeding in the current course) and long term (in their professional lives). Again, technological tools are particularly well-suited for point-of-need learning. When better for a student to sit down and actually discover and appreciate the finer points of legal citation than when struggling with the student's draft of a research memorandum? Certainly in-class teaching is important and necessary, but out-of-class access to supplemental materials online can aid students at their point of greatest need—when they are truly "ready to learn."

The final premise of student-centered learning concerns the concept of orientation to learning, which stresses the presentation of material in the context of problems students are likely to face in the "real world"; thus, instruction becomes problem-centered rather than subject-centered.[42] The totality of legal research and

[39] *Id.* at 60–61.

[40] *Id.*

[41] For a more extensive discussion of the importance of motivation in law student learning, see Gerald F. Hess, *Heads and Hearts: The Teaching and Learning Environment in Law School,* 52 J. Leg. Educ. 75, 99–100 (2002); Jacobson, *supra* n. 20, at 165–167.

[42] *See* Knowles, *Adult Learner*, *supra* n. 34, at 61–63.

writing pedagogy is based on this premise of student-centered learning—nearly all that we do is grounded in the philosophy that students must solve problems and act as practicing lawyers would. The use of technology in so doing is merely an added component of the "reality."

The results of a survey of graduate students conducted in the early 1990s confirm these principles. When asked about their preferred learning methods, the students involved cited "orderly presentation of material interspersed with . . . drill and practice."[43] "They did not like to read text[books], but preferred discussion where they could listen to other students' ideas.[44] Application-type essays were the preferred method of evaluation."[45]

III. USING TECHNOLOGY TO FURTHER LEARNING

By keeping the fundamental concepts of learning style and the four premises of student-centered learning in mind when implementing technology, faculty will better serve their students and enhance learning. For example, because law students are familiar with "surfing" the Internet, they gravitate toward course information placed on class websites.[46] When teachers post course information on the Internet rather than (or at least in addition to) providing such materials in hard copy, students benefit because they can access the information from a distance at any time they find necessary (so long as the students can connect to the Internet), thus accommodating student schedules and learning styles.[47] Technological tools can provide a "visual architecture" for the class through course outlines, posted assignments and dates, PowerPoint lectures, sample assignments and answers, additional references, tutorials, and other online components.[48]

[43] Samuel Hinton, Presentation, *The Learning Style Preferences of Students in Graduate School* 7 (Annual Mtg., Mid-S. Educ. Researches Assn., Knoxville, Tenn., Nov. 11–13, 1992) (available at ERIC Doc. Reprod. Servs. No. ED 354 807).

[44] *Id.*

[45] *Id.* For examples of how law professors have applied principles of adult learning, see generally Frank S. Bloch, *The Andragogical Basis of Clinical Legal Education*, 35 Vand. L. Rev. 321 (1982); Paul S. Ferber, *Adult Learning Theory and Simulations—Designing Simulations to Educate Lawyers*, 9 Clin. L. Rev. 417 (2002); Janet Motley, *Self-Directed Learning and the Out-of-House Placement*, 19 N.M. L. Rev. 211 (1989); Fran Quigley, *Seizing the Disorienting Moment: Adult Learning Theory and the Teaching of Social Justice in Law School Clinics*, 2 Clin. L. Rev. 37 (1995).

[46] Lasso, *supra* n. 15, at 30–31.

[47] *Id.* at 31.

[48] Natl. Learning Infrastructure Initiative, *Supporting Learning through Technology:*

Providing handouts and other materials online in advance can also improve class discussion and make class time more effective.[49] Materials using graphics, video, audio streaming, and online simulations can supplement traditional class content and vastly improve the learning of visual and kinesthetic learners.[50] In addition to catering to students' preferred learning styles, faculty can use technology to encourage or require students to use different learning styles and skills by implementing print, graphical, and experiential components in their teaching.[51] Along with formal course materials, less formal online services, like online writing centers, can encourage student learning and adapt to different learning styles.[52] Further, because students' learning appears to be influenced by the fluid and connected nature of online materials, students are arguably more likely to understand complex concepts and relationships when presented online.[53] Online exercises, readings, and discussion forums help students assess their own understanding of course concepts.[54] Technology can provide an effective way to present information outside of class, but when using technology in such a way, teachers must be sure to involve students and establish a dialogue about the information (either in a class setting or through technological means like e-mail or electronic discussion boards) to avoid establishing a passive/dependent learning style.[55] Faculty can help enhance individual understanding through e-mail, online discussion and conferencing, and other communication technologies to expand course dialogue beyond the finite class period.[56] Technology can also encourage students to

Principle-Based Technology and Learning Environment Design, http://www.educause.edu/ir/library//html/nlii_ar_2003/supportlearning.asp (accessed May 12, 2005).

[49] *See* Lasso, *supra* n. 15, at 39.

[50] Johnson, *supra* n. 1, at 101–103.

[51] *See* Arthur W. Chickering & Stephen C. Ehrmann, *Implementing the Seven Principles: Technology as Lever*, 49 AAHE Bull. 3 (Oct. 1996) (available at http://www.tltgroup.org/programs/seven.html) (describing seven principles for excellent teaching and illustrating how technology can be used to enhance each).

[52] Susan R. Dailey addresses the online legal writing center (OWL) in her article, *Linking Technology to Pedagogy in an Online Writing Center*, 10 Leg. Writing 181 (2004). Professor Dailey reviews scholarship on OWLs, discusses the ways an online legal writing center could support the general law school curriculum, and addresses the pedagogical implications of using the online legal writing center to meet the needs of students. *See generally id.*

[53] Lasso, *supra* n. 15, at 31.

[54] Johnson, *supra* n. 1, at 102.

[55] *See* Anthony F. Grasha & Natalia Yangarber-Hicks, *Integrating Teaching Styles and Learning Styles with Instructional Technology*, 48 College Teaching 2 (2000).

[56] Natl. Learning Infrastructure Initiative, *supra* n. 48.

take part in self-reflection and self-evaluation and can provide structure for students who need structure while leaving flexibility for others.[57] Finally, since technological activities allow students to work at their own pace, students who quickly master concepts and skills can easily move forward while students who struggle can spend additional time and access additional resources and feedback.[58] All of these supplemental materials can be used at the students' own pace and on their own time schedules, which increases both the students' abilities to internalize the material as well as their satisfaction with the learning process itself.[59]

A. Technology and Learning Objectives

While technology can definitely contribute to student learning, it is critical for teachers to have a sound reason for using particular technologies in their courses.[60] It is not enough to use technology for its own sake, either because it is new and exciting or because it may enhance learning in general, because, when used improperly, technology can actually hinder student learning.[61] Instead, each technological application needs to have a specific purpose, must meet a specific educational need or learning objective, and should be suited for that objective. Hence, a professor should not simply use PowerPoint because he or she has it on the computer or because he or she wants to try something different.

Technology helps students improve performance when it directly supports some concrete learning objective. Therefore, learning objectives and standards must be clear to the students for technology to be effective.[62] Some technologies are better suited for some learning activities and objectives than others would be—technologies are simply tools, and some tools are better for certain jobs than they are for others.[63] Technology can be used to change educational activities, but unless the activities themselves are ef-

[57] *See id*.

[58] *See id*.

[59] Johnson, *supra* n. 1, at 102.

[60] *See* Richard Warner, Stephen D. Sowle & Will Sadler, *Teaching Law with Computers*, 24 Rutgers Computer & Tech. L.J. 107, 171 (1998) (including a checklist of criteria for faculty to consider when using technology in their classes).

[61] *See* Craig T. Smith, *Technology and Legal Education: Negotiating the Shoals of Technocentrism, Technophobia, and Indifference*, 1 J. ALWD 247, 247 (2002).

[62] John Cradler et al., *How Does Technology Influence Student Learning?* 29 Learning & Leading with Tech. 46, 47 (May 2002).

[63] *See* Chickering & Ehrmann, *supra* n. 51.

fective, adding technology is not likely to change the outcome; therefore, the effectiveness of technology is more accurately a measure of the effectiveness of the activity.[64]

Effective planning for implementing technology involves three key components.[65] First, faculty members must determine the academic goals—the educational goals or outcomes—the faculty members want students to achieve.[66] Articulating academic goals and learning outcomes requires faculty members to assess the needs and expectations of the students, the faculty, and the larger institution.[67] Second, faculty members must determine what activities or resources will help students reach those goals.[68] This evaluation should not be tied to particular technologies, but instead should focus on what the student needs to do or to access to achieve the desired outcome.[69] Third, faculty members then determine which technologies are appropriate for those activities or resources.[70] It is only at this point that the faculty member should consider "the role technology could play in improving those activities [or resources]." [71]

IV. INCORPORATING TECHNOLOGY INTO AN LRW PROGRAM

Our faculty in the Rex E. Lee Advocacy Program at BYU implemented this three-step process when deciding how to incorporate technology into our first-year legal research and writing course.[72] Our first step was to conduct a simple needs analysis to

[64] Stephen C. Ehrmann, *Computer-Intensive Academic Program: How to Evaluate, Plan, Support, and Implement (in That Order) Your Campus Technology Investments*, 53 AAHE Bull. 7 (Nov. 2000) (available at http://aahebulletin.com/public/archive/computer.pdf).

[65] *Id.* at 7–8.

[66] *Id.* at 8.

[67] *Id.*

[68] *Id.*

[69] *Id.*

[70] *Id.*

[71] *Id.* Factors common to successful implementation of technology include (1) "well-chosen software integrated into a well thought-out program of instruction," (2) "technology that's used to reinforce, enhance and elaborate on teacher-taught concepts," (3) "software training and support for teachers," and (4) "student access to updated software and well-functioning computers." Mary Lou Santovec, *The Seven Myths of Online Learning: Which Do You Believe?* 6 Distance Educ. Rpt. 1 (Nov. 2002).

[72] Unlike situations in which faculty implement these instructional design principles to create a new course, we used these principles to improve an existing course that was working very well; therefore, we did not analyze every aspect of the course, but only those

examine the needs of our students, the instructors, and the institution, and to determine the specific learning objectives we wanted to target. Although each member of the Advocacy faculty has a minimum of three years of law teaching experience, we decided to follow the advice of instructional designers on campus to undergo a formal analysis of student experience and needs rather than simply work from our preconceived ideas and current learning objectives. While much of this information was second nature to us, it was a good reminder to put down on paper what we often overlook.

First we examined our students: all first-year students at the J. Reuben Clark Law School are required to take Introduction to Legal Research and Writing and Introduction to Advocacy (together these classes are often referred to simply as "Advocacy"). Every student in Advocacy has an undergraduate degree from an accredited institution and has successfully completed the Law School Admissions Test and the rigorous law school application process.[73] However, their levels of writing proficiency vary widely.[74] While most have a working knowledge, if not a mastery, of many of the technical aspects of writing,[75] few have experience with legal discourse. The same is true for their research skills. While most, if not all, have completed primary research on some topic during their undergraduate education, few have experience working with legal materials or addressing the authority issues involved with assessing legal materials. Finally, very few, if any, have experience with the analytical processes involved in identifying, proving, and applying legal principles and rules.[76]

Next we tried to articulate the institutional goals that impact our course and evaluate the way our course "fits" within the overall curriculum. Instruction in modern law schools is founded on the notion of teaching each student to "think like a lawyer," and

we felt needed specific attention. Thus, the description of the process that follows reflects our analysis of only those specific course elements and will be noticeably incomplete.

[73] Entering students in the class of 2007 had a median LSAT score of 164 and a median GPA of 3.7.

[74] Anecdotal reports from students show that their undergraduate writing experiences range from formal honors theses requiring in-depth research in primary sources and final written product exceeding fifty pages, fully referenced and showing sophisticated analysis, to "senior papers" topping out at ten pages and requiring very little research.

[75] The majority of J. Reuben Clark law students received their undergraduate degrees from BYU, which requires all students to complete an "advanced writing" course to graduate. As indicated above, however, the requirements of these "advanced writing" courses vary widely.

[76] Even those students with prior legal experience often grossly overestimate their abilities to conduct legal research and analysis.

the Advocacy faculty at BYU shares that notion; the added dimension in Advocacy is that we also teach students the basics of writing and speaking "like a lawyer." In Advocacy, students learn to use their analytical skills to identify and solve legal problems—in essence, Advocacy provides the laboratory for applying the analytical skills students are gaining in their other courses. In turn, these analytical and writing skills help students to succeed in their other courses.

By the end of the Advocacy course, law school faculty and administration expect students to be able to research, analyze, solve, write about, and present orally their analysis of complex legal issues and problems, both objectively or predictively and persuasively. This aim should be achieved with the least amount of intrusion into the time they spend on their other classes.[77]

After examining our course's "fit" within the law school, we examined the relevance of our course to the larger legal discipline and outside stakeholders. Again, the results were fairly obvious, but being forced to put them down on paper helped to focus our inquiry. We determined that lawyers are professional thinkers, researchers, and writers. The lawyer's stock in trade is her ability to reason and write. According to the "MacCrate Report," a document created by the American Bar Association Task Force on Legal Education and the Bar, there are ten "fundamental lawyering skills."[78] The Advocacy curriculum directly addresses six of them, including problem solving; legal analysis and reasoning; legal research; communication; litigation procedures; and organization and management of legal work.

The final step of the initial "needs analysis" stage required us to articulate instructional objectives or learning goals on which we would focus the remainder of our inquiry and our ultimate learning activities and use of technology. After considering the numerous learning objectives we had previously identified for our students, we decided that seven were particularly important and would be our current focus. Although there are many ways to phrase learning objectives, we chose to state our objectives as

[77] In other words, while we could teach enough material to consume every waking hour the students have to devote to law school, we have to restrain ourselves and fill only three hours of in-class time and approximately six hours of out-of-class time each week during the fall semester and two hours in-class and four hours out-of-class during the winter semester.

[78] ABA Sec. Leg. Educ. & Admis. to Bar, *Legal Education and Professional Development—An Educational Continuum: Report of the Task Force on Law Schools and the Profession: Narrowing the Gap* 138–140 (ABA Sec. of Leg. Educ. & Admis. to B. 1992).

questions to the students. This format focuses on the students rather than on the instructor, something we have attempted to do throughout our curricular design. Our seven learning objectives ask

1. Can you identify and explain the relevant facts, procedural posture, legal rules, and principles within a court's opinion?
2. Can you identify and articulate the reasoning behind a rule and its application as explained within a court's opinion?
3. Can you write a complete and coherent proof of a conclusion of law that shows your reader the conclusion you predict, states the rules that govern that conclusion, explains and analyzes those rules and shows how they operate, and applies them to the facts of your case?
4. Can you draw meaningful analogies or make relevant distinctions between the facts of precedent cases and the facts of your client's case?
5. Can you apply the reasoning drawn from precedent cases to the facts of your case to show your reader why and how that reasoning should lead to the same or a different result?
6. Can you communicate in "plain English" with appropriate punctuation, grammar, and style to avoid legalese, unnecessary jargon, and other styles that call attention to the writing itself or that in other ways obscure or distract attention from your meaning?
7. Can you identify, plan, and implement a complete and effective research strategy to solve a legal problem? As you research, can you use finding tools, primary and secondary sources, and updating tools?

A. Our Specific Projects

With these learning objectives in mind, we were ready to consider the instructional resources and learning activities that would enable students to meet the stated objectives. Again, we had several existing learning activities we had used successfully in our classes, but for purposes of this project, we tried to start with a clean slate. After discussing a long list of potential activities and resources, we decided to focus our efforts on four initiatives. First, we chose to create an instructional activity to help students learn

to read cases more effectively. Second, we decided to create a database of annotated sample memoranda highlighting organization, analysis, and application to show students a variety of examples of legal analysis and writing. We believed that coupled with instruction and discussion of these principles in class and individual conferences, the annotated samples would give the students concrete references to which they could turn. Third, we wanted to find a way to improve the lecture portion of our legal research instruction and make that instruction more accessible for student use and review. Finally, we decided to make our existing grammar, punctuation, and usage diagnostic test available to students for pre-school use in an attempt to have students arrive in class ready to move forward. We also wanted to make the feedback mechanism of the diagnostic more useful for the students and more comprehensive for the faculty.

After we identified these four activities and resources, we were finally ready to examine how technology might fit into our instructional design. The remainder of this Article will describe each of the four activities; explain how we chose to implement technology in their creation and delivery; illustrate the technologies used and resources required; and discuss our experiences with—and our students' reactions to—the activities.

1. Reading Cases Video

Our first project was aimed at helping students accomplish our first two learning objectives: identifying the elements of a court's opinion and articulating the reasoning behind a rule and its application. (While an in-class lecture or discussion could be used to teach principles for reading cases, we lack the time in the first-year Orientation Week to teach this material.) But research has tied critical case reading to a student's ability to write about his or her analysis of complex legal issues and problems,[79] so mastering strategies for reading cases is fundamental in progressing as a legal writer. Technology-based instruction outside of the classroom seemed heaven-sent to teach students how to read cases like a lawyer.

The reading strategies we wanted to teach students were based on work done by Mary A. Lundeberg, who had observed and

[79] *See* Dorothy H. Evensen, *To Group or Not to Group: Students' Perceptions of Collaborative Learning Activities in Law School*, 28 S. Ill. U. L.J. 343 (2004).

analyzed the reading practices of law professors and practicing attorneys with at least two years experience.[80] Lundeberg's method involved observing those experts along with an equal number of "novices": men and women with at least a Master's degree who were assumed to be "good readers." They were all asked to read two contracts cases that were typical of first-year contracts cases in difficulty, length, and style of writing. They were then asked what the relevant facts in the cases were, what the issues were, what the rules in the cases were, and what the judges' reasoning was all about—the same things we ask our students to do. To encourage her subjects to think aloud, Lundeberg interjected questions based on the subjects' actions such as, "'What are you looking at?' 'What are you smiling at?' 'What caused you to say, "Aha!?"'[81] She recorded the time each subject took to read each page as well as the verbal and nonverbal messages she heard or observed.[82]

Lundeberg identified six strategies used by the experts in reading the cases: (1) context ("attending to (a) headings, (b) the parties involved in the case, (c) the type of court, (d) the date [of the opinion], and (e) the name of the judge"); (2) overview (previewing the length of the opinion and the decision rendered, marking the procedural posture while reading, summarizing the facts); (3) rereading analytically (selective rereading and marking the text); (4) underlining the text; (5) synthesis (pulling together the underlying threads, tying together the facts, issue, rule, and rationale into a cohesive whole); and (6) evaluation (approving or disapproving of the judge's ruling).[83]

Not surprisingly, the novices all experienced confusion in reading the cases. Some attributed the defect to themselves: "I feel like an idiot. Why is this so hard for me to figure out? I didn't get much sleep last night. I don't have any idea what the issue is: I lost my concentration on the second page."[84] Some attributed the defect to the text rather than to themselves: "Now I know why law students drink so much. Do law students really have to read this junk?"[85]

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[80] Mary A. Lundeberg, *Metacognitive Aspects of Reading Comprehension: Studying Understanding in Legal Case Analysis*, 22 Reading Research Q. 407 (1987).

[81] *Id.* at 410–411.

[82] *Id.* at 411.

[83] *Id.* at 412–414.

[84] *Id.* at 416.

[85] *Id.*

With these reading strategies identified, we next asked ourselves what kind of an instructional format we could use to teach those strategies.

The acquisition of expertise of any kind is linked with the use of stories, in part because they provide a context and allow students to relate new information to something familiar. Stories can engage students in this learning objective through practical reasoning. An anthropological study of Xerox repair technicians concluded that not only did they learn from formal training programs, but also through examining actual problems.[86] In particular, they learned from the "stories tech-reps tell each other around the coffee pot, in the lunchroom, or while working together on a particularly difficult problem."[87] A story format would work well in our instructional format because from our first picture books to the most sophisticated plays and novels, stories usually engage us the most.[88]

In fact, cases themselves are the perfect story format. The drama in law is most apparent in cases, for the very nature of the adversarial system entails conflict: each case must involve two or more parties whose interests are in opposition. What we needed was a terrifically interesting case that would be accessible to first-year law students, one with a controversy implicit in the facts and with an interesting cast of characters. In a case, the stories are not developed as much as those by a skilled author with a sense of pacing and emotional nuance.[89] Cases turn rather technical when they turn away from the facts—the story—but there are reasons for the dryness, and these were things we wanted the students to observe: the role of the judiciary, the nature of a legal system, and the policy reasons behind the issues. These abstractions become what are most important because the system is premised on cases being decided according to the rules, and so the opinions discuss the rules much more than they discuss the underlying facts. But for first-year law students, the facts had to be accessible and compelling

[86] John Seely Brown, *Research That Reinvents the Corporation*, 68 Harv. Bus. Rev. 102 (Jan./Feb. 1990).

[87] *Id.*

[88] Mary Whisner, *Story Time in the Law Library*, 96 L. Lib. J. 371 (2004).

[89] Foundation Press has begun publishing a series of books including essays examining the stories behind leading cases. *See e.g. Tax Stories: An In-Depth Look at Ten Leading Federal Income Tax Cases* (Paul L. Caron ed., Found. Press 2003); *Tort Stories* (Robert L. Rabin & Stephan D. Sugarman eds., Found. Press 2003).

and set the stage for the abstractions we wanted to teach through Lundeberg's strategies.

Enter *Costanza v. Seinfeld*,[90] a case used in our textbook.[91] In the case, Plaintiff Michael Costanza, a college roommate of entertainer Jerry Seinfeld, claimed that his name and likeness were being appropriated by the show *Seinfeld*. He claimed that, like him, the television character George Costanza from Jerry Seinfeld's television series was short, fat, and bald; that like the television character, Michael Costanza also knew Jerry Seinfeld from college; that both Michael Costanza and the character George Costanza purportedly came from Queens, New York. The plaintiff asserted that the self-centered nature and unreliability of the character George Costanza were being attributed to him, and this humiliated him. Because most of the law students would be familiar with this television series, students would already have a context for the case; the facts would be accessible, compelling, and set the stage for learning Lundeberg's strategies.

We wrote the script for our film, *Reading Cases Like a Lawyer*,[92] with the case *Costanza v. Seinfeld* as a centerpiece. To point out the discrepancies between how lawyers and students read cases, the characters in the film are attorneys and film students attending a "Media and the Law Seminar," where the case will be read and discussed. The film was to be short; we did not have enough resources to embark on a major motion picture, so the key principle in the film became the message that lawyers *read* cases differently than undergraduates or graduate students do and that we can teach them how to read like lawyers. There is also the hint that lawyers *write* differently and *research* differently than incoming first-year students.

The film begins with a voice-over as the title of the film and the credits roll by:

> By now you're adept at figuring out what your professors have wanted and then regurgitating it back. It doesn't work that way in law school. Simply figuring out what "they want" isn't enough. Instead, within the confines of legal precedent, it's your

[90] *Costanza v. Seinfeld,* 693 N.Y.S.2d 897 (Sup. Ct., N.Y. County 1999).

[91] Richard K. Neumann, Jr., *Legal Reasoning and Legal Writing* 49–50 (5th ed., Aspen Publishers 2005).

[92] A copy of this film, *Reading Cases Like a Lawyer*, can be obtained from Kristin Gerdy, Director of the Rex E. Lee Advocacy Program, Brigham Young University, 457 JRCB, Provo, Utah 84602. Please enclose a check for $5.00 made payable to J. Reuben Clark Law School with your request to cover copying and mailing costs.

> originality that matters. What is the right answer? Well, in the law there is never just one right answer. Thinking like a lawyer means seeing all the angles, and that begins with reading cases. There are strategies for reading cases. Let me show you.

Next, a man and a woman are shown watching an episode of *Seinfeld* in their home. The man is identified as a lawyer "who knows how to read cases." There is a cut to another woman and man in another house watching the same *Seinfeld* episode. The woman is identified as a broadcast journalism student "who has never read a legal case."

The next scene occurs in a "Media and the Law Seminar," and the camera scans an audience of lawyers and non-lawyers with "our" lawyer and "our" broadcast journalism student both present as attendees. A preliminary discussion of the case, *Costanza v. Seinfeld*, is going on with the instructor passing out copies of the case for everyone to read. The lawyers obviously know what they are doing and take out pens to annotate the case as they read. The non-lawyers' facial expressions show that they are confused and slow in understanding what they are reading.

The instructor calls time and begins questioning the attendees: what are the facts of the case, the issues before the court, the rules the court applied, and the rationale behind the court's holding? The film makes it obvious that the lawyers in the group have had no trouble reading and understanding this case; they are able to answer the instructor's questions with ease. The non-lawyers are hard-pressed to state what the facts are or to identify issues, holdings, or the court's rationale.

The narrator next identifies the strategies lawyers use for reading cases, starting with the premise that lawyers always have a *purpose* for reading cases, for instance, reading to see how the law has changed or for understanding an area of law that is not clearly defined. The film then identifies the strategies for reading cases like lawyers do, speaking directly to the viewer and showing the strategies being used:

> 1. Put the case in context. This strategy includes identifying the parties, the court hearing the case, the date of the decision, the judge writing the opinion, any headings in the case, and the number of pages in the case.
>
> 2. Read the case for an overview. The overview reveals the case's structure because most cases follow a pattern: (a) First, there will be a summary of previous legal proceedings and who won in the prior court. A case will have a

longer procedural history if it has been appealed to a higher court. (b) Next, the issue or dispute, or why this particular case is in court, will be identified. (c) Then the facts follow. They tell what happened, to whom, and why. (d) Finally, the decision is often found at the end of the case, and the rule is usually stated in the paragraph or two preceding the decision in language like, "The rule is not disputed . . ." or "We are asked to hold that . . . ."

3. Reread analytically. This rereading is the third strategy and is the time to identify legal terms and to make sure that the readers grasps the facts, the rule of the case, and the decision the court made on each particular issue.

4. Mark certain key information such as the date of the decision, issues, rules and any important terms that need to be identified.

5. Synthesize the elements of the case. How do the issue, the decision, the rule and reason for the rule fit together? Do you understand why the court decided the case as it did? Once these main ideas of the case come together, you can generate hypothetical questions and situations. For instance, what would have happened if some of the facts had been different? What would have made the court decide differently?

6. Evaluate the result. Do you approve or disapprove of what the judge did? How did the judge make the decision?

The film ends with both the lawyer and the student in his and her respective home watching another episode of *Seinfeld.*

How does a law school go about making a movie? BYU has an excellent film program attached to its Department of Theatre and Media Arts. After inquiring, we found out that our project would qualify for a senior film student's required project. As a senior film project, all camera use would be without charge, and the student director[93] and the camera crew would receive university credit for their work, and there would be no charge for their services. We drafted law students, faculty members, and friends to be actors, and used university sites and family members' homes for sets.

We met with a film faculty mentor and committee in the theatre department with a budget (worked out by the senior film student) and schedule for filming. The film department gave permis-

[93] Our very capable and talented director was Christian Sanford, then a senior in BYU's film department.

sion for equipment use and location, and approved the school credit for the senior film student and student camera crew.

We next met with the dean and technology committee in the law school with a budget, a schedule, and the reason for the film; they approved our budget. The order of whom we approached first and when was tricky: we needed a fleshed-out project before we could see the dean and get approval for the budget. The budgeted items were for film, film processing, editing, transfer charges, food,[94] and some props. Our total cost was about $2,300.[95]

The entire production process was completed in a matter of weeks. We handed the senior student director a completed script in June; we filmed for three days in July; the film was processed and edited in late July; the final editing with titles, music, and credits was finished in early August; and we posted the film to the law school web page before school started at the end of August.

We require our incoming students to watch the film, *Reading Cases Like a Lawyer*, before the first day of class through our law school's web page. About two weeks into the semester, we hold a workshop with the students where we show the film again and review in depth Lundeberg's strategies for reading cases. Not only do the students enjoy this assignment, but since we have been using the film, we have noticed that students are clearer on what "rules" are in cases, and how those rules can be applied in their memoranda right from the beginning of the first semester. This has been especially helpful because our Legal Writing and Research program is now able to teach students to think like lawyers in practical contexts even before the first class. Students transform doctrinal learning into action by integrating legal analysis with practical skills—the most important of which is writing. By offering students information on how to critically read cases like lawyers before the first class even begins, we met our teaching objective through the application of technology.

2. Sample Memo Database

Our second project was designed as a first step toward our students' accomplishing our third, fourth, and fifth learning objec-

[94] Actors' caveat: they may work gratis, but they will not work hungry.

[95] Another film project at the law school concurrent with ours had been budgeted at $20,000. We came in under our budget, and that project had cost overruns of $5,000. Needless to say, the dean was very happy with our project.

tives: writing a complete and coherent legal analysis, drawing meaningful analogies and distinctions, and applying reasoning from precedent cases to the facts of their case. As all legal writing professors know, students beginning to do legal analysis and writing need to see a variety of samples; these samples serve as models for both their writing and their analytical processes.

Our second learning resource was a database of annotated sample memoranda highlighting organization, analysis, and application, and was designed to show students a variety of examples of legal analysis and writing and to explain both the elements and the strengths involved therein. We decided to create the database in an electronic format and believed this project would be an effective and productive use of technology because it would "reinforce, enhance and elaborate on teacher-taught concepts."[96]

The annotated memos would reside on our course websites and would be available to all Advocacy students at any time throughout the course. These sample documents were designed to be used as supplements both to in-class instruction and discussion of these principles and to individual conferences with both faculty and teaching assistants. The annotated samples would give the students concrete references to which they could turn for explanation and modeling. Admittedly, this was not a novel idea and was simply built upon sample memos we had all distributed in our classes. In the past, we have had a limited number of annotated and unannotated sample memoranda available to students. What made the resource more meaningful was the depth of the collection. Instead of giving students access to one or two memos, this online collection would be able to provide not only a greater number of sample memos, but also a wider variety of sophistication in the analysis and writing styles and means of organizing them in a way that shows students a progression from very simple to highly complex legal questions.

Creating this resource did not require any new technology. Because we use Microsoft Word's revising and commenting features to critique student papers, we were able to easily incorporate these same tools to annotate the sample memos.[97] This format also assisted our students as they referred to the samples before their

[96] Santovec, *supra* n. 71.

[97] Although we created the annotated documents in Word, we posted them in .pdf format on our course websites, so students could not download and use the documents as templates for their own memos.

first assignments were due, thus preparing them for the look and feel of the critiques they would receive on their own memos. Some of us went so far as using some of the same language or referring specifically to comments on the annotated samples while critiquing early student memos.

The students responded well to the online samples. They appreciated their availability and the depth of the annotations—they commented that they wished there were more samples available (which is something we are continuing to work on, time permitting). Further, problems we had encountered when distributing a single sample memo were lessened, if not eliminated, because of the variety of sample documents. For example, when we distributed a single sample memorandum dealing with a standing issue, several first-year students would submit their first memos (which did not involve a standing issue) with reference lines, questions presented, and conclusion statements that made reference to their clients' "standing" in the case. In hindsight we realized that the students were merely copying the language from the sample memo without understanding its relevance to the issue in the case. With a variety of sample memos addressing different issues, students were more easily able to see that standing was merely an issue in the case and not something that would be replicated in all memos.

3. Legal Research Videos

Our third learning activity was aimed at our seventh learning objective: identifying, planning, and implementing complete and effective research strategies. The project was initially designed to address an issue common to many legal research and writing courses: a need to improve the lecture portion of our legal research instruction and make that instruction more accessible for student use and review.[98] This activity involved creating a series of seven legal research "lectures" that were distributed to students on CD-ROM and posted on the course website.[99]

[98] Although that need was the impetus for the project, the learning activity became much more important as a law school faculty decision not to begin any classes early meant that we lost nearly six hours of instruction time during Orientation Week—the time during which the majority of our in-class legal research lectures were held.

[99] Unlike the other learning resources and activities discussed in this Article, the research videos were prepared by a single faculty member for use in a single section of the course. The reason for this limitation is two-fold: first, the activity was a fairly radical departure from the norm and as such was entered into with a bit more caution, and second, the section in which the videos are used is the only section in which research is taught by

The legal research video series is based on a "blended learning" model that involves (1) technology-based delivery (content in electronic format that the students can access and revisit at their own pace); (2) face-to-face processing (an in-class component, which we believe is necessary because contact and interaction are required for deeper understanding and application of the concepts); and (3) creating "deliverables" and working collaboratively (assignments and other tangible evidence that students have acquired the knowledge and skills taught and that allow them to share insights and knowledge with other students).[100] The videos themselves present the content. After the students viewed the videos outside of class, we were able to discuss the concepts in class, answer questions, and discuss how the research resources would be used to solve the problems posed in their memoranda assignments. We were also able to use some class time to go together to the law library and practice using the sources themselves. Finally, students had to work collaboratively to demonstrate their mastery of the content and its application by completing a series of research questions about both the results and the process of their research.

We created the videos after having used a series of PowerPoint presentations as the basis for in-class lectures for several semesters.[101] Using these presentations as the basis, we used Microsoft Producer, a free add-on to PowerPoint, to create and add video content. We filmed the video using a simple web-camera mounted on a computer monitor in a faculty office. The faculty member being filmed simply gave her regular lecture to the camera and used a computer mouse to synchronize the PowerPoint slides with the video.[102] The final result is a presentation with the PowerPoint slides in the main screen and video of the professor in a smaller screen to the side of the slides. Students can fast-forward, rewind, or jump to individual slides within the presenta-

the legal writing professor and not by a law librarian team-teaching the course.

[100] Craig Barnum & William Paarmann, *Bringing Induction to the Teacher: A Blended Learning Model*, "The Model," www.thejournal.com/magazine/vault/a4158.cfm (Sept. 2002).

[101] A copy of the legal research video CD-ROM can be obtained from Kristin Gerdy, Director of the Rex E. Lee Advocacy Program, Brigham Young University, 457 JRCB, Provo, Utah 84602. Please enclose a check for $5.00 made payable to J. Reuben Clark Law School with your request to cover copying and mailing costs.

[102] The technical details of video production are beyond the scope of this article, but suffice it to say that Producer is an intuitive program that does not require previous experience with video production or editing. In fact, creating the video presentations took only slightly longer than creating the original PowerPoint slides did.

tion using standard navigation buttons and a "table of contents" view of slide titles.

While developing these videos, two hallmarks of quality online instruction were reinforced for us. First, we found that it was essential to develop a template for the lectures so they would have a consistent look and feel.[103] Second, we found it necessary to explain offline how to use the materials.[104] While most students were familiar with the CD-ROM format and were able to access the video materials easily, a few encountered serious frustrations that could have been alleviated by simple, written instructions packaged with the CD-ROM itself—something we will include for future classes.

Student reactions to the videos were overwhelmingly positive. The students enjoyed the ability to watch the lectures on their own time and at their own pace. They also appreciated the ability to review material they did not fully understand on first viewing. While we had wondered whether a simple narrated PowerPoint presentation would produce the same results, the students commented that they liked the video box showing their professor sitting in her office "talking to them."

The videos also appear to have helped the students learn the legal research concepts involved as well as the in-class lectures would. During the fall 2004 semester, one section used the video in place of in-class legal research lectures. The videos were supplemented with short in-class discussions of the research processes involved and with hands-on research assignments. At the end of the semester, these students were given the same legal research exam as the other five sections of the course that had experienced live, in-class lectures. There was no measurable difference in scores between the students who were instructed by video and those who were instructed in the classroom. Overall, the legal research videos were among the most successful of our learning activities.

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[103] Marianne C. Bickle & Jan C. Carroll, *Checklist for Quality Online Instruction: Outcomes for Learners, the Professor, and the Institution,* 37 College Student J. 208, 212–213 (2003) (stating that "learners benefit from consistency in the format of lecture presentation notes").

[104] *Id.* at 214.

4. Online Grammar, Punctuation, and Usage Diagnostic Test

Our final learning activity was aimed at our sixth learning objective: communicating in "plain English" with appropriate punctuation, grammar, and style. This project involved converting our existing grammar, punctuation, and usage diagnostic test to an online format so that it would be available to students for preschool use, allowing us to know where each student stood as early in the semester as possible.[105] The online format would make evaluation much faster and would also make the feedback mechanism of the diagnostic more useful for the students and more comprehensive for the faculty.

In the past, students took a pencil and paper version of the diagnostic test during Orientation Week. Some test preparation tools were available to the students online, but few took advantage of them because they were so busy during Orientation Week that they did not want to take the time to prepare for a test that would not become part of their Advocacy grade. Because the students took the test before the university semester began, the university's testing center and scantron equipment were not available for us to use, so the test had to be scored by hand. Then the Advocacy secretary had to record the scores, e-mail the students a list of the questions they missed, and tally up how many students missed that question. She also had to keep track of the students who had not taken the test and notify them.

When the students received their e-mail from the Advocacy secretary telling them which questions they had missed, they also received a grid that listed the questions on the test by error type. They were asked to find the question numbers they missed, so they could identify which types of problems they needed to work on. Because the students had to fill in the grid themselves, very

[105] Before writing our diagnostic, Alison Craig, the Legal Writing Specialist, created a list of what she felt were students' most frequent and most glaring errors. After consulting with the rest of the legal writing faculty, she had a list of twenty-five types of punctuation, grammar, and usage problems on which we wanted to test the students. Similar to the diagnostic used at Seattle University, Diagnostic Test for Grammar, Punctuation, and Mechanics in Laurel Currie Oates et al., *The Legal Writing Handbook: Research, Analysis, and Writing,* A-1 to A-11 (Prof. annot. ed., Little, Brown & Co. 1993), our diagnostic is based on a piece of legal writing: using a sample office memo written by a teaching assistant concerning a simple legal problem. Professor Craig adapted the memo to include from three to five examples of each type of problem, some of them correct and some incorrect. Like the Seattle University diagnostic, our diagnostic asks students to identify underlined portions of the memo as correct or incorrect.

few students took the time to do it, so they did not understand the kinds of problems they consistently missed and thus did not know what punctuation, grammar, and usage rules they needed to study. The students encountered another problem with feedback: if they wanted explanations of the questions missed, they had to read a booklet containing the explanations in the reserve library, another time-consuming exercise. Not surprisingly, only a few students took the time to read the explanations to learn from their mistakes. The Advocacy faculty also worried about placing the answer key on reserve because of the risk a student would simply copy the entire booklet so students in future years would have the answers to all of the questions. In terms of feedback on the test, the faculty was also handicapped: the only report they received simply listed their students' scores on the diagnostic.

Because the pencil and paper version of the test was so cumbersome, we felt the diagnostic was ideally suited to being made available on the Internet. Since the law school has an excellent technology support staff,[106] we approached them about converting our diagnostic to an online tool. We discussed how the students would access the test, how the test would appear on the computer screen, how students would receive feedback at the end of the test, and what information from the test would be provided to the Advocacy faculty.

We met with the technology staff in June. By mid-July, they had created a sample of the test. As we tried out the test and discussed it with each other and with the technology staff, we worked together to solve the problems we encountered. Since we did not have a way to set a time limit on the test—as we had done with the pencil and paper version—we decided instead to tell the students how long we expected the test to take and that the length of time they took on the test would be recorded and sent to their writing professor along with their score. We reasoned that the student who was tempted to take the test in fifteen minutes might decide to spend more time on the test; likewise, the student who wanted to spend three hours on the test might also reconsider. Although we told students to expect to take the test in fifty to seventy-five minutes (seventy-five minutes being the time limit for the pencil and paper version), students took the online version more quickly:

[106] Our thanks especially to Vance Everett, Systems Manager, who provided the technological skills to make the diagnostic available online.

the median time for the taking the online version was thirty minutes.

We also wanted to allow students to take the test more than once if they wanted to—something that required too much work and supervision with the pencil and paper version. However, we did not want to receive the students' scores after they had taken the test multiple times. Our technology staff suggested that the first time the students took the test, their scores would be reported to their Advocacy professor. Thereafter they could retake the test as many times as they liked, but those scores would not be reported.

We found our problems with feedback could also be easily solved online. When the students finish the online test, they receive their score and see the grid that shows them their errors grouped by problem type. Thus, they immediately see the pattern of their errors and know, for example, whether they missed one, two, three, or more questions on commas with items in a series. If the students want to see an explanation for any question, they simply click on that problem number on the grid, and they see an explanation for that question only.

The reports for the Advocacy teachers show the entire class and each section with highest, lowest, and median scores as well as the amount of time each student took to complete the test. The computer tallies the number of students who missed each question, and the professors can see and print each student's error grid. In addition, the computer tracks which students have and have not taken the test.

The complete diagnostic was online two weeks before the semester started, and after some testing, it was made available to the students along with the online preparation aids: a two-page description of the rules they would be required to know on the test, a short practice test, a fifty-minute PowerPoint presentation on most of the rules, and a second fifty-minute PowerPoint presentation that reviewed the more difficult rules and explained the rest of the rules they would encounter on the test. As in the past, the students were required to take the diagnostic before the semester began, but now all the information they needed, all the preparation tools, and all the feedback were available to them in one convenient location: online.

We believed our plan was good, but we wondered just how much students made use of the extra time and online tools. Although we had not collected data from previous years when the

students took the pencil and paper version of the test, our impression has been and anecdotal reports from students have confirmed that almost none of the students used any of the preparation tools because the students were too busy with other work; thus, even though the same four tools were available online, the students made almost no use of them. To gauge the effectiveness of the new format, we asked the students to participate in a survey—online, of course. The survey clearly shows that our work to put the diagnostic online did make a big difference in how the students prepared for the diagnostic and how much they used the available feedback. According to information from the survey, most of the students, approximately 77%, used at least one of the four online preparation tools available to them. Approximately 18% used all four online tools; another 13% of the students used three of the tools, and 25% used two online tools.

The survey results showed the students' use of the online feedback for the diagnostic was even more impressive. In the past we usually found that only one or two students had done more than just look at their scores because the feedback mechanism required so much work on their part. This year, in contrast, 93% of the students did more than just look at their score: 80% looked at the grid that showed their errors grouped by question type—perhaps not surprising because their overall score was displayed on the same page as the grid; 47% looked at the explanations for some of the questions they missed—now accessible at the click of the mouse on the error grid; 20% looked at the explanations for all of the questions they missed; and 21% printed out or saved copies of the grid showing their errors by question type.

In addition to the advantages to the students, the faculty members were also able to see not just their students' scores but also how long each student took on the test, which types of questions they missed, and average and median scores.[107] Finally, the information gained from the diagnostic this year will be used by the writing specialist to evaluate the effectiveness of the diagnostic, something she has not been able to study as thoroughly in the past.

To sum up, we found that when we put the diagnostic online, it became the evaluation and teaching tool we had always wanted

[107] We found that one student who took the test in less than nine minutes had clearly guessed on every answer—her score was less than 50%! We required her to retake the test, print out her score sheet, and deliver it to her professor and to the writing specialist.

it to be. The students were able to take the diagnostic before the rush of other work; they had time to use the online preparation tools; they received immediate and detailed feedback; and the students who wanted—or needed—to retake the test were able to do so. The professors also received more feedback that they and the writing specialist can use to help the students improve their writing. With the information we have from the online version of the diagnostic, we can even improve the diagnostic itself.

V. CONCLUSION

Three factors motivated us in our desire to use technology to enhance our teaching and expand our classroom walls: the trend in legal practice toward the use of more technology, the technological expertise of our students, and our understanding of student-centered learning theory. Despite these general benefits, we see technology as a tool that should be used only when it fulfills a specific purpose and is suited to a specific learning objective.

Based on our learning objectives, we identified four activities in which technology could help us teach our students. The case reading video helps students understand that they will need to learn to read in a different way, helping us fulfill our first two learning objectives. The video provides an interesting introduction to the subject of reading cases using a case that the students can relate to from their past experience. The sample memo database helps us with our third, fourth, and fifth objectives: students need to be able to write a complete and coherent proof of a conclusion of law and make meaningful analogies and distinctions. The legal research videos provide the students with information to help them effectively research a legal problem, our final objective. The online diagnostic gives the Advocacy faculty and students feedback on their ability to follow legal conventions of punctuation, grammar, and usage, another of our learning objectives.

We have been able to create and put into use these tools with modest amounts of money and in a reasonable time period of a few weeks over the summer. We believe that if technology is thoughtfully used and learning objective-focused, it can be more than just a new way to present the same information. It can become a powerful tool that helps us in our task of teaching students to become effective legal researchers and writers.