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## TEACHING LAW STUDENTS THROUGH INDIVIDUAL LEARNING STYLES

*Robin A. Boyle\**

*Rita Dunn\*\**

“[S]ome things invite understanding and others do not.”<sup>1</sup>

### INTRODUCTION

Teaching can be rewarding, but it can also be frustrating when some students fail to grasp the material. Professor Robin A. Boyle of St. John’s University School of Law has been teaching Legal Research and Writing in small sections of approximately twenty to thirty students for four years. She, like many of her similarly exasperated colleagues, has repeated the same course content by using either lecture or collaborative learning, and has observed some students doing well, whereas others continued to perform poorly. Then, Dr. Rita Dunn was introduced to the law school faculty and suggested that law professors incorporate learning-styles theory into their lesson plans to accommodate students with diverse learning styles. Suddenly, there was light in the tunnel.

Dr. Dunn challenged the conventional belief that students who were motivated, concentrated during professors’ class lectures, did

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<sup>1</sup> PLATO, THE REPUBLIC 185 (Raymond Larson ed. & trans., AHM 1979).

all their assignments, and studied would be able to master basic law course requirements. Unfortunately, that belief is almost universally accepted in law schools where professors teach an entire class of aspiring attorneys in exactly the same way, with the same instructional materials, and in the same amount of time—regardless of the differences in the students' intelligence levels, aptitudes, experiences, interests, and learning styles.

Learning theory evolves from the study of how students learn.<sup>2</sup> Learning style is the way in which individuals “begin[ ] to concentrate on, process, [internalize,] and [remember] new and difficult [academic] information” or skills.<sup>3</sup> Learning styles vary with age,<sup>4</sup> achievement levels,<sup>5</sup> culture,<sup>6</sup> and individual-processing of new information.<sup>7</sup>

During the past decade, Dr. Dunn and other educators have been researching and employing various learning-styles strategies in elementary through secondary levels,<sup>8</sup> as well as undergraduate

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<sup>2</sup> See Cathaleen A. Roach, *A River Runs Through It: Tapping into the Informational Stream to Move Students from Isolation to Autonomy*, 36 ARIZ. L. REV. 667, 682 (1994) (noting that “learning theory is the study of how individuals learn” and describing various methods by which learning occurs).

<sup>3</sup> RITA DUNN & KENNETH DUNN, *TEACHING SECONDARY STUDENTS THROUGH THEIR INDIVIDUAL LEARNING STYLES 2* (1993).

<sup>4</sup> See Gary E. Price, *Which Learning Style Elements are Stable and Which Tend to Change?*, LEARNING STYLES NETWORK NEWSL., Autumn 1980, at 1 (noting that, “[t]he younger the child, the more [prevalent] tactual and kinesthetic” learning styles appear to be).

<sup>5</sup> See Rita Dunn et al., *The Learning Styles of Gifted Adolescents in the United States*, in *TEACHING AND COUNSELING GIFTED AND TALENTED ADOLESCENTS: AN INTERNATIONAL LEARNING STYLE PERSPECTIVE* 119, 123-25 (Roberta M. Milgram et al. eds., 1993) [hereinafter Dunn, *The Learning Styles of Gifted Adolescents*] (discussing the correlation between dropout rates and attention given to a student's individual learning style).

<sup>6</sup> See Rita Dunn & Shirley A. Griggs, *Research on the Learning Style Characteristics of Selected Racial and Ethnic Groups*, 6 J. READING, WRITING, AND LEARNING DISABILITIES, INT'L 261, 261 (1990) (summarizing studies of “the learning styles of multicultural subgroups in the United States” and concluding that “individual rather than group characteristics must be addressed”); Dunn, *The Learning Styles of Gifted Adolescents*, *supra* note 5, at 123 (referencing the social environment of some teenagers that has impacted student achievement and motivation levels).

<sup>7</sup> Learning styles vary with global versus analytic processing. See discussion *infra* Part II; see also Rita Dunn et al., *Effects of Matching and Mismatching Minority Developmental College Students' Hemispheric Preferences on Mathematics Scores*, 83 J. EDUC. RES. 283, 286-87 (1990) [hereinafter Dunn, *Effects of Matching and Mismatching Minority*] (finding significant differences when global and analytic students were matched or mismatched with instructional strategies); Rita Dunn et al., *Hemispheric Preference: The Newest Element of Learning Style*, 44 AM. BIOLOGY TCHR. 291, 293 (1982) (finding that a relationship exists between individuals' hemispheric preference and their learning styles such that when simultaneous processors were taught globally, they achieved statistically higher test scores than when taught analytically, and an opposite result occurred for successive processors).

<sup>8</sup> Teaching to learning styles achieved successful results in many elementary, intermediate, and secondary schools. See Roland H. Andrews, *The Development of a Learning*

schools.<sup>9</sup> Researchers experimenting with alternative strategies for teaching college students found significantly higher achievement when the strategy used was congruent, rather than incongruent, with individuals' learning styles. Those findings were reported for learning anatomy,<sup>10</sup> bacteriology,<sup>11</sup> marketing,<sup>12</sup> mathematics,<sup>13</sup> physiology,<sup>14</sup> social sciences,<sup>15</sup> and for an overall improvement in grade-point averages.<sup>16</sup>

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*Styles Program in a Low Socioeconomic, Underachieving North Carolina Elementary School*, 6 J. READING, WRITING, AND LEARNING DISABILITIES, INT'L 307 (1990) (discussing Brightwood Elementary School in North Carolina); Carolyn E. Brunner & Walter S. Majewski, *Mildly Handicapped Students Can Succeed with Learning Styles*, EDUC. LEADERSHIP, Oct. 1990, at 21 (analyzing Frontier Central High School's program for handicapped students in Hamburg, New York); Rita Dunn et al., *Learning Style and Equal Protection: The Next Frontier*, 65 THE CLEARING HOUSE 93, 94 (1991) [hereinafter Dunn, *Learning Style and Equal Protection*] (following the results of a middle school in Columbia, Missouri); Angela Klavas, *In Greensboro, North Carolina: Learning Style Program Boosts Achievement and Test Scores*, 67 THE CLEARING HOUSE 149 (1994) (reviewing changes made at Brightwood Elementary School in Greensboro, North Carolina to complement students' learning styles); Patricia Lemmon, *A School Where Learning Styles Make a Difference*, PRINCIPAL, Mar. 1985, at 26 (looking at statistics from Roosevelt Elementary School in Hutchinson, Kansas); Robert Neely & Duane Alm, *Empowering Students with Style*, PRINCIPAL, Mar. 1993, at 32 (noting the success of C.C. Lee Elementary School in Aberdeen, South Dakota); Robert O. Neely & Duane Alm, *Meeting Individual Needs: A Learning Styles Success Story*, 66 THE CLEARING HOUSE 109 (1992) (examining results from C.C. Lee Elementary School in Aberdeen, South Dakota); Janet Perrin, *The Learning Styles Project for Potential Dropouts*, EDUC. LEADERSHIP, Oct. 1990, at 23 (discussing the "Learning Styles Project" at Amityville High School in Amityville, New York); Pete Stone, *How We Turned Around a Problem School*, PRINCIPAL, Nov. 1992, at 34 (recounting the results obtained at Wilson Elementary School in Charlotte, North Carolina).

<sup>9</sup> See discussion *infra* Parts II, III.

<sup>10</sup> See generally Miriam C. Lenehan et al., *Effects of Learning-Style Intervention on College Students' Achievement, Anxiety, Anger, and Curiosity*, 35 J.C. STUDENT DEV. 461 (1994) (studying a group of nursing students); Lenda Cook, *Relationships Among Learning Style Awareness, Academic Achievement, and Locus-of-Control of Community College Students* 75 (1989) (unpublished Ph.D. dissertation, University of Florida) (on file with Dissertation Abstracts Int'l) (noting that learning style awareness may lead to an increase in academic achievement in college students).

<sup>11</sup> See Lenehan, *supra* note 10 (studying a group of nursing students).

<sup>12</sup> See Rita Dunn & E.L. Deckinger, *Should College Students Be Taught How to Do Homework? The Effects of Studying Marketing Through Individual Perceptual Strengths*, 26 ILL. SCH. RES. AND DEV. 96, 100-01 (1990) (studying the effects of using one's learning style profile to study for an advertising class at St. John's University).

<sup>13</sup> See Dunn, *Effects of Matching and Mismatching Minority*, *supra* note 7, at 286 (studying hemispheric preference in a mathematics class).

<sup>14</sup> See Lenehan, *supra* note 10 (studying nursing students).

<sup>15</sup> See Mary Louise Mickler & Carol Prejean Zippert, *Teaching Strategies Based on Learning Styles of Adult Students*, 11 COMMUNITY/JUNIOR C.Q. 33, 35 (1987) (using a social studies test of the College Level Examination Program to study the effects of matching teaching strategies with teaching preferences).

<sup>16</sup> See Barbara Nelson et al., *Effects of Learning Style Intervention on College Students' Retention and Achievement*, 34 J.C. STUDENT DEV. 364, 368 (1993) ("When academic achievement data for probationary and non-probationary students were combined within each

Each of these studies document the effectiveness of teaching students to study by using their learning-styles preferences. When students were matched with teaching methods and materials that complemented their diagnosed learning-styles preferences, they performed significantly better than when they were not matched. Researchers have suggested that instruction delivered without concern for individual learning-styles is improper.<sup>17</sup> For this reason, we advocate that teachers should provide instruction that responds to the various large clusters of learning styles in their classes.

We tested Legal Research and Writing classes at St. John's University School of Law and found that, like undergraduate students, law students were diverse in their learning styles. Law professors,<sup>18</sup> regardless of their class size, should incorporate methods and materials that complement their students' learning styles. This approach can be used without individualizing instruction to each student, which would be nearly impossible in all but the smallest of classes. Law professors are encouraged to use a diagnostic assessment in their classes so that they have an understanding of the kinds of learning styles present within their classes. Once the assessment is complete, the professor then can determine the overall "learning-style majorities," meaning the larger populations of certain types of styles. Professors would be able to adapt their methods to a few such majorities. If assessing students is not feasible, then, in the alternative, professors would be wise to use a combination of instructional methods, ones that can be incorporated into most class periods and that are likely to reach a broad spectrum of students.

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level of exposure, those students who received instruction in studying congruently with their learning style preferences achieved significantly better than those subjects in either the limited exposure or no exposure groups.”).

<sup>17</sup> See Dunn, *Learning Style and Equal Protection*, *supra* note 8, at 94 (proposing that equality of education mandates that schools educate children based on their individual learning-style strengths); Rita Dunn et al., *A Meta-Analytic Validation of the Dunn and Dunn Model of Learning-Style Preferences*, 88 J. EDUC. RES. 353, 357 (1995) [hereinafter Dunn, *A Meta-Analytic Validation of the Dunn and Dunn Model*] (examining the effects of the Dunn and Dunn Learning Style Model conducted by researchers, which revealed that regardless of academic level, age, race, or socioeconomic status, students whose characteristics were matched with their learning-style preferences showed greater academic “gains”).

<sup>18</sup> The term “law professor” as used in this Article is intended to include those who teach Legal Research and Writing. Those who teach Legal Research and Writing carry diverse titles, depending upon their institution, and it would be too cumbersome to name all practical titles.

This Article is divided into three parts. Part I surveys the literature criticizing the traditional methods of law school teaching and explores the growing movement advocating that law schools should experiment with research on learning styles. Part II shows the results of our testing of the St. John's law students and recommends instructional strategies that are complementary to the learning styles identified by the assessment we used. Part III explains the usefulness of "homework prescriptions." Appendix 1 describes the diagnostic test used in our study. Appendices 2 and 3 provide statistical results of the testing. Appendix 4 is an example of a homework prescription.

#### I. APPLYING LEARNING-STYLES THEORY IN LAW SCHOOLS: A GROWING INTEREST AMONG LAW PROFESSORS

Criticism of traditional law school teaching methods abounds.<sup>19</sup> As a result, there is growing interest among law professors in improving law school teaching by abandoning or adapting some of the traditional group methods, and instead focusing on individualized learning.<sup>20</sup> Recently, the American Bar Association Commission on Women in the Profession suggested to law schools that "the first-year curriculum would be improved by the use of a greater variety of teaching methods in light of the diversity of learning styles in [their] student body . . ."<sup>21</sup>

Prior to 1870, the "textbook method," whereby students studied and memorized parts of texts, was used at Harvard Law School.<sup>22</sup> The "lecture method" was combined with this approach, whereby

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<sup>19</sup> See Ruta K. Stropus, *Mend It, Bend It, and Extend It: The Fate of Traditional Law School Methodology in the 21st Century*, 27 LOY. U. CHI. L.J. 449, 455-65 (1996) (noting the inadequacies of the Langdellian method).

<sup>20</sup> See generally J.P. Ogilvy, *The Use of Journals in Legal Education: A Tool for Reflection*, 3 CLINICAL L. REV. 55, 69, 71 (1996) (advocating that because "students learn in different ways" they should maintain a journal to "engage in and become more efficient at self-evaluation"); Stropus, *supra* note 19, at 462 (acknowledging some of the inadequacies of the Langdellian method and suggesting that rather than abandoning it altogether, legal educators should "mend and bend" the . . . method in light of its shortcomings"); Paul F. Teich, *Research on American Law Teaching: Is There a Case Against the Case System?* 36 J. LEGAL EDUC. 167, 169 (1986) ("Research efforts must be expanded to probe the true value of traditional modes of legal education, justifying current teaching practices or isolating and developing demonstrably superior teaching methods for the future.").

<sup>21</sup> *Don't Just Hear it Through the Grapevine: Studying Gender Questions at Your Law School*, AMERICAN BAR ASS'N COMM'N ON WOMEN IN THE PROFESSION 19 (1998) (providing law schools with information on how to study gender and racial issues and suggesting that faculty view a video on the diverse learning styles of law students).

<sup>22</sup> See LAWRENCE M. FRIEDMAN, *A HISTORY OF AMERICAN LAW* 610 (2d ed. 1985).

professors lectured on material the students were required to read.<sup>23</sup> These approaches were revolutionized in 1870 when Christopher Columbus Langdell became dean of Harvard Law School and introduced the “case method.”<sup>24</sup> In the case method, students are asked to dissect a case to understand the law, much like a science laboratory experiment.<sup>25</sup> Students actively participate in the case method process in the classroom.<sup>26</sup> In addition to the Langdellian method, the “Socratic method” evolved, which is a simulation of the ancient Greek philosopher, Socrates, conducting a dialogue—a question and answer format that is intended to promote learning.<sup>27</sup>

Perhaps the most common criticism of the traditional law school classroom is that many students learn neither by the Socratic method nor by the case method.<sup>28</sup> The Socratic method, which challenges all students to evaluate each student’s answers to questions asked by the teacher, is a “group method” rather than an “individual method.” Employing this method to the exclusion of others mistakenly assumes that all students will learn “in a parallel fashion from any given exchange between student and instructor.”<sup>29</sup> Some argue that the Socratic method tends to alienate individuals in certain groups, such as women<sup>30</sup> and persons of color.<sup>31</sup>

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<sup>23</sup> See Myron Moskowitz, *Beyond the Case Method: It’s Time to Teach with Problems*, 42 J. LEGAL EDUC. 241, 242 (1992) (describing the “lecture/textbook” approach to teaching); Stropus, *supra* note 19, at 451-54 (explaining the “history of legal education”).

<sup>24</sup> See Moskowitz, *supra* note 23, at 242 (describing Langdell as a firm believer in the “case method” approach).

<sup>25</sup> See *id.*

<sup>26</sup> See *id.* at 242-43; Michael L. Richmond, *Teaching Law to Passive Learners: The Contemporary Dilemma of Legal Education*, 26 CUMB. L. REV. 943, 944-49 (1996) (stating that the case method “is not passive but intensely active, not mainly an absorption from either book or teacher but primarily a constant giving-forth”); Paul T. Wangerin, *Law School Academic Support Programs*, 40 HASTINGS L.J. 771, 794-96 (1989) [hereinafter Wangerin, *Law School Academic Support*] (providing the history of the case method approach as developed by Christopher Columbus Langdell of Harvard University Law School).

<sup>27</sup> See Stropus, *supra* note 19, at 453 (discussing the method of teaching used by Socrates).

<sup>28</sup> See generally Teich, *supra* note 20, at 167-68 (“[E]mpirical evidence is accumulating that suggests that *none* among the most widely debated law-teaching systems is uniquely effective.”).

<sup>29</sup> *Id.* at 168 n.3.

<sup>30</sup> Compare Lani Guinier et al., *Becoming Gentlemen: Women’s Experiences at One Ivy League Law School*, 143 U. PA. L. REV. 1, 3-4, 63-65 (1994) (finding that women at the University of Pennsylvania Law School were more likely to feel “alienated” by the Socratic method, less likely than men to participate actively in the classroom, and graduated with lower grades and fewer honors than the men), and Kathleen S. Bean, *The Gender Gap in the Law School Classroom—Beyond Survival*, 14 VT. L. REV. 23, 26-27, 47 (1989) (contending that law students expect law teachers to be male, but when the teacher is female, a gender gap develops, suggesting that a change be made to “eliminat[e] gender restraints in how we

A second category of criticism is with the physical structure of law school classes. The large classes in first-year courses operate on the incorrect assumption that the needs of all students are the same.<sup>32</sup> A related criticism is with the course structure—that students cannot equally demonstrate what they have learned by taking a single examination.<sup>33</sup>

To improve law school teaching, several innovators have recommended changing the way law schools use traditional methods of teaching.<sup>34</sup> To incorporate changes in teaching methods, law

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teach”), with Marsha Garrison et al., *Succeeding in Law School: A Comparison of Women’s Experiences at Brooklyn Law School and the University of Pennsylvania*, 3 MICH. J. GENDER & L. 515, 520 (1996) (obtaining contrary results to those observed in the University of Pennsylvania study in terms of achievement). Nonetheless, Brooklyn’s findings were similar to those of Pennsylvania’s regarding the classroom. See Garrison et al., *supra*, at 520. The Brooklyn women exhibited different attitudes towards the classroom than their male colleagues—most women were uncomfortable with voluntary classroom participation and women had “significantly higher rates of anxiety, depression, sleeping difficulties, and crying.” *Id.* The genesis of the theory that men and women have different voices comes from CAROL GILLIGAN, IN A DIFFERENT VOICE: PSYCHOLOGICAL THEORY AND WOMEN’S DEVELOPMENT xxvi (1993) (attempting “to bring women’s voices into psychological theory and to reframe the conversation between women and men”).

<sup>31</sup> See Alice K. Dueker, *Diversity and Learning: Imagining a Pedagogy of Difference*, 19 N.Y.U. REV. L. & SOC. CHANGE 101, 101-02, 107 (1991-1992) (arguing that “the pedagogy of the first year creates substantial alienation in students,” but particularly so for women, people of color, poor people, and gays and lesbians); Roach, *supra* note 2, at 669-70 (criticizing law schools for their “Langdellian methodolatry [that] promotes psychological and academic distress” among “minority and other non-traditional students”) (footnote omitted).

<sup>32</sup> See Dueker, *supra* note 31, at 110 (explaining that “the nearly exclusive use of large classes in the first year assumes that the needs of students are sufficiently universal and that very little individualization is necessary”); J. Christopher Rideout & Jill J. Ramsfield, *Legal Writing: A Revised View*, 69 WASH. L. REV. 35 (1994).

Unlike so many other classrooms in law school, the legal writing classroom should cease to resemble a lecture hall: large, foreboding, and arranged into a rigid spatial order that also represents narrow roles for student and teacher. Rather, it should be more akin to a laboratory, or a workshop, open for discussion and writing, and most importantly, able to create contexts within which students can learn to write and think.

Rideout & Ramsfield, *supra* at 68 (footnote omitted).

<sup>33</sup> See Vernellia R. Randall, *A Reply to Professor Ward*, 26 CUMB. L. REV. 121, 122 (1995) [hereinafter Randall, *A Reply*] (criticizing law schools for evaluating students based upon “only one or two exams a semester” and by using a single method—essay exams—“which has been documented to lack reliability and validity”); Roach, *supra* note 2, at 673 (“At the end of the semester, although taught by the Case Method system, typically [the students] are presented with the standard three-hour exam with loaded fact patterns providing complicated legal problems for which they have received little or no explicit training.”).

<sup>34</sup> See Roach, *supra* note 2, at 699 (recommending that the “new laboratories of the [academic support programs] should inform and possibly replace the Langdellian laboratory of the 1870’s”). See generally James Eagar, *The Right Tool for the Job: The Effective Use of Pedagogical Methods in Legal Education*, 32 GONZ. L. REV. 389, 415 (1996-1997) (concluding that “teachers should consider the full range of pedagogical methods available when designing course plans”); John B. Mitchell, *Current Theories on Expert and Novice Thinking: A Full Faculty Considers the Implications for Legal Education*, 39 J. LEGAL EDUC. 275 (1989)



professors can learn from the research emerging in undergraduate institutions.<sup>35</sup>

For example, law professor Paul F. Teich of the Nevada School of Law observes that students at post-secondary levels appeared to respond best to “individualized” teaching systems, as opposed to “group teaching” systems.<sup>36</sup> Teich concludes that law teaching can be improved and suggests that more research needs to be done in individualized instruction to see “whether teaching methods differ in effectiveness, and if they differ, in what important ways.”<sup>37</sup>

In cautioning law professors against employing universal methods for all students, some researchers encourage students to engage in “self-regulation.”<sup>38</sup> Law professor Paul T. Wangerin advocates metacognition, the process whereby “learners” become aware “of the learning process itself.”<sup>39</sup> He advocates teaching law students “strategies for . . . time management, efficient reading, note taking,

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(discussing various learning theories and ideas representing a collective effort by faculty members at the University of Puget Sound School of Law and applying the theories to the teaching of law). In a middle-ground posture is the claim that the case method is valuable and should not be abolished but instead used correctly. One middle-ground approach, for example, advocates moving towards what lawyers actually do in practice, problem-solving. See Moskovitz, *supra* note 23, at 245 (advocating that law schools spend more time teaching students problem-solving techniques because “[p]roblem-solving is the single intellectual skill on which all law practice is based”).

<sup>35</sup> Law professors could enhance their teaching by exposing themselves to research from other disciplines. See Paul T. Wangerin, *The Problem of Parochialism in Legal Education*, 5 S. CAL. INTERDISC. L.J. 441, 466-67 (1997) (“[I]f researchers who study education itself have developed teaching techniques that work well when it comes to training students to avoid the making of certain kinds of common analytical errors, then legal educators should shamelessly borrow and use those techniques.”).

<sup>36</sup> Teich, *supra* note 20, at 168 (reviewing research results on the effectiveness of different teaching methods). Teich defines individualized systems as ones “designed to adapt to each student’s separate and idiosyncratic learning characteristics.” *Id.* Teich defines “group teaching” as “an activity that allows many individuals to learn simultaneously with a minimum of individual attention or special treatment.” *Id.* Group teaching, according to Teich, is what primarily occurs in a traditional law school classroom. See *id.* In the college classroom, however, Teich acknowledged that the individualized systems of teaching have “shown consistent superiority in teaching multiple skills.” *Id.*

<sup>37</sup> *Id.* at 187. In the context of academic support programs, law professor Wangerin concluded, “legal educators seem to be about a generation behind undergraduate educators.” Wangerin, *Law School Academic Support*, *supra* note 26, at 802 (discussing the benefits that students would achieve through implementation of law school academic support programs and noting the current resistance to aiding “academically troubled students”).

<sup>38</sup> Paul T. Wangerin, *Learning Strategies for Law Students*, 52 ALB. L. REV. 471, 476-77 (1988) (“It is not enough for the student to be aware of his or her abilities and learning processes; the student must be able to monitor those studying activities during the learning process and be able to make appropriate adjustments.”).

<sup>39</sup> *Id.* at 472 (giving guidance to law students on effective approaches to learning).

review, and problem solving.”<sup>40</sup> Law professor Cathaleen A. Roach extends Wangerin’s theory and advocates more involvement by teachers.<sup>41</sup> As Roach explains, “law students are not being taught to be effective self-learners.”<sup>42</sup>

In the legal writing context, law professors J. Christopher Rideout and Jill J. Ramsfield, suggest focusing on the uniqueness of each student by using conference time effectively to “uncover attitudes, experiences, and questions that together will shape his or her audience for the year.”<sup>43</sup> The legal writing course readily lends itself to working with students’ individual strengths because often there is an emphasis on teacher-to-student conferences.<sup>44</sup>

Other researchers advocate a personality assessment based upon the Myers-Briggs Type Indicator (MBTI).<sup>45</sup> The MBTI test identifies different “personality dimensions.”<sup>46</sup> The four dimensions are: (1) “orientations toward life” experiences (measuring “extraversion or introversion”); (2) information gathering (“sensing perception or intuitive perception”); (3) decisionmaking (“thinking judgment or feeling judgment”); and (4) “orientations toward the external world (judging orientation or perceiving orientation).”<sup>47</sup> Law professor Vernellia Randall contends that some personality types may have a “relative, if not significant, advantage” over others in succeeding in law school.<sup>48</sup> She suggests “that law schools

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<sup>40</sup> *Id.* at 472-73 (discussing specific learning techniques of which law students should have an awareness).

<sup>41</sup> See Roach, *supra* note 2, at 682 (advocating that “if we understand how law students learn [then] we can teach to their learning styles” with better scholastic results).

<sup>42</sup> *Id.* at 685. At the same time, however, she cautions against learning theory that “places too much emphasis on self-directed learning and not enough on the very real and necessary involvement of a trained teacher.” *Id.* at 681.

<sup>43</sup> Rideout & Ramsfield, *supra* note 32, at 67-68.

<sup>44</sup> See *id.* at 80.

<sup>45</sup> See Martha M. Peters, Student Learning Styles, Remarks at the Annual Conference on The Science and Art of Law Teaching at the Institute for Law School Teaching in Spokane, Washington (July 15, 1994) (discussing the value of the MBTI to the study of law).

<sup>46</sup> Thomas C. Thompson, *Understanding Personality Preferences and Type Theory*, in MOST EXCELLENT DIFFERENCES: ESSAYS ON USING TYPE THEORY IN THE COMPOSITION CLASSROOM 4 (Thomas C. Thompson ed., 1996) [hereinafter MOST EXCELLENT DIFFERENCES].

<sup>47</sup> *Id.* at 1, 4.

<sup>48</sup> Vernellia R. Randall, *The Myers-Briggs Type Indicator, First Year Law Students and Performance*, 26 CUMB. L. REV. 63, 102 (1995) (concluding that there is a correlation between personality types and law school performance); see Don Peters & Martha M. Peters, *Maybe That’s Why I Do That: Psychological Type Theory, the Myers-Briggs Type Indicator, and Learning Legal Interviewing*, 35 N.Y.L. SCH. L. REV. 169 (1990) (advocating the value of using MBTI to enhance the learning of legal interviewing skills in clinical settings). The Myers-Briggs Type Indicator (MBTI) is based upon the personality type theory of Carl Jung which was refined by Katharine Briggs and Isabel Myers. See Thomas C. Thompson, *Preface to MOST EXCELLENT DIFFERENCES*, *supra* note 46, at xi. According to the personality theory,

recognize, accept, and understand the diversity of students with regard to learning styles.”<sup>49</sup> Randall also suggests that the law faculty know about learning styles so they can help students understand their own strengths and weaknesses.<sup>50</sup> An additional suggestion is that the law faculty use a variety of teaching techniques.<sup>51</sup>

Still other researchers focus on elements similar to those studied by Dr. Dunn. For example, law professors John Sonsteng, June Cicero, Resa Gilats, Roger Haydock, and John McLachlan found that students learn in different ways: verbally, aurally, physically, or visually.<sup>52</sup> They too advocate that teachers vary their teaching methods and not rely on a solitary method.<sup>53</sup>

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“different teaching strategies will probably appeal to different students.” *Id.* MBTI researchers warn others that the personality “preference” does not predict precisely how one person would behave over another, such as which of two people might miss the details of a story, but it would allow a teacher to make certain inferences about the way an individual “processes information.” Thomas C. Thompson, *Understanding Personality Preferences and Type Theory*, in MOST EXCELLENT DIFFERENCES, *supra* note 46, at 1, 18-19. MBTI researchers suggest that based upon a link between the personality type and teaching styles, instructors should select a methodology that draws upon the instructors’ strengths. They do not suggest that instructors adapt to all of the learning styles of their students in the classroom (there are 16 different personality “types” according to MBTI), but they do advocate modifying their approach for those students “who may feel displaced.” George H. Jensen & Dean A. Hinnen, *The Dynamics of Teaching and Learning*, in MOST EXCELLENT DIFFERENCES, *supra* note 46, at 22, 33 (concluding that instructors should consider differences in personality type between themselves and their students when assessing how their approaches impact upon students). See GORDON LAWRENCE, *PEOPLE TYPES & TIGER STRIPES* 58-59 (3d ed. 1996) (suggesting that teachers not teach to the individual students’ types but rather to key “type preferences”); Maurice Scharton & Janice Neuleib, *Comfortable Clothes: Using Type to Design Assignments*, in MOST EXCELLENT DIFFERENCES, *supra* note 46, at 47, 60-61 (advocating that “assignments must conform to institutional, programmatic goals before they take account of individual preferences”).

<sup>49</sup> Randall, *Myers-Briggs*, *supra* note 48, at 101 (“The traditional pseudo-socratic teaching style fits the learning style of only some learners.”) Law professor Cynthia Ward argues that Professor Randall’s suggestions for law school reform do not go far enough in answering the question of whether we need basic reform of law practice. See Cynthia V. Ward, *A Response to Professor Vernellia R. Randall’s The Myers-Briggs Type Indicator, First Year Law Students and Performance*, 26 CUMB. L. REV. 111, 120 (1995). Randall responded to Ward’s comments and further emphasized that law professors teach erroneously by “using one dominant method without regard to its educational effectiveness.” Randall, *A Reply*, *supra* note 33, at 121.

<sup>50</sup> *Id.*

<sup>51</sup> *Id.*

<sup>52</sup> See John Sonsteng et al., *Learning by Doing: Preparing Law Students for the Practice of Law, The Legal Practicum*, 21 WM. MITCHELL L. REV. 111, 137 (1995).

<sup>53</sup> See *id.* at 137-38 (noting that the “Legal Practicum combines a variety of methods to accommodate different learning styles,” thus utilizing the philosophy that because students learn differently, “a teacher cannot rely on one teaching method”).

A growing number of law professors agree that students do not all learn the same way.<sup>54</sup> This leads to the conclusion that more emphasis on individual learning styles should be explored at the law school level. Because all students do not learn the same way, law professors should avoid adopting an across-the-board teaching method.<sup>55</sup> This is also true for cultural and racial distinctions. Dr. Dunn cautions professors not to overemphasize differences between cultural and racial groups. Her research found that “[a]lthough learning style differences do exist between and among multicultural subgroups in the United States . . . there . . . are as many within-group differences as between-group differences.”<sup>56</sup>

## II. RESULTS OF TESTING ST. JOHN’S LAW STUDENTS

We used the Productivity Environmental Preference Survey (PEPS)<sup>57</sup> to analyze the learning styles of seventy-six first-year law school students in a legal research and writing course at St. John’s University. The PEPS consists of one hundred statements that elicit self-diagnostic responses. We tested the hypothesis that law students would be similar in learning style traits because they were pursuing a career in a single field and had been selected for law

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<sup>54</sup> See David W. Champagne, *Improving Your Teaching: How Do Students Learn?* 83 L. LIBR. J. 85, 86 (1991) (categorizing students in such groups as “[s]ensory-dominant perceivers” and “intuitive perceivers” based upon recognizable learning-style patterns and encouraging teachers to improve teaching methods); Eileen B. Cohen, *Teaching Legal Research to a Diverse Student Body*, 85 L. LIBR. J. 583, 584, 586-88 (1993) (providing an overview of various categories of learning styles such as “[s]eparate and [c]onnected [k]nowing,” “field-independent” and “field-dependent” learning, and “perceptual learning,” concluding that teachers should expand teaching methods to “incorporate the variety of learning styles” present in a law school setting, thereby increasing the accessibility of the subject matter); Paula Lustbader, *From Dreams to Reality: The Emerging Role of Law School Academic Support Programs*, 31 U.S.F. L. REV. 839, 840-41 (1997) (“Law schools must reflect a diverse culture and community within the institution and its curriculum.”); Ann Shalleck, *Clinical Contexts: Theory and Practice in Law and Supervision*, 21 N.Y.U. REV. L. & SOC. CHANGE 109, 173-74 (1993-1994) (acknowledging differences among students and advocating that “because students learn in different ways, the teacher must identify those situations that create difficulties for a student and then work with the student to overcome the barriers”) (footnote omitted).

<sup>55</sup> Some learning-styles research has revealed positive results among the minority community. See Mickler & Zippert, *supra* note 15, at 33, 36 (finding that when using the PEPS to assess learning styles of students enrolled in a predominately African-American community college, and by altering teaching strategies to suit their learning styles, a significant gain in achievement resulted).

<sup>56</sup> Dunn & Griggs, *supra* note 6, at 276. Dr. Rita Dunn’s study suggests that educators should not teach to groups, but instead should teach to individuals’ learning-style strengths. See *id.*

<sup>57</sup> See discussion App. 1.

school upon predominantly two narrow criteria: Law School Admissions Test scores and undergraduate grade point averages.

We found that the law students tested had, in fact, diverse learning-style traits. Therefore, professors who use the identical strategy in teaching all students in a class with diverse learning styles will find that it is likely to be less effective for some students.<sup>58</sup> It would be beneficial, then, for law professors to assess the learning-style traits of their students and to vary their teaching methods accordingly.

Dunn and Dunn describe learning style in terms of individual reactions to various elements divided among five categories.<sup>59</sup> The five categories and their elements are:

- (1) Physiological Factors:
  - a. Perceptual strengths, which are auditory, visual, tactual, and/or kinesthetic preferences;
  - b. Time-of-day energy levels;
  - c. Food or liquid intake;
  - d. Mobility needs while learning.
- (2) Psychological Factors:
  - a. Global versus analytic processing determined through correlations among sound, light, design, persistence, sociological preferences, and intake;
  - b. Right/left brain hemisphericity;
  - c. Impulsive v. reflective.
- (3) Emotional Factors:
  - a. Motivation;
  - b. Persistence (whether the student works on one task until completion as opposed to working on several tasks

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<sup>58</sup> See generally Cook, *supra* note 10; Rita Dunn et al., *Effects of Matching and Mismatching Corporate Employees' Perceptual Preferences and Instructional Strategies on Training Achievement and Attitudes*, 11 J. APPLIED BUS. RES. 30, 30, 33 (1995) [hereinafter Dunn, *Effects of Matching and Mismatching Corporate*] (finding "[s]ignificant differences" in results obtained when 518 adult truck drivers received training with instructional strategies that were either congruent or incongruent with their diagnosed preferences); Dunn, *Effects of Matching and Mismatching Minority*, *supra* note 7; Elaine Kuznar et al., *Learning Style Preferences: A Comparison of Younger and Older Adult Females*, 10 J. NUTRITION FOR THE ELDERLY 21, 31 (1991) (concluding that "five elements in the PEPS . . . [were] significantly different in the younger and older adult females"); Lenehan, *supra* note 10; Mickler & Zippert, *supra* note 15; Nelson, *supra* note 16; Susan Clark-Thayer, *The Relationship of the Knowledge of Student Perceived Learning Style Preferences, and Study Habits and Attitudes to Achievement of College Freshmen in a Small Urban University* 163 (1987) (unpublished Ph.D. dissertation, Boston University) (on file in UMI Dissertation Abstracts database) (suggesting that "learning style and study habits should be considered as possible factors that contribute to college success").

<sup>59</sup> See *infra* notes 73-173 and accompanying text.

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- simultaneously);
  - c. Responsibility (conformity v. nonconformity);
  - d. Need for either externally imposed structure or the opportunity to do things in their own way.
- (4) Environmental Factors:
- a. Sound;
  - b. Light;
  - c. Temperature;
  - d. Furniture/seating design.
- (5) Sociological Factors:
- a. “[L]earning best alone, in a pair, in a small group, as part of a team, or”
  - b. “[W]ith either an authoritative or a collegial adult;”
  - c. Learning in a variety of ways as opposed to consistent patterns.<sup>60</sup>

Discussed below are our findings from the PEPS, which revealed the percentages of first-year law students who either preferred or did not prefer each of these elements, with a moderate to strong preference rating for each end of the continuum. The results of the survey are set forth in Appendix 2 (scoring sixty and above on the PEPS) and Appendix 3 (scoring forty and below on the PEPS). The PEPS results in the middle of the continuum (41-59) for each element indicate those who did not have a preference for a particular element. Such data are not useful for the discussion below and, therefore, are not described. For each factor and corresponding element, we suggest instructional strategies that would complement diverse learning styles.

To begin teaching to diverse learning styles effectively, law professors need to assess their students and provide instructional methods and materials that correlate with the learning-style majorities of their classes. As indicated in our study, the percentages of students expressing preferences varied with each element; professors should be flexible in determining on which majorities to focus.

A learning-styles assessment reveals how one learns new and difficult material. The PEPS is only one of many learning-styles assessment methods available.<sup>61</sup> Regardless of the assessment

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<sup>60</sup> DUNN & DUNN, *supra* note 3, at 3, 5 (listing the various elements which affect learning).

<sup>61</sup> See, e.g., Peters, *supra* note 45 (noting the usefulness of the MBTI as an assessment tool). Law professors may wish to use the learning-styles assessments at undergraduate institutions affiliated with their law schools.

chosen, it is crucial that the instrument be both reliable<sup>62</sup> and valid.<sup>63</sup> In addition, the concept of learning styles should be explained to students before they are tested.<sup>64</sup> In her pre-assessment lecture for our study, Dr. Dunn reassured the students that there was no pass or fail, nor was there a better or worse learning-style preference, but that the test assessed their *strengths*. Furthermore, she emphasized that “everyone has a learning style.”<sup>65</sup> After the PEPS results were processed, each student was given an individual printout and a related “homework prescription.”<sup>66</sup> Dr. Dunn explained to the students how to interpret the individual printouts, which is important for student development of self-regulation.<sup>67</sup> These homework prescriptions are an extension of law professors Wangerin’s and Roach’s theories that encourage students to be aware of their learning process and to become self-learners.<sup>68</sup>

Once the students’ learning styles have been assessed, the following sequencing would be most effective in teaching new and difficult material: first, introduce the material through each student’s perceptual strength; second, reinforce the material through a secondary or tertiary strength; and third, have the students use the newly acquired knowledge in a creative way to ensure application of knowledge.<sup>69</sup> Optimally, students should be

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<sup>62</sup> A “reliable” instrument provides consistent information over time, just as a reliable witness can be counted on to consistently respond similarly to the same set of questions concerning an event. See generally Steve Baldrige, *Creating Legally Valid School Administrator Evaluation Policy in Utah*, 1998 BYU EDUC. & L.J. 19, 25 (1998).

<sup>63</sup> A “valid” instrument measures what it purports to measure, as verified through experimental research or an expert jury. Instrument reliability and validity are crucial because “[i]t is *impossible* to obtain . . . [accurate] data from an unreliable or invalid” instrument. DUNN & DUNN, *supra* note 3, at 2 (noting that each of the three models of learning styles has a specialized and “related” instrument for assessing an individual’s unique learning style).

<sup>64</sup> See DUNN & DUNN, *supra* note 3, at 404-05 (recommending, for example, that students be advised that “everyone has a learning style” and different perceptual strengths, which can be utilized to their advantage).

<sup>65</sup> *Id.* at 404.

<sup>66</sup> See *infra* Part III (discussing the method of learning through “homework prescriptions”).

<sup>67</sup> See DUNN & DUNN, *supra* note 3, at 405 (explaining how students can match their learning styles with the material being taught when they are taught how to interpret the results).

<sup>68</sup> See *supra* text accompanying notes 38-42 (discussing the theories of Wangerin and Roach).

<sup>69</sup> See DUNN & DUNN, *supra* note 3, at 404.

tested prior to and after the sequence in order to determine the effectiveness of the sequence.<sup>70</sup>

Alternatively, if the class size is unwieldy and the professor chooses not to assess his or her students, then we suggest that some of the instructional strategies described below be used in combination. Although the professor will not know the particular class composition of learning styles in his or her class, using more than one method can be expected to reach a higher, but unknown, proportion of students. The professor should be forewarned that this approach is one of hit-or-miss, but it is better than using only a single method, such as a straight lecture, which reaches only those with auditory preferences—often less than thirty percent!<sup>71</sup>

We do not assert that learning styles are fixed in an individual as learning styles vary with age.<sup>72</sup> In addition, professors also are diverse in their own learning styles and tend to present materials that often are complementary to their own personal styles. For these reasons, when possible, students should be encouraged to adjust to learning styles that are not entirely congruent with their own. By including secondary and tertiary perceptual strength sequencing, professors can assist students in learning from teachers who have different learning styles from their own.

### A. *Physiological Factors*

#### 1. Auditory, Visual, Tactile, and Kinesthetic Perceptual Strengths

The PEPS assesses perceptual strengths.<sup>73</sup> We hypothesized that a large percentage of the first-year law school population would be high in auditory and visual strengths because such strengths are congruent with the lecture teaching method, which is common with law professors. Interestingly, only 26% of the first-year law school students we tested had high auditory strengths,<sup>74</sup> whereas 5% of

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<sup>70</sup> See *id.* at 408 (encouraging “[p]re- and posttest[ing]” students to evaluate “achievement results”).

<sup>71</sup> See App. 2 (achieving Subscale Standard Scores of sixty or more for auditory preferences); see also DUNN & DUNN, *supra* note 3, at 402 (explaining that only 30% of school age children can be classified as auditory preferents).

<sup>72</sup> See *supra* text accompanying note 4 (discussing the concept that an individual’s learning style changes with age).

<sup>73</sup> See Dunn, *Effects of Matching and Mismatching Minority*, *supra* note 7, at 284 (defining the PEPS as a method of measuring learning-style preferences for adults); see also App. 1 (describing the PEPS and how it is conducted).

<sup>74</sup> See App. 2 (achieving sixty or above on the PEPS Subscale #12–Auditory).



their classmates were low in auditory strengths.<sup>75</sup> As for visual strengths, only 8% of those we tested had high visual strengths,<sup>76</sup> whereas 12% were low in their visual strengths.<sup>77</sup>

We also hypothesized that a low percentage of the first-year law population would have tactual and kinesthetic strengths because while learning new and difficult material the former requires fine motor coordination and the latter requires bodily movement. These instructional strategies are uncommon in a traditional law school class, with the exception of note-taking. Surprisingly, our population had a relatively large percentage of both—21% were high in tactual strengths, and 16% were high in kinesthetic strengths.<sup>78</sup>

*a. Auditory Strengths and Instructional Strategies*

Only students with high auditory strengths will remember as much as “75 percent of what they *hear* in a normal 40 or 50 minute lecture.”<sup>79</sup> Those with low auditory strengths would find learning-by-listening extremely difficult. The remainder of the students can benefit from lecture, to some degree, but only when interested in what the professor is talking about. “[L]ecture is likely to be effective only for” high auditory students or those who are a combination of auditory and tactual (those students likely to take good notes while listening to the presentation).<sup>80</sup> Therefore, in the population tested in the survey, lecture would not be effective for many of the students.

*b. Visual Strengths and Instructional Strategies*

Those with high visual strengths “remember 75 percent of what they *read* or *see*.”<sup>81</sup> For those students with visual strengths, professors should add a visual component to their class by exhibiting material on an overhead projector, chalkboard, or by distributing hand-outs with text, charts or diagrams.<sup>82</sup>

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<sup>75</sup> See App. 3 (achieving forty or below on the PEPS Subscale #12–Auditory).

<sup>76</sup> See App. 2 (achieving sixty or above on the PEPS Subscale #13–Visual).

<sup>77</sup> See App. 3 (achieving forty or below on the PEPS Subscale #13–Visual).

<sup>78</sup> See App. 2 (achieving sixty or above on the PEPS Subscale #14–Tactile, #15–Kinesthetic).

<sup>79</sup> DUNN & DUNN, *supra* note 3, at 402.

<sup>80</sup> *Id.* at 403.

<sup>81</sup> *Id.* at 402.

<sup>82</sup> For visual technique suggestions see Angela Passalacqua, *Using Visual Techniques to Teach Legal Analysis and Synthesis*, 3 J. LEGAL WRITING INST. 203 (1997) (discussing the benefit of visual aids in a legal education).

*c. Tactual Strengths and Instructional Strategies*

“Tactual learners remember what they *write*”—if they are analytic—or what they “*draw* or *doodle*”—if they are global.<sup>83</sup> Tactual learners use their fine motor skills, fingers, and hands while concentrating. These students need to learn with materials they can manipulate because, for them, the sense of touch is important.<sup>84</sup> For classes with a significant percentage of students with high tactual strengths, professors should experiment with encouraging the students to make tactual instructional materials such as index cards transformed into “self-correcting cards,” board games, maps, murals, charts, graphs, models, puzzles, and time lines.<sup>85</sup> Legal cases and legal writing principles could be incorporated into these games.

The tactual materials could be combined with a particular instructional strategy such as a Programmed Learning Sequence (PLS).<sup>86</sup> PLS is an individualized form of instruction whereby the material is presented to students in small steps without a professor’s direct supervision.<sup>87</sup> PLS may be constructed with index cards that contain printed information to teach a series of related concepts or facts by presenting information, asking questions, providing answers, and reinforcing former concepts—self-correcting cards.<sup>88</sup> By providing answers on the flip side of the cards, the self-correcting cards become most effective because students can get immediate feedback.<sup>89</sup> Factual material or questions provoking a single answer work best for the self-correcting cards. After a series of questions and answers are provided on a single topic, the concepts should be reinforced by having the concepts briefly retested.<sup>90</sup> For example, after providing nine cards in sequential order, the tenth card serves as a review of the previous cards. The review would be in the form of a tactual exercise such as a puzzle or

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<sup>83</sup> DUNN & DUNN, *supra* note 3, at 402.

<sup>84</sup> *See id.* at 143 (indicating that tactual learners “tend to acquire and retain information or skills when they . . . are involved in handling manipulative materials”).

<sup>85</sup> *See id.* at 143-200 (describing hands-on activities for tactual learners).

<sup>86</sup> *See id.* at 201-70.

<sup>87</sup> *See id.* at 201.

<sup>88</sup> *See id.* at 210-68 (illustrating sample flash cards).

<sup>89</sup> *See id.* at 206 (discussing how, through the use of PLS, the student is immediately aware of the correctness of her answer by a mere flip of the card).

<sup>90</sup> *See id.* at 202.

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matching exercise. The cards can be used individually or by a small group.<sup>91</sup>

A series of questions regarding the freedom of speech could be posed this way on self-correcting cards:

Card 1: “Congress shall make no law . . . abridging the freedom of speech . . . .”<sup>92</sup> Most of the First Amendment cases heard by the United States Supreme Court involve the issue of whether government has permissibly proscribed speech. The issues usually involve balancing an individual’s rights to freely express his or her beliefs in relation to other interests of society.

In *Schenck v. United States*,<sup>93</sup> the Court developed the standard of whether the defendant’s acts caused “a clear and present danger.”<sup>94</sup> This test was initially conceived while the Court was deciding cases under the Espionage and Sedition Acts during World War I. Schenck sent a mailing to draftees attempting to persuade them not to join the armed services.<sup>95</sup> The subject matter at issue would have been constitutionally protected under ordinary circumstances; however, because a war was in progress, the Court upheld the restraint on freedom of expression as necessary to prevent grave and immediate threats to national security.<sup>96</sup>

Question: Under what historical circumstances did the Court restrict Schenck’s freedom of speech?

Answer (on flip side of Card 1): Schenck was distributing anti-draft materials during WWI. Under the Espionage and Sedition Acts, this conduct was prohibited. Because our country was at war, the Court considered that the times were not of ordinary circumstances.

Card 2 Question: What was the test the Court developed in *Schenck*?

Answer (on flip side of Card 2): Clear and Present Danger Test.

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<sup>91</sup> See *id.* (stating that if the student does not work well alone, the PLS system can be used in small groups).

<sup>92</sup> U.S. CONST. amend. I.

<sup>93</sup> 249 U.S. 47 (1919) (deciding that surrounding circumstances must be considered when determining whether speech is protected).

<sup>94</sup> *Id.* at 52 (discussing the standard utilized by the Court to determine when speech may be limited).

<sup>95</sup> See *id.* at 49 (giving the facts upon which the case was decided).

<sup>96</sup> See *id.* at 52 (explaining the reasoning behind the decision).

Card 3 Question: If there had been no freedom of speech cases decided since *Schenck*, would the clear and present danger test be applicable today?

Answer (on flip side of Card 3): No. The country is not at war, therefore, we are under ordinary circumstances.

Tactual self-correcting cards could be developed for any law-related topic and in legal writing classes to instruct on principles of writing. For example, the cards could explain and test concepts such as: Where in the argument section of a brief would you address the adverse cases? The answer: In the middle or toward the end of your argument. Professors should develop tactual materials and offer students a choice to use them as study aids or in-class work.

*d. Kinesthetic Learners and Instructional Strategies*

Kinesthetic learners remember best the things they experience by doing, such as role-playing.<sup>97</sup> They learn by experience and need to be involved in activities which produce mental imprinting that helps them focus on what needs to be learned.<sup>98</sup> A significant percentage of our law school population had high kinesthetic strengths.<sup>99</sup>

For classes that have a significant percentage of kinesthetic learners, professors should experiment with learning through real-life experiences: demonstration, dramatization, role-playing, field trips, and floor games.<sup>100</sup> Actual or simulated client counseling or courthouse visits would be ideal activities for kinesthetic learners. Kinesthetic learners may also benefit from teaching the material assigned to the class to other students in the class. These student-teachers would learn the material themselves by preparing to teach it, answering questions posed by other students, and delivering the material in a way that suits them—such as standing in front of the class, interacting with students, writing on the blackboard, or other movement activities.<sup>101</sup>

Because the tactual and kinesthetic materials can be game-like, professors should be careful to devise materials that are age-

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<sup>97</sup> See DUNN & DUNN, *supra* note 3, at 143 (explaining the characteristics of a kinesthetic learner).

<sup>98</sup> See *id.*

<sup>99</sup> See App. 2 (achieving sixty or above on the PEPS subscale #15–Kinesthetic).

<sup>100</sup> See *id.* at 143-200 (describing movement activities for kinesthetic learners).

<sup>101</sup> Professor Boyle's student teaching assistant, Christopher Vetro, suggested that students learn by teaching others, as he has discovered by teaching legal citations to first-year students.

appropriate so that law students feel comfortable and not humiliated. Whether the materials contain legal issues and cases, legal writing principles, or legal research concepts, the law students should feel challenged by them.

*e. Sequencing of Teaching Methods*

Appropriate sequencing of the material would aid students in absorbing their professor's lecture. Professors should recommend to the high auditory students that they hear the lecture first, before they do the reading. Then, after class, the students should do the reading while taking notes or answering questions.<sup>102</sup>

For the high visual students, the professor should assign them readings *before* the lecture. The professor should give the same instruction to those with a combination of visual and tactual strengths, and additionally recommend to these students that they take notes or answer written questions.<sup>103</sup>

For the high tactual students, the professor should first expose the students to the material by using a hands-on instructional strategy. The students' second exposure should be reading the text or hearing a tape of the reading material. In addition, they should write the answers to questions. Their third exposure should be the teacher's lecture.<sup>104</sup>

For the high kinesthetic students, the professor should recommend that the students first read the new material while standing, walking, or even rocking in a chair. The students' second exposure should be the lecture. These students should be allowed some mobility in the classroom, such as standing while taking notes. They should also be encouraged to write answers to written questions.<sup>105</sup>

In all of these approaches, the professors should require the students to make a creative activity from the new material that they have learned as their last exposure. This will reinforce the new concepts. With proper sequencing, all students will be exposed to both lecture and reading, but each in a sequence responsive to each individual. It would be difficult to conduct class by the case

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<sup>102</sup> See DUNN & DUNN, *supra* note 3, at 405 (instructing students with high auditory scores to follow certain steps).

<sup>103</sup> See *id.* at 406 (charting the ideal learning method for students with visual strengths).

<sup>104</sup> See *id.* at 406-07 (explaining how students can capitalize on their tactual strengths).

<sup>105</sup> See *id.* (giving students with high kinesthetic scores a way to maximize their learning).

method if students had not read the material before class.<sup>106</sup> Thus, assign only the necessary reading in advance, and save other cases and articles for after class.

## 2. Time-of-Day Energy Levels

Only 3% of the law school students were most alert in the early morning,<sup>107</sup> whereas 37% were evening high-energy preferents.<sup>108</sup> Eight percent “came alive” after 10:30 a.m.,<sup>109</sup> but for 57%, afternoon was the best time of day.<sup>110</sup> Time of day has potent face validity; almost all people know whether they are “morning” or “evening” people and, when asked, will assure you that learning an academic subject at their worst time of day is more difficult than learning it at their best time of day.

If students strongly prefer early-morning, then they should be advised to arise early in the morning and review their material before they come to class. If they prefer evening, they should do their homework in the evening. “[C]hronobiological levels are biologically imposed and . . . [students] should learn . . . more easily if they concentrate on the material at the time” when their energy level is at its peak.<sup>111</sup>

Indeed, experimental research demonstrates that when performing cognitively difficult tasks, students learn more and retain it better during their chronobiological highs rather than their lows.<sup>112</sup> Researchers have found that students’ optimal time for peak efficiency varies depending upon the individual.<sup>113</sup>

To facilitate a matching of chronobiological highs with the presentation of material, a course can be scheduled to meet in more than one class section at different times. For example, Legal

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<sup>106</sup> See *supra* notes 24-26 and accompanying text (discussing the case method as a way of learning the law).

<sup>107</sup> See App. 2 (achieving sixty or above on the PEPS Subscale #17–Evening–Morning).

<sup>108</sup> See App. 3 (achieving forty or below on the PEPS Subscale #17–Evening–Morning).

<sup>109</sup> See App. 2 (achieving sixty or above on the PEPS Subscale #18–Late Morning).

<sup>110</sup> See App. 2 (achieving sixty or above on the PEPS Subscale #19–Afternoon).

<sup>111</sup> DUNN & DUNN, *supra* note 3, at 408 (discussing the importance of matching a student’s study time with their chronobiological “high”).

<sup>112</sup> See Roger John Callan, *Giving Students the (Right) Time of Day*, EDUC. LEADERSHIP, Dec.–Jan. 1997-1998, at 84, 85 (noting the results of studies indicating that “students understand material better . . . at their preferred time of day”).

<sup>113</sup> See *id.* at 85 (discussing the need for schools to consider students’ time-of-day preferences when scheduling classes); see also Roger John Callan, *Early Morning Challenge The Potential Effects of Chronobiology on Taking the Scholastic Aptitude Test*, 68 THE CLEARING HOUSE 174 (1995) (advocating that “time of day should be considered part of the test conditions under which the [Scholastic Aptitude Test] is administered”).

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Research and Writing taught to all first-year law students could be scheduled to meet in small sections in the morning, afternoon, and evening. Students could be assigned to, or could choose, a particular section depending upon their optimal chronobiological time of day.

If scheduling cannot be designed to permit classes to be held at most students' best time of day (e.g., in the afternoon for 57% and in the evening for 37%), students can be advised to tape record the lectures while in class and to re-listen to them during their chronobiological highs. They can also be advised to study during these highs, and perform other activities at other times.

### 3. Food or Liquid Intake

Twenty-six percent of the law school population we tested preferred to snack while learning something new and difficult.<sup>114</sup> Professors should permit students to bring into their classrooms beverages and snacks so that students may have food or liquid intake while learning. Alternatively, if food or drink cannot be permitted in the classrooms, then professors should permit more frequent snack breaks.

### 4. Mobility While Learning

One fourth of our population required periodic mobility.<sup>115</sup> Thus, it might be appropriate to allow two five-minute breaks during a two-hour lecture rather than one ten-minute break after the first hour.

Alternatively, instructional strategies that involve movement would be beneficial. For example, in a Legal Research and Writing class, rather than teach research by lecturing, professors could have students search in the library for answers to prepared questions. In a more controlled setting, research "stations" comprised of pre-selected secondary and primary sources could be arranged in a classroom whereby students find answers to research questions by moving from book station to station.

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<sup>114</sup> See App. 2 (achieving sixty or above on the PEPS Subscale #16–Requires Intake).

<sup>115</sup> See App. 2 (achieving sixty or above on the PEPS Subscale #20–Needs Mobility).

*B. Psychological Factors*

Whether an individual is more global than analytic depends upon their preferences for the elements of sound, light, design, and intake, as well as their sociological preferences and persistence levels.<sup>116</sup> Global learners differ from analytic learners in their environmental, sociological, and psychological preferences. Globals prefer sound (such as “music, tapping, or conversation”), “soft illumination,” “an informal design” (soft chairs), “peer orientation” (prefer to work with a friend), and have “a need for intake” (food) while studying.<sup>117</sup> They tend to require frequent breaks and also prefer to work on multiple tasks at one time, rather than focusing on a single project.<sup>118</sup> “Globals learn more easily when they . . . understand the concept first and then . . . concentrate on the details . . . .”<sup>119</sup> Globals also are impulsive rather than reflective; when teachers ask questions, globals immediately raise their hands and do so frequently.<sup>120</sup>

In contrast, analytics learn step-by-step, analyzing a problem first, then reaching a decision.<sup>121</sup> Analytics usually prefer learning in silence, with bright light, and in a formal design (such as a conventional classroom with hard chairs and desks).<sup>122</sup> They do not prefer intake while learning. They tend to be persistent; once they begin an assignment they have a strong emotional urge to finish it.<sup>123</sup> Analytics often are reflective, and when asked questions, they prefer to think about their answers before speaking out in class.<sup>124</sup>

In the St. John’s law school population, we found that at least 20% were global and 20% were analytic. An additional 10-11% were extremely analytic or extremely global. All students are not necessarily strongly global or strongly analytic. Of our group, 50% fell somewhere in the middle of the continuum, meaning that they could focus either way depending on whether they were interested in the subject matter.

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<sup>116</sup> See DUNN & DUNN, *supra* note 3, at 47 (describing the correlation between learning preferences and processing styles).

<sup>117</sup> *See id.*

<sup>118</sup> *See id.*

<sup>119</sup> *Id.* at 6.

<sup>120</sup> *See id.* at 4.

<sup>121</sup> *See id.* at 6.

<sup>122</sup> *See id.* at 47.

<sup>123</sup> *See id.* at 48.

<sup>124</sup> *See id.* at 4-5.



Researcher Susan Clark-Thayer provided a helpful explanation of global versus analytic processing and its connection with left/right brain hemisphericity:

[P]eople appear to have certain hemisphere processing preferences or dispositions . . . . Some people process better globally, some analytically. Global versus analytical defines the different approaches there are to processing information in the brain. Some people are analytical, breaking information into parts that are then analyzed and combined to eventually become a whole (part to whole). This is a left hemisphere disposition. Global thinkers see the “big picture” first and eventually break the whole down into parts (whole to part). This is thought to be a right hemisphere disposition. Analytical thinkers prefer to be taught step by step sequentially, global thinkers prefer to be given the whole first so that the parts can be immediately related to it.<sup>125</sup>

Thus, global learners are right-brain preferred processors, as opposed to analytic learners who are left-brain preferred processors.<sup>126</sup>

Previous studies have revealed successful results when global students were given global materials, and when analytics were given analytic materials.<sup>127</sup> In one such study, Rita Dunn, Ronald I. Sklar, Jeffrey S. Beaudry, and Jean Bruno adapted teaching materials to complement undergraduate students’ global or analytic preferences.<sup>128</sup> After using the PEPS, the researchers identified that a majority of the minority college students in a remedial mathematics class in New York City Technical College had a global, rather than analytic, processing style.<sup>129</sup> Examination of the textbook assigned to the class revealed that it had been written in a step-by-step, analytic processing style in which procedures for finding answers or solving problems were itemized without any direct daily living applications.<sup>130</sup>

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<sup>125</sup> Clark-Thayer, *supra* note 58, at 77-78.

<sup>126</sup> See DUNN & DUNN, *supra* note 3, at 5-6.

<sup>127</sup> See Dunn, *Effects of Matching and Mismatching Minority*, *supra* note 7 (discussing matching instructional strategies with a student’s learning-style preferences).

<sup>128</sup> See *id.* (discussing the relationship between learning-style preferences and brain hemisphericity).

<sup>129</sup> See *id.* at 287 (discussing the results of their study which indicated a sixty/forty split in learning-style preferences).

<sup>130</sup> See *id.* at 286 (describing the text as the “conventional educational mode” of instruction).

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In the Dunn et al. study discussed above, every other textbook chapter was re-written to respond to a global processing style that included concrete examples of how the content related to the students' lives.<sup>131</sup> The alternate analytic chapters were kept intact.<sup>132</sup> Students were required to study all the revised global chapters and all the existing analytic chapters by themselves—with no direct teacher instruction. Requiring the students to teach themselves eliminated the possible intervening variable of teaching style. The result was significantly higher test scores on each of the chapters that matched, rather than mismatched, the individuals' learning styles.<sup>133</sup>

In order to accommodate global learners, teachers should:

- (1) Introduce Lessons Globally:
  - a. begin with a story, anecdote, joke or something humorous related to the topic;
  - b. relate the introduction to the content;
  - c. provide an overview of the concept;
  - d. provide a sense of purpose.
- (2) Use Discovery Learning:
  - a. provide small-group experiences;
  - b. relate facts to each other and to realistic experiences;
  - c. avoid giving too many facts.
- (3) Provide Many Types of Materials:
  - a. offer opportunities to demonstrate mastery in a written form such as essays and graphs;
  - b. provide tactual experiences such as cards containing legal questions and answers;
  - c. provide kinesthetic experiences such as role plays.
- (4) Provide Continuous Feedback:
  - a. interact with the student frequently;
  - b. check work in progress at each stage;
  - c. encourage persistence, i.e. encourage the student to finish the assignment.

In teaching analytic learners, professors should:

- (1) Provide Explanations and Visual Reinforcements:
  - a. Explain all procedures to be used;
  - b. Write key words on the chalkboard;

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<sup>131</sup> See *id.* at 285 (explaining the resources used in the study).

<sup>132</sup> See *id.*

<sup>133</sup> See *id.* at 287 (discussing the positive results obtained by matching the students' learning-style preferences with compatible instructional strategies).

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- c. Use charts;
  - d. Answer questions with detail, but do not repeat yourself.
- (2) Write Specific Directions, Objectives, Test Dates on Handouts or Chart Paper.
  - (3) Use Direct Teaching Methods:
    - a. Proceed step-by-step through needed information;
    - b. Underline important facts on handouts.
  - (4) Test Frequently and Provide Feedback on Details and Sequence.
  - (5) For Sound-Oriented Analytics, Speak Directly to the Point.
  - (6) For Tactual-Oriented Analytics, Touch the Student's Shoulder, Arm or Wrist as You Speak.

A law school class is likely to consist of both global and analytic learners. An example of an instructional technique that incorporates both global and analytic components would be a team structure that separates global from analytic learners. Start the global learners with a creative assignment, then pose inference questions, and then provide factual materials. For the analytic learners, start with factual materials, then pose inference questions, and then have them do a creative assignment. The appropriate sequencing of the material will aid students in their understanding.

*C. Emotional Factors: Motivation, Persistence, Responsibility, and Structure*

On the PEPS, "motivation" scores measure the degree to which a student wishes to please some authority in her life, such as a teacher or an employer.<sup>134</sup> In the law school population that we tested, 11% were motivated,<sup>135</sup> but 13% were at the opposite end of the scale.<sup>136</sup> Low motivation may be reversed if the professor responds to the student's learning-style characteristics.<sup>137</sup>

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<sup>134</sup> See DUNN & DUNN, *supra* note 3, at 44-45, 50 (describing motivation as an environmental factor). In contrast, the sociological category contains the Authority Figure Present element, which measures whether the student wants feedback, usually from the teacher. See *infra* notes 164-169 and accompanying text (discussing the need to learn with an authoritative adult); DUNN & DUNN, *supra* note 3, at 47 (noting the difference between a highly motivated student's desire to please "some adult" and the Authority Figure Present element).

<sup>135</sup> See App. 2 (achieving sixty or above on PEPS Subscale #5-Motivation).

<sup>136</sup> See App. 3 (achieving forty or below on PEPS Subscale #5-Motivation).

<sup>137</sup> See DUNN & DUNN, *supra* note 3, at 50 (suggesting how to transform a low motivated student).

“Persistence” measures whether the student continues to work on a single task until completion.<sup>138</sup> Less than 10% were persistent,<sup>139</sup> as opposed to 5% who were low on persistence.<sup>140</sup>

“Responsibility” measures whether the student is a conformist (high scorer) or a nonconformist (low scorer).<sup>141</sup> In our population, only 16% were conforming,<sup>142</sup> as opposed to 25% who were non-conforming.<sup>143</sup>

A low “responsibility” score indicates that the student is a nonconformist.<sup>144</sup> “[If a student] is interested in what he is learning, he can be persistent and function with an average amount of structure.”<sup>145</sup> As Dunn notes, however, “[when a student] is either uninterested or unable to master the material, he reveals a short attention span and does not follow directions.”<sup>146</sup>

With respect to “structure,” the PEPS measures whether students prefer externally imposed structure (high score) or the opportunity to do things in their own way (low score).<sup>147</sup> Sixty-seven percent of our group required structure,<sup>148</sup> indicating that course outlines should include designated objectives, assignments, representative examples of how work should be submitted, specific due dates for tests and papers, and so forth. In a Legal Research and Writing class, this 67% would benefit from writing samples of upcoming assignments, such as sample interoffice research memoranda and appellate briefs.

#### *D. Environmental Factors: Sound, Light, Temperature, and Furniture/Seating Design*

In our law school population tested, 18% preferred sound—music or conversation in the background—while learning.<sup>149</sup> Those who preferred quiet were 21%.<sup>150</sup> Twenty-four percent of the students preferred to sit directly under overhead lighting or near a window to

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<sup>138</sup> See *id.* at 45.

<sup>139</sup> See App. 2 (achieving sixty or above on PEPS Subscale #6–Persistent).

<sup>140</sup> See App. 3 (achieving forty or below on PEPS Subscale #6–Persistent).

<sup>141</sup> See DUNN & DUNN, *supra* note 3, at 48.

<sup>142</sup> See App. 2 (achieving sixty or above on PEPS Subscale #7–Responsible).

<sup>143</sup> See App. 3 (achieving forty or below on PEPS Subscale #7–Responsible).

<sup>144</sup> See DUNN & DUNN, *supra* note 3, at 48.

<sup>145</sup> *Id.*

<sup>146</sup> *Id.*

<sup>147</sup> See *id.* at 44 (noting the relationship between structure and learning).

<sup>148</sup> See App. 2 (achieving sixty or above on PEPS Subscale #8–Structure).

<sup>149</sup> See App. 2 (achieving sixty or above on PEPS Subscale #1–Noise).

<sup>150</sup> See App. 3 (achieving forty or below on PEPS Subscale #1–Noise).

gain extra lighting.<sup>151</sup> Sixteen percent preferred low lighting;<sup>152</sup> bright illumination made them hyperactive or tense.<sup>153</sup> Twenty percent preferred a warm room,<sup>154</sup> as opposed to 12% who preferred cool.<sup>155</sup> Only 18% of the students we tested preferred traditional seating, such as a chair and desk top, whereas an equal percentage preferred informal seating, such as a soft chair.<sup>156</sup>

Professors should consider varying the placement of furniture in the classroom if it is moveable.<sup>157</sup> Changing the furniture placement will provide different physical settings, enabling students to function more naturally.

For instance, on a day when client counseling is being simulated, (an ideal instructional strategy for global learners with kinesthetic perceptual strengths) the classroom could resemble a law firm office. If the office is designed with formal design seating, such as desks and straight-back chairs, this would be compatible with analytic learners. If the office also contained soft chairs, this would be compatible with global learners.

On a different day, in-class reading and writing exercises could be assigned that require concentration, which are ideal for those with visual and tactual strengths. A reading-room atmosphere could be created whereby a quiet area is designated for the analytic learners consisting of hard chairs with desk tops, and a non-quiet area could be arranged that includes soft chairs and allows students to wear headphones while listening to music. Both of these areas also could accommodate small group projects.

In the traditional classroom, students can be advised to bring cushions for sitting on wooden, steel, or plastic chairs if they prefer informal seating. The professor could also be flexible with the seating arrangement. Rather than seating students in alphabetical order or to a seating chart established the first day of class, the professor could instead allow students to sit where they feel most

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<sup>151</sup> See App. 2 (achieving sixty or above on PEPS Subscale #2–Light).

<sup>152</sup> See App. 3 (achieving forty or below on PEPS Subscale #2–Light).

<sup>153</sup> See DUNN & DUNN, *supra* note 3, at 9 (discussing student concentration in environments with different lighting).

<sup>154</sup> See App. 2 (achieving sixty or above on PEPS Subscale #3–Temperature).

<sup>155</sup> See App. 3 (achieving forty or below on PEPS Subscale #3–Temperature). For students who score in the mid-range of 41-59, temperature is not important. “When . . . interested in what [they are] learning or doing, [they are] unaware of temperature except when it is at an extreme; when . . . bored, however, [these students] will become aware of temperature discomfort.” DUNN & DUNN, *supra* note 3, at 44.

<sup>156</sup> See App. 2 and 3 (Subscale #4–Design).

<sup>157</sup> See DUNN & DUNN, *supra* note 3, at 57-99 (discussing redesigning educational environments).

comfortable. Some students may automatically gravitate toward the window seats. Once students are made aware of their learning styles, they can adjust their environments.

### *E. Sociological Factors*

#### 1. Learning Alone, in a Pair, or in a Small Group

We explored whether law school students express preferences for working alone, in pairs, or in small groups. These preferences constitute some of the elements for Dunn and Dunn's category of "sociological preferences."<sup>158</sup> Previous researchers found that some undergraduate students were responsive to certain instructional strategies, such as small-group techniques, if these strategies complemented their sociological preferences.<sup>159</sup> In the population of law students tested, we found that small-group techniques are likely to be effective with only 11% of the students.<sup>160</sup> Because the PEPS assesses the responses that students provide, this statistic means that only 11% preferred working with others. Small-group techniques, however, were likely to be detrimental for the 30% of the law student population who prefer to concentrate on new and difficult material by themselves; these individuals learn best

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<sup>158</sup> See DUNN & DUNN, *supra* note 3, at 3-4 (describing five categories of learning stimuli, of which "sociological preferences" is one such category).

<sup>159</sup> See generally Thomas C. De Bello, A Critical Analysis of the Achievement and Attitude Effects of Administrative Assignments to Social Studies Writing Instruction Based on Identified, Eighth Grade Students' Learning Style Preferences for Learning Alone, with Peers, or with Teachers 2 (1985) (unpublished Ph.D. dissertation, St. John's University) (on file with Dissertation Abstracts Int'l) (finding that "when students' sociological preferences were matched with complementary essay revision strategies, their writing scores were significantly higher than [sic] when mismatched"); Barbara J. Miles, An Investigation of the Relationships Among the Learning Style Sociological Preferences of Fifth and Sixth Grade Students, Selected Interactive Classroom Patterns, Attitudes, and Achievement in Career Awareness and Career Decision-Making Concepts 2 (1987) (unpublished Ph.D. dissertation, St. John's University) (on file with Dissertation Abstracts Int'l) (finding that "the matching of sociological preferences for learning alone or learning with peers with complementary grouping patterns increased achievement significantly on career awareness and career decision-making") (citations omitted); Janet Link Perrin, An Experimental Investigation of the Relationships Among the Learning Style Sociological Preferences of Gifted and Normal Primary Children, Selected Instructional Strategies, Attitudes, and Achievement in Problem Solving and Word Recognition 2 (1984) (unpublished Ph.D. dissertation, St. John's University) (on file with Dissertation Abstracts Int'l) (finding that "significant differences emerged when subjects were matched and mismatched with instructional strategies that were congruent and incongruent with their diagnosed sociological preferences").

<sup>160</sup> See App. 2 (achieving sixty or above on the PEPS Subscale #9—Learning Alone).

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alone.<sup>161</sup> Because small-group instructional strategies are likely to be effective with only a small percentage of the students tested, consequently making such strategies relatively ineffective with the majority of the students, a single method could not be universally effective.

However, many small-group techniques, such as collaborative learning, can accommodate multiple learning style preferences.<sup>162</sup> Small-group techniques are especially appropriate for students who are peer-oriented, motivated, persistent, and responsible.<sup>163</sup> They are also useful for those who are high on auditory, visual and tactual strengths. The highly tactual students can be designated as note-takers.

To diversify instructional strategies, law professors should permit students to individually choose whether they wish to work within a group or independently. Those who feel comfortable in groups will likely team-up with a classmate, and those who do not will work alone. To do this, design the classroom exercise for both collaborative and independent learning.

Alternatively, a classroom exercise could be divided into two parts. First, all students could be given time to work independently. Second, have the students work within small groups when the first part of the exercise is completed. This strategy should reach all of the preferences, just not at the same time.

## 2. Learning with a Collegial or Authoritative Adult

Almost 24% of the population we tested wanted to work with an authoritative adult who provided direct feedback.<sup>164</sup> Some high scorers in this particular element may ask for individual attention from their teachers.<sup>165</sup> If the teacher prefers to direct instruction to the whole class rather than to individuals, tension may develop between the teacher and this particular student. As Dunn and Dunn point out, “[g]ifted students [may] experience such

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<sup>161</sup> See App. 3 (achieving forty or below on the PEPS Subscale #9–Learning Alone).

<sup>162</sup> See DUNN & DUNN, *supra* note 3, at 118-25 (providing an overview of team learning as mechanism for facilitating multiple learning patterns).

<sup>163</sup> See *supra* Part II.C for a discussion of these terms.

<sup>164</sup> See App. 2 (achieving sixty or above on the PEPS Subscale #10–Authority Figure Present).

<sup>165</sup> See DUNN & DUNN, *supra* note 3, at 45 (noting how the relationship between nonconformity and wanting feedback leads to a student’s desire to seek out individualized attention under certain circumstances).

frustration, and . . . [may] not perform well in school or [may] become angry with the process of schooling.”<sup>166</sup>

Not all students need firm teachers. For example, if a student’s score on Motivation is sixty or above and the Authority Figure Present score is above sixty, that student may need an authoritative teacher who can be warm but firm. On the other hand, if the Motivation score is sixty or above, and the Authority Figure Present score is forty or below, then that student is most likely to benefit from a collegial, rather than an authoritative, teacher.<sup>167</sup>

Authority-figure oriented students have difficulties learning either alone or with a classmate.<sup>168</sup> Therefore, professors should give these students guidance, reinforcement, or assistance.<sup>169</sup> When working on in-class assignments, it would be beneficial for these students to either sit near the professor, or for the professor to frequently walk to the desks of these students, so as to provide feedback. Additionally, one-on-one conferences would most likely be beneficial for these students.

### 3. Learning in Several Ways

The PEPS measures whether students prefer to learn in a variety of ways as opposed to in consistent patterns.<sup>170</sup> In our population, 5% preferred variety and would become “bored quickly when required to engage in patterns and routines.”<sup>171</sup> In the same population, 4% did not prefer variety.<sup>172</sup>

To accommodate students who need variety, professors should permit students to do assignments, in-class or at-home, in alternative ways.<sup>173</sup> Providing choices in assignments may ease the boredom that these particular students feel when experiencing routines and patterns. Other students who prefer routines may opt to do all assignments in the same way.

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<sup>166</sup> *Id.*

<sup>167</sup> *See id.* at 49-50.

<sup>168</sup> *See De Bello, supra* note 159, at 109-10 (finding that “the analysis of authority oriented students indicated that those who were matched with the teacher conference strategy scored higher than those mismatched with peer conference or self review”) (citation omitted).

<sup>169</sup> *See DUNN & DUNN, supra* note 3, at 399 (noting the importance of being responsive to “adult-oriented” students).

<sup>170</sup> *See DUNN & DUNN, supra* note 3, at 45-46.

<sup>171</sup> *See App. 2* (achieving sixty or above on PEPS Subscale #11–Learn in Several Ways); *see also DUNN & DUNN, supra* note 3, at 45-46 (discussing the variety needed to keep a particular student interested in the process of learning).

<sup>172</sup> *See App. 3* (achieving forty or below on PEPS Subscale #11–Learn in Several Ways).

<sup>173</sup> *See DUNN & DUNN, supra* note 3, at 400.



It would be an overwhelming task for a professor to do all of these suggested modifications to his or her teaching methods in an immediate time frame. Nor do all of these suggestions need to be implemented for a single course. Instead, professors should proceed with cautious adventure, experimenting with one slight modification at a time.

### III. LEARNING THROUGH HOMEWORK PRESCRIPTIONS

Once students are tested using the PEPS, "homework prescriptions" should be given to each student for their out-of-class purposes.<sup>174</sup> These prescriptions, provided by the St. John's University Center for the Study of Learning and Teaching Styles,<sup>175</sup> explain each student's learning style preferences, and include a narrative on those preferences that are particularly high or low.<sup>176</sup>

Homework prescriptions have been proven to be successful.<sup>177</sup> Barbara Nelson, Rita Dunn, Shirley A. Griggs, Louis Primavera, Margaret Fitzpatrick, Zarif Bacilious, and Richard Miller identified individual styles of freshman in a medium-sized public community college in Texas with the PEPS and then provided them with homework prescriptions for studying with matched (complementary) strategies.<sup>178</sup> Over one thousand college freshmen participated in the study.<sup>179</sup> The matched prescriptions had a significant impact on student achievement and retention, and the college's annual dropout rate was significantly reduced among those students "receiv[ing] instruction in studying congruently with their learning style[s]."<sup>180</sup> Those results were particularly meaningful in light of John F. Demitroff's,<sup>181</sup> and James W. Trent and Janet H. Ruyle's<sup>182</sup>

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<sup>174</sup> See App. 4 (providing an example of a homework prescription).

<sup>175</sup> See App. 1 (providing more detail on obtaining homework prescriptions).

<sup>176</sup> See App. 4 (providing an example of what a homework prescription may suggest as a study regimen).

<sup>177</sup> See Nelson, *supra* note 16, at 368 (concluding that "those students who received instruction in studying congruently with their learning style preferences achieved significantly better than those subjects in either the limited exposure or no exposure groups").

<sup>178</sup> See *id.* at 365-67 (observing that students obtaining the most learning style interaction achieved higher GPA's).

<sup>179</sup> See *id.* at 365.

<sup>180</sup> *Id.* at 367-68.

<sup>181</sup> See John F. Demitroff, *Student Persistence*, 49 C. & U. 553, 561 (1974) (profiling a typical college student who canceled registration as "a freshman undecided upon his/her academic major with no specific vocational plans . . . lacks motivation and has less confidence in the effectiveness of his/her study habits and in his/her ability to complete the baccalaureate degree").

earlier findings that weak study habits resulted in inadequate student scholastic performance and led to either voluntary or involuntary withdrawal from college.

More recently, Miriam C. Lenehan, Rita Dunn, Joanne Ingham, Barbara Signer and John B. Murray provided a control group of 203 nursing students “with conventional study-skill guidelines, tutoring, and advisement assistance.”<sup>183</sup> In contrast, the experimental group was given the same conventional program, but was additionally “provided [with] homework prescriptions based on their identified learning-style preferences.”<sup>184</sup> Later, “[a]t three different intervals during the course of the semester, both the experimental and control groups were . . . [tested for] their levels of . . . anxiety, anger, and curiosity toward science . . . .”<sup>185</sup> The results were that “[s]tudents in the experimental group achieved statistically higher (a) science grades, (b) grade-point-averages, (c) curiosity about science scores, and (d) lower anxiety and anger scores than students in the control group.”<sup>186</sup>

The homework prescription is individually tailored for each student.<sup>187</sup> It provides a chart summarizing how each student measures on every element that the PEPS assesses. It also provides a narrative for the elements in which the student scored very high or very low.<sup>188</sup> The narrative suggests how the student could adjust the way she studies in relation to the five categories and their twenty-one elements.<sup>189</sup>

For instance, if the student prefers bright light and scores sixty or above on the PEPS, then her narrative for this element would read: “You tend to prefer bright light when you learn something new or difficult and concentrate on a challenging project. Good lighting in

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<sup>182</sup> See James W. Trent & Janet H. Ruyle, *Variations, Flow, and Patterns of College Attendance*, 41 C. & U. 61, 71 (1965) (finding that those who completed college reported studying far more hours per week than dropout students; “[f]orty per cent of the completers compared to 15 per cent of the dropout students reported studying 20 or more hours each week . . .”).

<sup>183</sup> Lenehan, *supra* note 10, at 461.

<sup>184</sup> *Id.* at 461.

<sup>185</sup> *Id.* at 463 (noting that the tests were administered at the beginning and the end of the semester as well as at the time of the first test).

<sup>186</sup> *Id.* at 461 (noting that the experimental group’s greater success is attributable to the student’s awareness of their unique learning styles).

<sup>187</sup> See *id.* at 462 (explaining that a computer program is used to convert “each individual’s preferred learning style . . . . into a series of directions . . . . called his/her ‘Homework Prescription’”).

<sup>188</sup> See App. 1.

<sup>189</sup> See *supra* Part II (providing a description of the five categories and their corresponding elements).

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your work environment will maximize your productivity and enhance your ability to stay focused.”

If the student prefers to work on a variety of tasks and scores sixty or above on the PEPS, then her narrative for this element would read: “When learning something new or difficult and when working on a challenging task, you tend to thrive on change. You get bored with the same routine day in and day out. You tend to take risks at times and are productive trying things in new ways.”

The homework prescriptions are useful for the professor because they provide an assessment of each individual student. They are significantly instructional for students because they assist students in learning how to study more effectively. The process of helping students to become self-learners is gaining popularity in law schools, particularly within the academic support programs.<sup>190</sup> The homework prescriptions would aid students in teaching themselves how to learn.

#### CONCLUSION

A single method of teaching, whether traditional or nontraditional, is unlikely to prove effective with all students because of the diversity of students’ learning styles. Past experimental research has revealed that many under-achieving students failed because of the inappropriate instructional approaches used with them, yet they evidenced statistically higher achievement with different strategies.

Once the learning-styles composition of the class is known, law professors should determine which teaching methods to maintain, delete, or add to their repertoire. Because no method is effective for all students, law professors should determine which methods are likely to be most responsive to the learning styles of large clusters of students in each of their classes. In addition, law professors should determine which individuals require special adaptations. Alternatively, professors who choose not to assess their classes will be operating blindly, but are advised to at least incorporate a diversity of approaches to reach a wider audience.

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<sup>190</sup> See Lustbader, *supra* note 54, at 852-53 (“Students need to understand their own learning processes, [and] modify those processes to be more effective . . . . To facilitate students’ awareness of how they learn, ASP teachers focus on the process of learning, provide examples of different ways students can master a specific skill, help students develop ways to evaluate their learning, and encourage students to modify their study techniques accordingly.”) (footnote omitted); Roach, *supra* note 2, at 668-69; see also *supra* text accompanying note 39 (discussing “metacognition”).

