TAKING BACK THE LAW SCHOOL CLASSROOM: USING TECHNOLOGY TO FOSTER ACTIVE STUDENT LEARNING[*]

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Law schools (and indeed all of higher education) have witnessed an explosive growth in the use of technology in the classroom. Many law professors now deploy a wide array of technological bells and whistles, including PowerPoint slides, web-based course platforms, in-class Internet access, and the like. Students, in turn, increasingly come to class armed with laptop computers[1] to harvest the fruits of the classroom experience.[2] Yet in recent years there

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[1] Or keyboards linked to personal digital assistants ("PDAs").

[2] At many schools, some students no longer do their own harvesting and instead pay academic sharecroppers for verbatim transcripts of class notes. See, e.g., Marcella Bombardieri, BU Tries To Fail Business Selling Lecture Notes, Boston Globe, Oct. 25, 2003, at B1; Anne Martinez, College Note-Taking Services Bring on a Controversy, Philadelphia Inquirer, Jan. 23, 2000, at A11; Kimberly Owings, Why Go To Class When You Can Buy the Notes?, Denver Bus. J., May 3, 2002, at F1. In addition, several web sites offer outlines of specific law school courses posted by students. See, e.g., <http://www.jd2b.com/outlines.html> (last visited Dec. 19, 2003); <http://www.ihatelawschool.com/LawStudents/ClassOutlines> (last visited Dec. 19, 2003).

has been somewhat of a backlash, with various law professors arguing that this technology is interfering with, rather than improving, pedagogy in the classroom. According to the critics, this technology increases student passivity and thus interferes with the active learning that should be the hallmark of a law school classroom. In addition, the critics complain that laptops provide too much competition for the students' attention, enticing them to play computer games or DVDs and, with in-class Internet access, to read and send email (or instant messages), shop on-line, or check out the latest political, financial, or sports news. This Essay opens a new chapter in this debate, explaining how law professors can use both old and new technologies to increase student engagement in the classroom.

We first lay out the pedagogical case for creating an active learning environment in the law school classroom and then examines the critics' charge that technology impedes these goals. The Essay offers a competing vision of how technology can be harnessed to increase active student learning and, in the process, empower students to resist their laptop's siren song. In particular, we describe how we combine both old (substituting word processing text for PowerPoint slides) and new (using handheld wireless transmitters) technologies to inject more active learning into our classes.

I. THE IMPORTANCE OF ACTIVE STUDENT LEARNING
IN THE LAW SCHOOL CLASSROOM

During the 1980s, education scholars led by Zelda Gamson and Arthur Chickering developed the *Seven Principles for Good Practice in Undergraduate Education*[3] as part of an effort to improve the quality of teaching in colleges and universities. The seven principles, which have been at the forefront of a revolution sweeping undergraduate education, are:

- Encourage student-faculty contact
- Encourage cooperation among students
- Encourage active learning
- Give prompt feedback
- Emphasize time on task
- Communicate high expectations
- Respect diverse talents and ways of learning

These principles have made much headway in legal education in recent years, beginning with the Institute for Law School Teaching's 1998 annual conference and resulting papers published in a series of articles in this journal in 1999,[4] and continuing with the efforts by the Clinical Legal Educators Association to incorporate the seven principles in their report, *Best*

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[3] See Arthur W. Chickering & Zelda F. Gamson, eds. Applying the Seven Principles for Good Practice in Undergraduate Education 63-69 (San Francisco, 1991).

[4] <http://law.gonzaga.edu/ilst/1998conf.htm> (last visited Dec. 19, 2003); Gerald F. Hess, Seven Principles for Good Practice in Legal Education, 49 J. Legal Educ. 367 (1999).

Practices of Law Schools for Preparing Students to Practice Law.[5] This section focuses on the importance of one of these principles – active learning – in teaching.[6] We first describe the basic contours of the active learning concept and then assess its application to the law school classroom.

A.   General Principles of Active Learning

Active learning is based on two premises: learning by its nature is an active process, and different people learn in different ways.[7] Active learning recognizes that, during classroom time, students should be engaged in behavior and activities other than listening.[8] Active learning requires students to undertake higher-order thinking, forcing them to engage in analysis, synthesis and evaluation. One of us recently noted that "[c]ognitive science teaches that such active learning produces more lasting value to students who are better equipped to process new information and solve new problems within the context of their self-created schemata."[9] Because

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[5] Clinical Legal Educators Association, Best Practices of Law Schools for Preparing Students To Practice Law (July 30, 2003 Draft) <http://professionalism.law.sc.edu/news.cfm#CLEA> (last visited Dec. 19, 2003).

[6] In Part III of this Essay, we explore how the approach we take to technology in the law school classroom also can further the other six *Principles for Good Practice*.

[7] See Chet Meyers & Thomas B. Jones, Promoting Active Learning: Strategies for the College Classroom 20 (San Francisco, 1993).

[8]   See Charles C. Bonwell & James A. Eison, Active Learning Creating Excitement in the Classroom 2 (Washington, DC, 1991).

[9] Paul L. Caron, Back to the Future: Teaching Law Through Stories, 71 U. Cin. L. Rev. 405 (2002) (faculty scholarship symposium). See also Gary L. Blasi, What Lawyers Know: Lawyering Expertise, Cognitive Science, and the Functions of Theory, 45 J. Legal Educ. 313 (1995); Kevin M. Clermont, Teaching Civil Procedure Through Its Top Ten Cases, Plus or Minus Two, 47 St. Louis U.

less emphasis is placed on the passive receipt of information transmitted by a professor, students must engage in other learning activities during classroom time. These activities include talking, writing, reading, reflecting, and evaluating information received by the students.[10]

Such activities facilitate different mental functions. For example, talking forces the speaker to clarify what she has heard, read, observed, or experienced.[11] Talking also forces the speaker to organize her thoughts so that they make sense and to evaluate the validity and robustness of her own reasoning. Opportunities for talking can be either formal or informal, involving the whole class or small groups, and can be used either to review and summarize materials already discussed or to motivate a new direction for class discussion.[12]

Similarly, writing also forces the student to clarify her thinking.[13] Writing is an important component of active learning because it helps students explore their own thinking.[14] As part of the classroom experience, writing can be particularly useful in giving the professor feedback on how students are internalizing the class discussion. Researchers have identified short writing exercises as particularly effective in achieving both the clarification and feedback functions. For

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L.J. 111 (2003).

[10] See Meyers & Jones, *supra* note 7, at 19-21.

[11] *Id*. at 21 ("The fact is, *we often do not know what we think until we try to say it*.") (emphasis in original).

[12] *Id*. at 23.

[13] Writing "is an essential activity to create order from chaos, sense from nonsense, meaning from confusion: as such it is the heart of creative learning in both the arts and sciences." Toby Fulwiler, Teaching With Writing 44 (Portsmouth, NH, 1987).

[14] See Meyers & Jones, *supra* note 7, at 24.

example, professors can ask students to summarize the most important idea they remember from a particular class discussion, to paraphrase a key element of the material, or to solve a particular problem and then explain how they obtained their answer.[15]

Although somewhat counter-intuitive, both reading and reflecting are critical elements of active learning. Reading forces the student to clarify, not her own thinking, but what others are thinking, or at least the ideas that others are trying to convey. Reading requires the student to engage in "higher-level thinking skills, such as connecting ideas and sources of information, spotting faulty logic in argumentation, recognizing biases or hidden agendas, identifying unsupported ideas, understanding metaphorical levels of meaning, and entertaining other perspectives and points of view on a subject."[16] Reflecting allows students the opportunity "to integrate and appropriate new knowledge."[17] By presenting students with information that challenges what they believe to be true, students are forced to evaluate their preconceptions and formulate new processes and conclusions.[18]

Active learning can be facilitated through a number of learning strategies.[19] For example, students involved in small groups during class engage in talking, listening, and reflection. By

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[15] See, e.g., Thomas A. Angelo, Bridging the Gap Between Education Research and College Teaching, 4 Faculty Dev. 1, 2 (1991); William Zinsser, Writing To Learn (New York, 1988).

[16] Meyers & Jones, *supra* note 7, at 27.

[17] *Id*. at 29.

[18] See generally Jack Mezirow, Fostering Critical Reflection in Adulthood: A Guide To Transformative and Emancipatory Learning (San Francisco, 1990).

[19] See Meyers & Jones, *supra* note 7, at 20.

speaking, students clarify their thoughts; by listening, students reflect on alternative views presented by other group members. Similar active learning activities can be undertaken through other strategies such as case studies and simulations.[20]

B.   *Active Learning in the Law School Classroom*

Compared to the traditional undergraduate classroom, the "learning" that takes place in law school at first glance appears to be significantly more "active."[21] Because of the prevalence of the Socratic method,[22] law students frequently participate in class by orally responding to

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[20] Both case studies and simulations have found their way into the law school classroom. See John S. Applegate, Using Cases as Case Studies for Teaching Administrative Law, 38 Brandeis L.J. 217 (2000) (discussing use of judicial opinions as source of case studies); Paul S. Ferber, Adult Learning Theory and Simulations – Designing Simulations To Educate Lawyers, 9 Clinical L. Rev. 417 (2002) (describing pedagogical uses and value of simulations); Carol R. Goforth, Use of Simulations and Client-Based Exercises in the Basic Course, 34 Ga. L. Rev. 851 (2000) (explaining use of simulations and client-based exercises); Douglas L. Leslie, How Not To Teach Contracts, and Any Other Course: PowerPoint, Laptops, and the CaseFile Method, 44 St. Louis U. L.J. 1289 (2000) (presenting CaseFile method as adaptation of Harvard Business School case study approach).

[21] For detailed discussion of the application of active learning principles in law schools, see Gerald F. Hess, Principle 3: Good Practice Encourages Active Learning, 49 J. Legal Educ. 401 (1999).

[22] See generally Phillip E. Areeda, The Socratic Method, 109 Harv. L. Rev. 911 (1996); Anthony Kronman, The Socratic Method and the Development of the Moral Imagination, 31 U. Tol. L. Rev. 647 (2000); Andrew Moore, Conversion and the Socratic Method in Legal Education: Some Advice for Prospective Law Students, 80 U. Det. Mercy L. Rev. 505 (2003); Joseph Raz, On the Socratic Maxim, 75 Notre Dame L. Rev. 1797 (2000). Brian Leiter on his blog recently called the Socratic method the "scandal of American legal education" and "a pedagogical disaster" because "there is no evidence – none – that the Socratic method is an effective teaching tool." <http://webapp.utexas.edu/blogs/archives/bleiter/cat_law_school_updates.html> (last visited Dec. 19, 2003).

questions fired at them by their professor. Yet when informed by active learning theory, the law school classroom looks considerably more "passive" than is commonly believed.[23]

As practiced in most law schools today, the Socratic method can be described as follows. A professor calls on a student (sometimes with advance notice, more commonly "cold") and begins to probe the student's understanding of one aspect of the day's assignment (typically an appellate court's opinion).[24] The questioning often begins with a discussion of the facts and moves on to identifying the legal rules applied by the court. The student's responses are followed either by a few clarification questions, or ideally (when the student immediately "gets" the right answer) with a series of hypothetical situations requiring the student to apply the concept just learned to other factually distinguishable scenarios. Some professors engage the same student for a relatively long period of time before moving on to someone else; other professors switch to other students quickly and frequently.

On the surface, this Socratic dance appears to jibe nicely with the active learning ideal. The rationale of the Socratic method is that the professor's questions will force the student to

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[23] One commentator has observed that "[l]egal education depends on the active involvement of students in the learning process." Michael L. Richmond, Teaching Law To Passive Learners: The Contemporary Dilemma of Legal Education, 26 Cumb. L. Rev. 943 (1995-96).

[24] Socratic questioning, of course, can occur with methods of law instruction other than the case method. See generally James Eagar, The Right Tool for the Job: The Effective Use of Pedagogical Methods in Legal Education, 32 Gonz. L. Rev. 389 (1997); Cynthia G. Hawkins-Leon, The Socratic Method-Problem Method Dichotomy: The Debate Over Teaching Method Continues, 1998 B.Y.U. Educ. & L.J. 1; Myron Moskovitz, Beyond the Case Method: It's Time to Teach with Problems, 42 J. Legal Educ. 241 (1992); W. David Slawson, Changing How We Teach: A Critique of the Case Method, 74 S. Cal. L. Rev. 343 (2000); Arturo Lopez Torres & Mary Kay Lundwall, Moving Beyond Langdell II: An Annotated Bibliography of Current Methods for Law Teaching, 35 Gonz. L. Rev. 1 (2000).

reason and reflect on the information presented, rather than merely regurgitate that information.[25] Another central component of the Socratic method is the "never-ending" assessment of a concept by testing it against alternative conflicting possibilities.[26] The Socratic method thus theoretically requires the student to constantly engage in reflection, which in turn should help the student clarify her thoughts by testing them against alternatives, leading to higher-order thinking, a critical component of active learning.[27]

A more nuanced view of the Socratic method, however, leads to a very different conclusion. According to Michael Hunter Schwartz,[28] two characteristics best describe law teaching. First, law teaching to a large extent requires students to learn vicariously. Under the Socratic method, professors typically structure classroom interactions with students as a one-on-one dialogue between the professor and one student. Except for the student who happens to be sitting on the "hot seat," no one else actively participates in the dialogue. As Professor Schwartz points out, "[p]rofessors expect that the other students in the classes will learn by watching these interactions."[29] The Socratic method, thus, is based on the assumption, or perhaps the hope, that the remaining students in the classroom not selected to engage in the one-on-one dialogue

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[25] See June Cicero, Piercing The Socratic Veil: Adding an Active Learning Alternative in Legal Education, 15 Wm. Mitchell L. Rev. 1011, 1012-13 (1989) (In the Socratic Dialogue, "[t]he teacher says to the student, 'If you wish to know, you must exert your own intellectual effort. You must work with the data from experience yourself. Through your own inquiry will come knowledge.'").

[26] *Id.* at 1013.

[27] *Id.*

[28] Michael Hunter Schwartz, Teaching Law By Design: How Learning Theory and Instructional Design Can Inform and Reform Law Teaching, 38 San Diego L. Rev. 347 (2001).

[29] *Id.* at 351.

nevertheless will "play along" by mentally following the dialogue, answering the questions to themselves concurrently with the student doing the talking.[30]   Understood in this way, the Socratic method becomes primarily a vicarious form of instruction, where the "thinking" that goes on between the professor and the one student involved in the dialogue "rub[s] off on all the students in the class."[31]

Second, law teaching also involves a large dosage of "self-teaching."[32]   According to Professor Schwartz, "law professors expect students to figure out on their own what the students need to know and what they need to be able to do to succeed in class."[33]   Examples of self-teaching abound. For example, there are a number of skills that students develop at some point in most classes: factual understanding, legal analysis (of cases, statutes, rulings, and regulations), legal reasoning, issue spotting, and drafting. Law professors, however, seldom pause to identify which of these skills are being developed at any given moment. Students thus are left adrift on a Socratic sea and must figure out for themselves not only what the substantive discussion is all about (i.e., what are the facts, what is the law, what is the court's reasoning) but also the professor's instructional goals for that particular class.[34]   The best example of self-teaching relates to the manner in which most law professors evaluate student performance:

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[30]   *Id.* Of course, the Socratic method as practiced by some professors may use fear to motivate students to participate in this fashion with the threat that they, too, may soon be placed on the "hot seat."

[31]   *Id.*

[32]   *Id*. at 352.

[33]   *Id*.

[34]   *Id*.

the dreaded final exam. Although most classroom time during the semester is devoted to probing

the students' case-reading and case-evaluation, these two skills seldom are tested by the

professor. Instead, in the final exam the professor often introduces a completely new skill not

previously discussed or evaluated in class (issue spotting in the context of large, complex factual

questions).

Law school teaching thus fairs poorly when evaluated against the active learning principle

of effective teaching. In the next section, we explore the recent complaint that the use of

technology is exacerbating this problem.

II. THE BACKLASH AGAINST
TECHNOLOGY IN THE LAW SCHOOL CLASSROOM

There has been much commentary on the role of technology in law school teaching.[35]

During the 1990s, the "technology bandwagon"[36] rolled virtually unchecked into law schools.

Technology-savvy faculty raced to bring the latest hi-tech innovations into the law school

classroom. The "early-adopters" brought PowerPoint presentations, web-based course platforms,

and in-class Internet access to their students, followed soon thereafter by many of their

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[35] For early pieces, see Robert C. Clark, The Rationale for Computer-Aided Instruction, 33 J. Legal Educ. 459 (1983); Charles D. Kelso & J. Clark Kelso, How Computers Will Invade Law School Classrooms, 35 J. Legal Educ. 507 (1985); Paul F. Teich, How Effective Is Computer-Assisted Instruction? An Evaluation for Legal Educators, 41 J. Legal Educ. 489 (1991).

[36] Maria Perez Crist, Technology in the LRW Curriculum – High Tech, Low Tech, or No Tech, 5 Leg. Writ. 93, 93 (1999).

colleagues.[37] Simultaneously, many students leaped into this technology embrace as well, with

laptops sprouting up in law school classrooms.   Law schools fueled both trends, adding

personnel and infrastructure support for faculty use of technology in the classroom and

encouraging (and in some cases requiring) students to come to class armed with laptops. By the

mid-1990s, technology had become *de rigour* in law school classrooms on both sides of the

podium,[38] and only faculty or student luddites offered token resistance.[39]

Just as the "triumph of technology" appeared complete,[40] a few voices emerged to urge

caution[41] while others noted a wholesale backlash. In a ringing indictment, Douglas L. Leslie

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[37] See Janice C. Griffith, Recent Trends in Higher Education: Accountability, Efficiency, Technology, and Governance, 52 J. Legal Educ. 528 (2002) ("Most law schools already have moved beyond the early-adopter stage, characterized by the use of technology by only a few faculty members.").

[38] See, e.g., Robert C. Berring, Casebooks, Commentaries, and Curmudgeons: An Introductory History of Law in the Lecture Hall, 82 Iowa L. Rev. 547 (1997); Michael A. Geist, Where Can You Go Today?: The Computerization of Legal Education From Workbooks To the Web, 11 Harv. J. L. & Tech. 141, 143 (1997); William R. Slomanson, Electronic Lawyering and the Academy, 48 J. Legal Educ. 216 (1998); Shelley Ross Saxer, One Professor's Approach To Increasing Technology Use in Legal Education, 6 Rich. J.L. & Tech. 21 (1999-2000) <http://www.richmond.edu/jolt/v6i4/article4.html> (last visited Dec. 19, 2003); Stephen D. Sowle & Richard Warner, Cruising the Electronic Classroom, The Law Teacher, Fall 1997 <http://law.gonzaga.edu/ilst/Newsletters/Fall97/sowle.htm> (last visited Dec. 19, 2003); Ronald W. Staudt, Does the Grandmother Come With It? Teaching and Practicing Law in the 21st Century, 44 Case W. Res. L. Rev. 499 (1994); Richard Warner et al., Teaching Law with Computers, 24 Rutgers Computer & Tech. L. J. 107 (1998).

[39] See, e.g., David J. Shakow, Computers and Plagiarism, 42 J. Legal Educ. 458 (1992); Robert H. Thomas, "Hey, Did You Get My E-Mail?" Reflections of a Retro-Grouch in the Computer Age of Legal Education, 44 J. Legal Educ. 233 (1994).

[40] Paul Wangerin, Technology in the Service of Tradition: Electronic Lectures and Live-Class Teaching, 53 J. Legal Educ. 213, 217, 220 (2003); see also Diana R. Donahoe, www.teachinglaw.com: Bridging the Digital Divide Between Law Professor and Law Student, 5 Va. J. Law & Tech. 13 (2000).

[41] See John Mayer, Alternative Futures: The Future of Legal Education, 1 J. Law School Computing (1999) <http://www.cali.org/jlsc/mayer.html> (last visited Dec. 19, 2003) (next five years "will be extremely busy times for all players as we struggle to understand how best to use technology to serve legal education, as the faculty culture becomes more sophisticated in its use of computers and

argued that the use of PowerPoint slides by law professors and laptops by law students destroy classroom interactions and create a passive learning environment.[42]

According to Professor Leslie, PowerPoint slides lull students into a pedagogical stupor[43] as their attention becomes "glued on the PowerPoint slide like a first-grader focuses on Barney."[44] Students fixate on the slides to capture every bit of information to memorize for the examination,[45] becoming "classroom court reporters."[46] Although some professors try to obviate this problem by distributing in advance of class copies of the slides, which the students can annotate in hard copy during class, this creates two additional problems. First, students with laptops become frustrated because electronic copies of the slides are not easy to annotate.

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the Internet and the tools leverage more power into the hands of every one"); Anna Williams Shavers, The Impact of Technology on Legal Education, 51 J. Legal Educ. 407, 412 (2001) (discussing "need for further exploration and study of the use of technology"); see also James L. Hoover, A Vision of Law Schools of the Future, 1 J. Law School Computing (1999) <http://www.cali.org/jlsc/hoover.html> (last visited Dec. 19, 2003) ; Stephen M. Johnson, www.lawschool.edu: Legal Education in the Digital Age, 2000 Wisc. L. Rev. 85; Steve Sheppard, The Role of the Professor in the High-Tech Law School, 1 J. Law School Computing (1999) <http://www.cali.org/jlsc/sheppard.html> (last visited Dec. 19, 2003).

[42] Leslie, *supra* note 20.

[43] For a description of a more extreme condition, "PowerPoint and the Power Nap," see Allison Sulentic, Adventures in PowerPoint, The Law Teacher, Fall 1999, <http://law.gonzaga.edu/ilst/Newsletters/Fall99/sulentic.htm> (last visited Dec. 19, 2003).

[44] Leslie, *supra* note 20, at 1304. If Professor Leslie were writing today, we suspect he would make this same point by shifting his cultural reference to Blue's Clues or SpongeBob SquarePants.

[45] See also Sulentic, *supra* note 43 ("Many professors fear, with good reason, that the use of PowerPoint will dull class participation. Students who are equipped with PowerPoint printouts will simply gaze at the screen and forego note-taking, thinking, legal analysis, etc.").

[46] Robert E. Oliphant, Using "Hi-Tech" Tools in a Traditional Classroom Environment – A Two Semester Experiment, 9 Rich. J.L. & Tech. 5, *39 (2002-03) <http://law.richmond.edu/jolt/v9i5/Article5.html> (last visited Dec. 19, 2003).

Second, distributing the slides in advance of class reduces the incentive for students to attend class and to pay attention in class.[47]

Professor Leslie also bemoans the use of laptops by law students, complaining that they provide an irresistible lure in drawing students' attention away from the pedagogical task at hand. Under this view, beleaguered law professors simply cannot compete with the computer games, DVDs, instant messaging, email, on-line shopping, and political, financial, and sports news available to laptop-equipped students at a click of the mouse.[48]

A 2001 *New York Times* op-ed by Ian Ayres fueled the backlash against law student use of laptops in class.[49] Professor Ayres argued that laptops are uniquely tempting to law students and thus are not simply high-tech versions of daydreaming, doodling, crossword puzzles, and other distractions that have existed since the days of Dean Langdell.[50] Other media accounts soon picked up on this theme, describing the pernicious effect of laptops in America's

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[47] Leslie, *supra* note 20, at 1304 & n.29; Oliphant, *supra* note 46, at 40-43; see also Patrick Wiseman, Internet Access in the Classroom: Who Needs It?, Mar. 2002 <http://jurist.law.pitt.edu/lessons/lesmar02.php.> (last visited Dec. 19, 2003) ("What with the lure of web sites, instant messaging, email, and games, it is a wonder that students with in-class Internet access pay any attention at all."). For another view of the use of PowerPoint slides in law school classes, see Gregory Sisk, Using PowerPoint in Law School Classes and on the Web, Nov. 2002, <http://jurist.law.pitt.edu/lessons/lesnov02.php> (last visited Dec. 19, 2003).

[48] Leslie, *supra* note 20, at 1305-06; Oliphant, *supra* note 46, at 27-34.

[49] Ian Ayres, Lectures vs. Laptops, N.Y. Times, Mar. 20, 2001, at A25.

[50] Other law professors disagree. For example, Albany Law School Professor Daniel G. Moriarity "thinks the laptop brouhaha is much ado about nothing. 'You don't need technology to waste your time,' says Moriarity, who recalls doing a lot of doodles and crossword puzzles during his student days. 'Instant messaging is just a high-tech way of passing notes or throwing airplanes.'" Paul Grondahl, Digital Doodling Students Plus Laptops Can Add Up To Some Serious Goofing Off in Classrooms, Albany Times-Union, Oct. 2, 2001, at D1.

classrooms.[51] Reports surfaced of a University of Texas law professor who took matters into his

own hands, first bringng a ladder to school to disconnect the wireless transmitter in his classroom

and then, the following year, prohibiting all laptop use in his classes.[52] A Georgetown

University law professor roamed his classroom like a latter day Phil Donahue, making sure

laptop users did not stray into forbidden activities.[53]

These critics rightly note that the unbridled use of PowerPoint slides (by law professors)

and laptops (by law students) have had a negative impact in the law school classroom, with

technology easily "getting in the way" of active learning. If, at any given time, only one student

(or at most a very few students) is actively engaged in the class discussion, it is easy to see how

technology, improperly used, can fuel the detachment of those who otherwise should be

vicariously learning. Technology thus can be antithetical to the active learning that should be

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[51] See, e.g., Sara Silver, Wired Classes Give Lesson in Interest of Students; Access To Web Can Turn Off Attention, Chicago Trib., Mar. 12, 2001, at 6; Anna Strongin, Making the Computer and Chalkboard Meet Halfway (Mar. 29, 2001) <http://www.lionstale.org/mar01/dt-1.html> (last visited Dec. 19, 2003); James Warren, Yale Prof Prompts Technological Anarchy, Chic. Trib., Apr. 27, 2001, at 8. One commentator used the Ayres op-ed to caution against giving juries Internet access during deliberations. Nancy S. Marder, Juries and Technology: Equipping Jurors for the Twenty-First Century, 66 Brook. L. Rev. 1257, 1293 n.141 (2001).

[52] John Schwartz, Professors Vie with Web for Class's Attention, N.Y. Times, Jan. 2, 2003, at A19.

[53] Peter Barnes, Classroom Disconnect: Does Wireless Net Access Help or Distract Students in Class?, Jan. 29, 2003 <http://abcnews.go.com/sections/scitech/TechTV/techtv_classnetcut030129.html> (last visited Dec. 19, 2003). Of course, given the size of both the Georgetown student body (2020 students in 2002-03 (Official Guide to ABA-Approved Law Schools 26 (2004 ed.)) and their classrooms (<http://www.law.georgetown.edu/tour/b13.html> (last visited Dec. 19, 2003)), and the ease of switching screens, the effectiveness of such monitoring may be questioned (as well as the physical endurance required of faculty to carry it out − but see <http://www.law.georgetown.edu/tour/gewirz.html> (last visited Dec. 19, 2003) (state-of-the art fitness facility with personal trainers).

the hallmark of law school teaching. In Part III of this Essay, we offer an alternative vision for using technology to foster an active learning environment in the law school classroom.

III. USING TECHNOLOGY TO TAKE BACK THE LAW SCHOOL CLASSROOM

As professors of traditional law school subjects (tax and labor law, respectively), we have struggled in recent years to incorporate in our teaching new technologies that also further the active learning ideal. After much trial-and-error, we now employ a combination of old and new technologies which we believe combine the best features of PowerPoint slides and student laptops, minimize the risks identified by Professors Leslie and Ayres other critics, and foster an active learning environment in our classrooms.[54]   This approach also furthers the other six *Principles for Good Practice* in law school teaching.

A.   Back to the Future[55]

We began our law teaching careers as inveterate chalkboard scribblers and soon graduated to the use of transparencies and overhead projectors. We handed out in class hard

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[54] We offer here an amalgam of the approaches we each take in our respective classes; neither of us employs every technique we discuss here in every class.

[55] (Universal Studios, 1985). Although one of us already has employed this movie title in a law review article, Caron, see *supra* note 9, the only other movie that came to mind with characters traveling back in time − Bill and Ted's Excellent Adventure (MGM Studios, 1989) (to be re-styled Paul and Rafael's Excellent Adventure?) − appeared too unlikely to pass muster with the editors of the *Journal* (and in any event we disagreed about which of us looks more like Keanu Reeves).

copies of charts and tables to students, and we and the students filled in the answers together.[56]

Even at that early stage, we saw the pedagogical benefits of having students participate in the

creation of the in-class work product. As PowerPoint took root in law schools, we initially

struggled with converting charts, tables, and other material we had created in word processing

formats into PowerPoint slides that we could project from our laptop onto a classroom screen.

The effort often was time-consuming, with the only advantage gained a nice color background.

Students participated by taking notes on a hard copy of the slides but were unable to incorporate

this material into their computer-generated class notes and outlines.

We soon abandoned the attempt to make PowerPoint do what it is not designed to do.

Instead, we began using a laptop to project word processing text[57] onto the classroom screen.[58]

This retrograde approach has several advantages over PowerPoint slides,[59] including the ease of

using charts, tables, and other text already in word processing formats in our class notes; our

ability to manipulate the material in class in response to student comments; and the students'

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[56] The students wrote with pen on the hard copies while we wrote with markers on the overhead transparencies.

[57] We, of course, a font much larger than the standard 12-point.

[58] We are not the first law professors to stumble onto this approach. See Melissa Shafer, Sheila Simon & Susan P. Leimer, Not Ready for PowerPoint? Rediscovering an Easier Tool, 11 Persp.: Teaching Legal Res. & Writing 82, 82 (Winter 2003) (describing their "moment of epiphany" when they discovered they could project material in WordPerfect onto a classroom screen just as easily as PowerPoint slides); see also Shubha Ghosh, Letter to Jurist, Nov. 3, 2002 <http://jurist.law.pitt.edu/lessons/lesnov02.php> (last visited Dec. 19, 2003) (describing why he projects word processing program onto classroom screen rather than PowerPoint slides).

[59] There are higher-tech ways to accomplish the same thing, including the use of SMART Board technology. See Crist, *supra* note 36, at 113-16; Peter A. Joy & Kevin C. McMunigal, Teaching Ethics in Evidence, 21 Quinnipiac L. Rev. 961, 970 (2003); Carol A. Roehrenbeck, Preparing Lawyers for Practice in the New Millenium, 51 Rutgers L. Rev. 987, 999 (1999).

ability to incorporate and manipulate the material on their laptops in class and to then construct their course outlines outside of class from this material.

In our early years using this approach, we succumbed to student entreaties and first made the completed word processing presentations available to students after class on the course web site, and later made the presentations available before class. The result was an increase in student passivity, and a decrease in attendance and preparation, noted by Professor Leslie and other critics. In recent years, we have solved these problems by making only a stripped-down portion (typically around 50%) of the presentations available on the web prior to class. We believe this gives our students the best of both worlds. Before class, they get the benefit of our thoughts about organization and structure as they prepare that day's assignment but are left to puzzle over the content and details themselves. In class, they are forced to take an active role in filling in the remaining portions of the presentation, whether on the hard copy they have printed off or on the electronic copy they have downloaded onto their laptop.[60]

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[60] Of course, there are alternative ways of structuring the process of providing students with these materials. For example, in order to cure students of "court-reporter syndrome," see *supra* note 46 and accompanying text, we have experimented with giving students brief "summary notes" at various points during the semester

B.   *Back to the Future II[61]*

Just as the *Principles for Good Practice* first were applied in the undergraduate context before making inroads in law schools, a new teaching technology using handheld wireless transmitters in college and university classrooms[62] is just now appearing in law school classrooms. After first describing this new technology and how we have used it in our classes during the past year, we explain how it contributes to active learning and also furthers the other six *Principals for Good Practice* in law school teaching.

1.   Handheld Wireless Transmitters

Two companies offer competing handheld wireless transmitter systems: the Classroom Performance System ("CPS") by eInstruction Corp. ("eInstruction")[63] and the Personal Response System ("PRS") by EduCue LLC ("EduCue").[64] We became aware of the CPS at the January

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[61] (Universal Studios, 1989). In the first *Back to the Future* movie, see *supra* note 55, Marty McFly (Michael J. Fox) traveled thirty years back in time to 1955. In *BTF II*, McFly-Fox traveled twenty-six years forward in time to 2015. We chose *BTF II*, rather than the only other movie that came to mind with characters traveling forward in time – *Sleeper* (Jack Rollins and Charles H. Joffe Productions, 1973) – because *Sleeper* seemed to be an inappropriate title for a section advancing the active learning theory (and in any event we again disagreed (for different reasons) about which of us looks more like Woody Allen).

[62] See, e.g., Jenna Russell, Campuses, Handhelds Replacing Raised Hands, Boston Globe, Sept. 13, 2003, at A1 (describing use of handheld wireless transmitters at Brown University, Dartmouth College, Harvard University, Rutgers University, University of California-Berkeley, University of Massachusetts-Amherst).

[63] <http://www.einstruction.com> (last visited Dec. 19, 2003).

[64] <http://www.educue.com> (last visited Dec. 19, 2003). Both systems were developed by college professors (eInstruction by Darrell Ward (Texas A&M University) and EduCue by Nelson Cue and Bruce Marsh (State University of New York-Albany and Hong Kong University of Science and

2003 AALS annual meeting when we attended a demonstration by an eInstruction representative. We subsequently adopted the CPS in one of our Spring 2003 classes at the University of Cincinnati College of Law, becoming one of two law schools at the time to use the CPS.[65] eInstruction co-sponsored the Summer 2003 CALI Conference on Law School Computing,[66] and over a dozen law schools later used the CPS during the Fall 2003 semester.[67] We used the CPS in all of our Fall 2003 courses and describe below how it fosters active learning as well as the other six *Principles for Good Practice* in law school teaching.

The CPS is an integrated system consisting of software downloaded onto the professor's laptop, handheld wireless transmitters supplied to students, and a wireless receiver attached to the professor's laptop in the classroom.[68] We use the CPS in two ways in the classroom.[69]

Technology ("HKUST")), their wives, and C.K. Lee (HKUST)).

[65] One of us also used the CPS system in teaching a course during the Summer 2003 session at Florida State University College of Law.

[66] <http://www.cali.org/conference/2003> (last visited Dec. 19, 2003).

[67] For a full list of law schools (as well as colleges and universities) using the CPS, see <http://www.einstruction.com/master_template.cfm?color=navy&link=list_schools&type=Higher> (last visited Dec. 19, 2003). For a list of college and universities using the competing PRS, see <http://www.educue.com/users.htm> (last visited Dec. 19, 2003).

[68] eInstruction offers the CPS in two different packages: (1) a law school purchases the receiver(s) for faculty and the handhelds for students enrolled in courses utilizing the CPS; the school (or professor) registers the students' assigned handhelds for particular courses and there are no further charges either in the current or future semesters; or (2) a law school purchases only the receiver(s) for faculty, and students enrolled in the course each must purchase a handheld (along with their other course materials) from the book store and must register (and pay an additional fee) for the course on the eInstruction web site.

[69] The CPS also provides a number of other helpful functions, including automatically tracking student attendance, creating individualized reports of student performance data, structuring team activities, and organizing and delivering various testing functions.

First, we prepare in advance of each class a series of multiple choice questions which we project onto the screen.[70] We intersperse these questions throughout the class hour, typically after we have first gone over a particular case, statute, ruling, or regulation and then illustrated the applicable rule with a question or problem. Students are required to respond via their handheld, and we then display the correct answer and the percentage of students who answered the question correctly. One of the benefits of the CPS is that it preserves individual student anonymity in the classroom but gives us instant feedback on student comprehension of the material covered. The CPS software automatically tracks the individual student's performance throughout the semester, which we access outside of the classroom and take into account in determining final grades in the course..

In addition to the multiple choice feature described above, the CPS provides a "verbal question" option as well. These questions need not be scripted in advance of class and instead can be drafted by the professor "on the fly" as a result of the class discussion and used to solicit student reactions. This feature is particularly helpful in responding to two concerns that some professors have about using multiple choice questions:[71] (1) the nature of multiple choice questions is too constraining to allow for a meaningful description of the relevant facts and

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[70] The CPS software provides templates for multiple choice questions with as many as five different answers, as well as yes/no and true/false questions.

[71] See Charles B. Sheppard, The Grading Process: Taking a Multidimensional, "Non-Curved" Approach To the Measurement of a First-Year Law Students Level of Proficiency, 30 W. St. U. L. Rev. 177 (2003).

alternatives course of actions regarding a particular legal issue;[72] and (2) multiple choice questions may be suitable for certain technical courses (e.g., tax) but not for other courses (e.g., constitutional law). Although no technology ever will sway a professor who is philosophically opposed to the use of multiple choice questions, the CPS's "verbal question" feature is likely to satisfy the less extreme skeptics. By allowing the professor to compose a question during class and have students register their answers through the handheld devices, the verbal question feature maximizes the professor's flexibility and permits her to construct as complex and sophisticated of a fact pattern as is warranted by the in-class discussion.[73]

2.   The CPS and Active Learning

The CPS responds to the failure of law school teaching to encourage active learning by the entire class. Unlike the traditional Socratic method, which engages *one* student at a time, the CPS extends the dialogue to the entire class by requiring *each* student to respond to *each* question. The CPS thus changes student incentives by promoting active engagement by all students. Because students know they will be asked to respond to questions every ten to fifteen

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[72] Despite this concern, bar authorities have used multiple choice exams in the MBE and MPRE for three decades. See Paul T. Hayden, Putting Ethics To the (National Standardized) Test: Tracing the Origins of the MPRE, 71 Fordham L. Rev. 1299 (2003). Moreover, the Center for Computer-Assisted Legal Instruction has produced 300 lessons with multiple choice questions covering twenty-nine subject areas <http://www2.cali.org/> (last visited Dec. 19, 2003). In addition, law school book publishers have developed new book series with multiple choice questions in a variety of subject areas. See LexisNexis's *Questions and Answers Series* (11 titles) <http://bookstore.lexis.com/bookstore> (last visited Dec. 19, 2003); West Group's *Exam Pro Series* (5 titles) http://lawschool.westlaw.com/studyaids/exampro> (last visited Dec. 19, 2003).

[73] The conventional CPS multiple choice format also allows for the use of detailed fact patterns.

minutes, and not just (if at all) on a final exam several months away, their laptop's distractions (games, DVDs, email, instant messaging, etc.) become easier to ignore. In a very real sense, the Socratic method writ large made possible with the CPS transforms the law school classroom into an active learning environment.

There are, of course, many ways to achieve active learning in the law school classrooms. We use a variety of methods in our classes – with materials as diverse as traditional casebooks, problem-oriented casebooks,[74] *Law Stories* books focusing on the leading cases in a field,[75] and the CaseFile method.[76] The CPS can be used as a tool with these and other materials to increase active learning in the law school classroom:

> [The classroom in which this technology is used] is an active one. Its students are pressing keys on their hand-held devices in response to the instructor's cues and questions. They're listening carefully to the instructor for directions and information, asking the instructor questions, . . . and talking and debating . . . . This active engagement becomes especially relevant in classes of 30 or more. In larger classes, where active learning is often very difficult to implement, its benefits become even more important.[77]

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[74] See Paul R. McDaniel, James R. Repetti & Paul L. Caron, Federal Wealth Transfer Taxation: Cases and Materials (New York, 5th ed. 2003); Paul R. McDaniel, James R. Repetti & Paul L. Caron, Federal Wealth Transfer Taxation: Study Problems (New York, 2d ed. 2003).

[75] See Paul L. Caron, ed., Tax Stories: An In-Depth Look at Ten Leading Federal Income Tax Cases (New York,   2003); Caron, *supra* note 9; Clermont, *supra* note 9; <http://www.fdpress.com/fdpress/text_st.htm#lawstories> (last visited Dec. 19, 2003).

[76] See Leslie, *supra* note 20.

[77] Joan Wines & Julius Bianchi, Extending the Personal Response System (PRS) To Further Enhance Student Learning (2002) <http://www.ssgrr.it/en/ssgrr2002s/papers/159.pdf> (last visited Dec. 19, 2003). Although this paper evaluates the effectiveness of EduCue's PRS in undergraduate education in fostering the *Seven Principles for Good Practice*, as we argue below, the conclusions are equally applicable to the use of eInstruction's CPS in legal education. See also Michael Perry, Real-Time Assessment   in   Instruction   Using   Instructional   Technology

3.   The CPS and the Other *Principles for Good Practice*

Give Prompt Feedback. Closely connected to the active learning principle is the requirement to provide prompt feedback to students.[78] Feedback is defined as "any procedure used to inform a learner of the degree of appropriateness or correctness of a response to an instructional stimulus."[79] Feedback allows the students to assess existing knowledge and competence and, as new information is introduced, to evaluate their ability to assimilate that new knowledge.[80] Feedback can be formative (assists improvement and development) or summative[81] (evaluates performance and compares performance to defined expectations).[82] Feedback either can be general (focuses on broad trends in student behavior) or specific

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<http://www.pdragons.com/conferences/Hawaii--einstruction%20Proceedings.pdf> (last visited Dec. 19, 2003) ("Students are motivated to participate and learn by using an interactive learning system named the Classroom Performance System.").

   [78] See Jon M. Garon, The Seven Principles of Effective Feedback, Institute for Law School Teaching <http://www.law.gonzaga.edu/ILST/newsletters/Spring00.garon.htm> (last visited Dec. 19, 2003) ("Effective feedback should be timely. It must closely follow the students' work to better help them reflect on what they did and why they did it.").

   [79] Susan Rickey Hatfield, The Seven Principles in Action: Improving Undergraduate Education 55 (Bolton, MA 1995).

   [80] *Id*. at 57 ("[Feedback] lets students know not only whether they are on a right track, but why the answer is a good one or what is keeping it from being so. . . . The right amount [of feedback] is that which allows the learner to grasp the nature of the error and suggests an alteration in response.")

   [81] Garon, *supra* note 78 ("Effective feedback should be immediately usable by the student. If students put the feedback into practice immediately, they can build upon the information needed for the next assignment.").

   [82] See Terri LeClercq, Seven Principles for Good Practice in Legal Education, Principle 4: Good Practice Gives Prompt Feedback, 40 J. Legal Educ. 418, 422 (1999).

(pinpoints how a particular response is wrong).[83] Although most of the scholarly attention on feedback in the classroom focuses on the lack of feedback, excessive feedback also can be a problem.[84] Feedback is excessive when it overwhelms the listener, making it difficult to evaluate or sort out the message conveyed by the speaker. To the extent that active learning involves processes intended to take students to higher-order thinking, it is impossible to separate active learning from appropriate feedback. Reflecting cannot occur without feedback, whether the feedback comes from the professor, peers, or self.[85]

The Socratic method, in theory, should saturate the law school classroom with feedback opportunities. The constant questioning of a student, with the corresponding challenge of the student's answer, should provide an immediate opportunity for students to evaluate the validity or strength of their answers. As we noted earlier,[86] however, the validity of this assumption is questionable in light of the vicarious nature of much law school learning. It is not surprising to

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[83] An example of general feedback is a comment such as, "This seminar cannot work well unless you are better prepared," while an example of specific feedback is, "Although you were able to give both rules and apply the two variables, you missed the age distinction." *Id*. at 422-23. Specific feedback allows the student to identify mistakes, to compare their information with that of their classmates, and to incorporate the information just received in the form of feedback into their next project. *See* Garon *supra* note 78.

[84] See Hatfield, *supra* note 79, at 57.

[85] See LeClercq, *supra* note 82, at 424-26 (describing the various sources of student feedback).

[86] See *supra* notes 28-34 and accompanying text.

hear students complain that they have no way of evaluating their level of understanding of the

course material until the final exam, at which time it is too late to take corrective action.

Although law professors intuitively recognize the importance of giving feedback that is

prompt, specific, and helps students identify areas for improvement and further development,

providing this kind of feedback is time-consuming.[87]   Because law schools impose heavy

scholarship and service obligations on faculty, the specter of having to give feedback on student

work repeatedly during the semester would appear to require significant trade-offs in these other

areas (especially given the large size of most law school classes, particularly in the first year).

There are several approaches to providing feedback to students, including mid-term (or

more frequent) examinations,[88] writing exercises,[89] peer critiques,[90] and introspective journals.[91]

Although each of these techniques has some value, and may be particularly well-suited for

particular situations, none give feedback that is at once prompt, specific, and formative. The

CPS, in contrast, fulfills all three of these objectives without imposing undue demands on faculty

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[87] See Cicero, *supra* note 25, at 1019.

[88] See Greg Sergienko, New Modes of Assessment, 38 San Diego L. Rev. 463, 467 (2001) (assessing the advantages and disadvantages of mid-term examinations in law school).

[89] For example, the traditional first year Contracts course can be taught from a "drafting perspective" requiring students to draft provisions in a contract that address a specific substantive doctrinal area discussed in class. See Thomas R. Haggard, Contract Law From a Drafting Prspective – An Introduction to Contracts Drafting for Law Students (Minnesota, 2003).

[90] For example, the professor could require students to write a memorandum on a particular legal issue and have other students critique the content of the document. See LeClercq, *supra* note 82, at 419.

[91] For example, the professor could ask students to respond in writing to a question based on the materials discussed in class and collect the journals (and return them with comments) several times during the semester. *Id*. at 420.

time.   Students receive immediate feedback on their level of understanding of each day's materials. The feedback is specific, as it identifies answers to particular questions. Finally, the feedback allows the student to identify areas of weakness and seek assistance for further development.

Another positive aspect of feedback is the information it provides to faculty on their students' understanding of the material. In prior years, after going over a complicated rule with several illustrations, we could tell from the sea of blank faces looking back at us that a significant portion of the class did not understand the rule at issue. Yet despite our entreaties asking if there were any questions, no student would venture forth to raise his or her hand.[92] At that point, we either pressed on to the next subject, leaving it to the students to unravel the mystery on their own, or we called on a single student to probe his or her understanding. The difficulty with the former approach is that there is no opportunity to discover if the students "get it" until the final exam; the difficulty with the latter approach is that the one unlucky student is not necessarily representative of the class's collective understanding. The CPS gives us immediate feedback on student comprehension and thus helps us decide whether to linger in an area longer than we had planned, with additional explanations and illustrations, or to move on to the next subject:

> [Instructors see] not only how each student has answered a question but also how
> the class as a whole has answered it, [and find] out right away where there are

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[92] We initially attributed this reticence to the Midwestern background of most of our students, but after visiting at other schools, we now view this as a universal character trait of students unwilling to be unmasked in front of their peers. The CPS provides a cloak of classroom anonymity that students cherish and professors can remove outside of the classroom. See Wines & Bianchi, *supra* note 77 ("Students will also risk answers because they are anonymous in the . . . question/answer exchange. . . . [T]he [handheld] devices tend to lower student resistance to admitting ignorance.").

knowledge gaps and misperceptions.   The organic nature of this learning environment allows the instructor to "think along" with the students and formulate new questions for them. The instructor can – immediately – get to the bottom of student misperceptions, clear them up with explanation or other means, and re-test for comprehension.[93]

Respect Diverse Talents and Ways of Learning. There are as many styles of learning as there are students:

> There are many roads to learning. People bring different talents and styles of learning to college. Brilliant students in the seminar room may be all thumbs in the lab or art studio. Students rich in hands-on experience may not do so well with theory. Students need the opportunity to show their talents and learn in ways that work for them. Then they can be pushed to learning in ways that do not come so easily.[94]

This principle recognizes that students come into the classroom with multiple forms of intelligence[95] acquired in different ways,[96] and that students "maximize their learning and performance when they are aware of how they learn [and] match their learning method to the learning task."[97] Yet, in most law school classrooms, there is a tendency to utilize a single

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[93] Wines & Bianchi, *supra* note 77; see also Perry, *supra* note 77 ("CPS provides real time feedback for me to check student understanding during a large group instruction. This feedback allows me to change and modify instruction based on the understanding and needs of my students revealed through my on-screen questioning. It also clues my students into what information they missed and will need to learn or review.").

[94] *See* Hatfield, *supra* note 79, at 93.

[95] The seven types of intelligence are musical, bodily-kinesthetic, logical-mathematical, linguistic, spatial, interpersonal and intrapersonal. See Paula Lustbader, Principle 7: Good Practice Respects Diverse Talents and Learning, 49 J. Legal Educ. 448, 455 (1999).

[96] *Id*.

[97] *Id*. at 454.

approach in conveying information (e.g., Socratic method, problem method, lecture method) and in evaluating student performance (e.g., end-of-semester exam or paper). In particular, most law school courses emphasize the "logical-mathematical" type of intelligence by relying on a single exam in which students analyze a complex set of facts in a limited amount of time as the primary (if not exclusive) method of evaluating student performance.[98]

Full implementation of this principle in the law school classroom would require a variety of approaches – e.g., learning style assessments and training for faculty in recognizing and incorporating different teaching strategies. The CPS is an effective tool to reach the mix of talents and learning styles of students and thus moves a step toward implementation of this principle. For example, the CPS is particularly suited for visual learners. Because the CPS is the platform on which faculty provide the substance, professors can draft different types of questions to reach different types of thinking and thus different types of learners.[99]

Emphasize Time on Task. Time on task refers to the expectation that students realize the importance of spending sufficient time in completing their tasks. "Allocating realistic amounts of time means effective learning for students and effective teaching for faculty."[100] At first glance, law students would appear to need little prompting on this principle. Law students typically carry a full course load, and professors expect them to put in a substantial amount of

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[98] *Id*. at 455.

[99] See Wines & Bianchi, *supra* note 77 (noting that handheld wireless transmitters implement "Visual, Aural, and Tactile modes of learning").

[100] See Chickering & Gamson, *supra* note 3, at 3.

work outside of class in preparation for each hour of class.[101] However, although students appear to understand the need to spend a great deal of time preparing for class, it is less clear that students understand how to spend that time efficiently.[102] The time on task principle stresses the importance of helping students to become more efficient in the use of their class preparation time.

Some law schools have experimented with a number of different approaches in helping students deal with time on task – e.g., providing time management seminars, coordinating the amount of reading assigned across different classes, imposing limits on other activities that students can engage in as full-time students (such as limits on paid working hours).[103] Technology can help coordinate class preparation and in-class work and make class time more efficient. For example, giving students pre-class access to a portion of in-class presentations, which the students can annotate during class, can maximize the students' class preparation time.[104] Similarly, the CPS "spikes student learning" by focusing the students' attention in class: "the response devices get student minds on point and on task before they start wandering. Once focused, the students remain more engaged with all of the class material."[105]

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[101]   See R. Lawrence Dessem, Principle 5: Good Practice Emphasizes Time on Task, 49 J. Legal Educ. 430 (1999).

[102]   *Id*. at 431.

[103]   *Id.* at 431-32.

[104]   See *supra* notes 55-60 and accompanying text.

[105]   Wines & Bianchi, *supra* note 77.

Communicate High Expectations. Closely related to the time on task principle is the goal of communicating high expectations to students: "Expect more and you will get more. . . . Expecting students to perform well becomes a self-fulfilling prophecy when teachers and institutions hold high expectations of themselves and make extra efforts."[106] Students come to law school with high motivations and self-imposed high expectations; they understand the importance of doing well in law school and put a premium on high academic performance. But something happens during their first year. "[A]t some point – and usually it is in the first semester – they forget about seeking or maintaining high expectations. Instead, they focus on just getting by, not embarrassing themselves in the classroom on a given day, and somehow slogging through all the briefing and reading of cases for classes the next day."[107]

The high expectation principle calls on law professors to remind students in a variety of ways about the need to take their class work seriously. One way of communicating high expectations is through the teaching methods used in the classroom. Designing class work that is tailored to meet specific needs and interests is an excellent way to help students aim high. Students need to know that a cursory reading of the materials, and that playing the odds of not been called on a given day, are not acceptable ways to prepare for class. To reinforce that expectation, the professor needs to provide appropriate incentive and reward structures. Students need to know that they will participate in class every day, and that their participation will "count." The CPS fulfills both missions:

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[106] See Chickering & Gamson, *supra* note 3, at 3, 5-6.

[107] Okianer Christian Dark, Principle 6: Good Practice Communicates High Expectations, 49 J. Legal Educ. 441, 441 (1999).

> The [classroom] environment, with its tinge of competition and gaming, encourages students to come to class prepared to respond to the assigned material. The instructor has a fine opportunity to set the standards bar by preparing questions and material that demonstrate the levels of excellence required for the class. By consistently formulating questions and problems that require students to think and respond at these levels of excellence, instructors communicate, reinforce, and habitualize students to high expectations.[108]

Encourage Student-Faculty Contact and *Cooperation Among Students*. The last two principles relate to the need for facilitating the quality and quantity of students' interactions with faculty and with peers. Although the two principles expand to a wide variety of activities and behaviors occurring both inside and outside the law school classroom,[109] our interest here is with facilitating more and better interaction between the different participants in the classroom.[110] The two principles encourage classroom behavior that increases these interactions. These interactions are less likely to occur when a student is content to take a passive role in the learning process instead of becoming an active partner.

Although there are many reasons why a student may assume a passive role, a principal explanation is that students often are uncomfortable participating in large group discussions. In addition, it is impossible in many situations for students to participate in class on a daily or even

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[108] Wines & Bianchi, *supra* note 77.

[109] See Hatfield, *supra* note 79, at 9 ("Frequent student-faculty contact in and out of class is the most important factor in student motivation and involvement. Faculty concern helps students get through rough times and keep on working. Knowing a few faculty members well enhances students' intellectual commitment and encourages them to think about their own values and future plans.").

[110] See also Susan B. Apel, Principle 1: Good Practice Encourages Student-Faculty Contact, 49 J. Legal Educ. 371 (1999); David Dominguez, Principle 2: Good Practice Encourages Cooperation Among Students, 49 J. Legal Educ. 386 (1999).

regular basis. The CPS again solves both problems by providing reticent students with the "cover" they feel they need while allowing their voices (or at least their answers) to be heard on a daily basis as loud as the more vocal students in the class. The CPS thus encourages student-faculty contact[111] and cooperation among students.[112]

CONCLUSION

The CPS has infused our classrooms with active learning vigor. This new technology, combined with the "old-school" approach of making a stripped-down version of word processing presentations available to students prior to class, addresses the serious charges leveled by critics against the in-class use of PowerPoint slides and laptops and furthers the other six *Principles for Good Practice* in law school teaching. We recognize, of course, that ours is but one approach to combining the best of old and new technologies in an active learning environment. We look forward to learning in these pages and elsewhere of other approaches our colleagues are using to help the twenty-first century law student resist the many new high-tech diversions competing for her in-class attention.

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[111] See Wines & Bianchi, *supra* note 77 ("Contact between the [instructor] and the student is closer than is the case in a traditional lecture session. . . . [The handless wireless transmitters] "give students a more direct link to instruction. Instructors . . . have opportunities to pinpoint student problems and misconceptions during class. Once identified, these real student problems and misconceptions can be cleared up on the spot.").

[112] See *id*. ("[Handheld wireless transmitters] stimulate interchange when students discuss the posted results of their first answers to questions and problems. After the instructor has graphed these responses, students compare their own answers to the answers of the whole group. In the discussions that follow the posting, they teach each other and learn from each other.").