Improving Legal Education through Carnegie Apprenticeship Integration

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"[I]f one's goal is to educate for understanding, assessment instruments must look at. . . performances. If the goal is to produce [someone] who writes, ask them to write. . . ."
Howard Gardner (1993)

I. *Introduction: Educating Tomorrow's Lawyers*

In today's world of legal education, value matters more than ever. Clients have made clear that they will not pay to train new lawyers, and firms are getting the message.[2] Law schools are under fire for being too theoretical, and insufficiently focused on the practical aspects of lawyering.[3] And you can hardly look at the news without seeing stories of debt-laden law graduates struggling to find jobs. Whatever one might think of these critiques, they make one thing clear: Law schools have an important opportunity. Those schools that prepare their graduates to compete for good legal jobs by being practice-ready – that is, ready to provide value to their clients on the day they graduate – will thrive.

Fortunately, the template for providing this type of legal education is readily available. A 2007 report by the Carnegie Foundation, entitled *Educating Lawyers*[4], provided a careful analysis of modern legal education and modern learning theory. That report concluded that law schools could produce practice-ready lawyers by balancing and integrating three core components – or apprenticeships – in legal education: doctrine, skills, and professional identity (what it means to be a lawyer and a professional).[5]

However, the Carnegie Report provided few examples of how this could be done. That task has been left to a group of innovative law professors across the country. These professors are developing ways to integrate the three Carnegie apprenticeships in various classroom settings. And perhaps just as importantly, many of these professors are engaged in a dialogue about why they teach the way that they do, what works and does not work, and how we can all improve our teaching and learning. An excellent example of this dialogue can be found on a website called *Educating Tomorrow's Lawyers*.[6]

This article will feature two examples of innovations that are designed to implement the insights of the Carnegie Report (and studies about learning that support the Carnegie Report's recommendations), and to further the discussion about how law schools can engage

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[2] *See, e.g.,* What's a First Year Lawyer Worth, Wall St. J. Oct. 17, 2011.

[3] *See, e.g.*, What they Don't Teach Law Students: Lawyering, N.Y. Times, Nov. 20, 2011.

[4] William Sullivan, Anne Colby, Judith Welch Wegner, Lloyd Bond, Lee S. Shulman, EDUCATING LAWYERS: PREPARATION FOR THE PROFESSION OF LAW (2007) (hereinafter "the Report").

[5] *Id.* at 13-14.

[6] *See, e.g..,* Educating Tomorrow's Lawyers, http://educatingtomorrowslawyers.du.edu.

in more effective teaching and learning. The article will explain why these innovations make sense, both in terms of learning theory and in terms the practicalities of modern legal education.

II. *Integrated Learning and Metacognition: Law School Goals and Strategies in and Beyond the First Year*

Both teaching and learning are fairly well accomplished in the typical American law school during the first year of law instruction.[7] Law students arrive fresh and ready to study law. They learn to brief cases and slowly begin to master the give and take "Socratic" approach adopted by most professors. The students are invigorated and challenged by the learning of law, and ultimately learn some of the basic critical analytical skills needed to engage in legal practice.[8] First year professors are motivated and energized by the level of student preparedness and curiosity.[9] Certainly, there are ways to improve the first year (for example, by coordinating teaching and learning across subject matter areas like contracts, torts, property, by incorporating skills instruction, by integrating more ethics/professionalism, or by boosting the first year learning experience through the use of online tools and electronic platforms), but for the most part the first year works well in achieving its stated purpose—effectively introducing students to law and legal analysis. In sum, the first year, while it has its issues, is not the first thing in the law school program we would endeavor to fix.

But by the second year of law school, this enthusiasm often ebbs, and by the time these same students enter the third year, the motivation and energy may be in short supply.[10] Teaching often suffers as a result. Why is this? Part of the reason is that students have become, by the second and third year, familiar with and bored by the Socratic give and take, they know that performance in class and on the final exam do not always correlate, and they have more or less mastered the basic analytical approach to case law and statutes. Also, for the goal of pouring more and more content into the minds of law students, we often sacrifice other more important goals related to improving critical thinking, deepening an appreciation for ethics and the role of the lawyer, and, of course, increasing opportunities for students to hone writing and oral advocacy practice skills vital to success for lawyers in the real world.

A. Integrating the Carnegie Apprenticeships

In 2007, the Carnegie Foundation for the Advancement of Teaching released its multi-year study of teaching and learning in law school. The report, titled "EDUCATING

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[7] *Id.* at 2 ("[B]y the end of their first year, most [law students] have developed a clear ability to reason and argue in ways distinctive to the American legal profession.") .

[8] *Id.* at 2 ("Students . . . know that they will have to present more than memorized formulas . . . . [T]here is often excitement, as students put aside their instinctive reactions and their laypersons' reasoning about cases, to try in earnest to 'think like a lawyer.'").

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[10] *Id.* at 77 ("A rather disturbing, though not particularly surprising, finding of the [Law School Survey of Student Engagement] is the drop-off in interest and effort in classroom learning as students move through law school."). *See also* Mitu Gulati, et al., *The Happy Charade: An Empirical Examination of the Third Year of Law School*, 51 J. LEGAL EDUC. 235, 244 (2001) (".Even under optimal conditions, we estimate that third-year students at many schools attend only around 60 percent of their large classes.")

LAWYERS: PREPARATION FOR THE PROFESSION OF LAW," (herein after "the Report")identifies three apprenticeships that make up the framework for legal education: 1. Legal Analysis, 2. Practical Skills, and 3. Professional Identity.[11] Although these three apprenticeships are found in various forms in all law schools, they are very seldom integrated with each other. Consequently, the Carnegie Report recommendations "attempt to imagine a more capacious, yet more integrated, legal education. [The] primary concern is both curricular (in particular, how to use the second two years of law school more effectively) and pedagogical (how to bring teaching and learning of legal doctrine into a more fruitful dialogue with the pedagogies of practice)."[12]

While the Carnegie Report seeks explicitly to wed formal knowledge and the experience of practice by urging integration, the Report more implicitly seeks to bring legal education more in line with what has been discovered in science about the brain and how it works in order to learn. According to the Report,

> Developments in philosophy and the learning sciences have made increasingly clear the reciprocal interpenetration of cognitive development and social interaction. . . . Skillful practice, whether of a surgeon, a judge, a teacher, a legal counselor, or a nurse, means involvement in situations that are necessarily indeterminate from the point of view of formal knowledge. Professional practice, that is, depends on judgment in order to yield an outcome that can further the profession's purposes. . . . The mark of professional expertise is the ability to both ***act and think well in uncertain situations.*** The task of professional education is to facilitate novices' growth into similar capacities to act with competence, moving toward expertise.[13]

For law schools, this insight from the Report suggests that students need to begin early on in their legal education to begin to apply formal knowledge to situations and circumstances that require the use of judgment, and perhaps mostly in the nuanced ways in which those arise in the real context of lawyering. Along these lines, the Report further states,

> Research suggests that learning happens best when an expert is able to model performance in such a way that the learner can imitate the performance while the expert provides feedback to guide the learner in making the activity his or her own.... This requires learning the "subject matter" of law ..., but in a way that is already structured for performance.... ***In many professional fields, though less so in law, these insights into learning have given rise to the widespread use of simulation as a form of teaching & learning.***"[14]

B. Applying the Science of Learning to Upper Level Law Classes

[11]Carnegie Report at 12-14, 27-29. ,
[12] *Id.* at 12.
[13] *Id.* at 8-9.
[14] *Id.* at 26.

New developments in the science of learning and in educational theory provide some guidance for how law schools might think differently about their upper class program.[15] Students might be able to learn about different substantive content areas in law in ways that also expand their ability to think critically about law and legal situations. While the first year critical thinking focus may be on understanding argument and policy by use of particularized legal products like the case and the statute, the upper class might focus its metacognitive goals on how to make meaning or understand it, on how to evaluate evidence and produce it, and on how to self-evaluate argument and thinking. These goals are hard to accomplish in a learning situation where the teacher tries to transfer his or her own experience directly into the brains of students mostly through lecture. Socratic dialogues on subjects where students lack legal experience and knowledge in short, large classes that last only an hour and fifteen minutes and are composed of more than fifteen students often resemble the lecture format in style and texture unless the class is slowed tremendously. In contrast, the use of active and collaborative learning to forward metacognitive goals in a simulation-based learning environment seems to hold quite a bit of potential for better learning along the lines both suggested by Carnegie and implicated by developments in the field of scientific research about how people learn. This is particularly true when it can be accomplished in a way that integrates the three Carnegie apprenticeships: legal analytical thinking, practice skills and - formation of professional identity.

In 1999, the National Academy of Sciences published the result of a two year study analyzing the findings of research on the science of learning. In 2000, the Academy followed up with a book, HOW PEOPLE LEARN: BRAIN, MIND, EXPERIENCE, AND SCHOOL,[16] attempting to link research on the science of learning to actual practice in the classroom.[17] According to that effort,

> New developments in the science of learning … emphasize the importance of helping people take control of their own learning. Since understanding is viewed as important, people must learn to recognize when they understand and when they need more information. What strategies might they use to assess whether they understand someone else's meaning? What kinds of evidence do they need in order to believe particular claims? How can they build their own theories of phenomena and test them effectively? When should they identify ethical issues and how should they resolve them? Many important activities that support active learning have been studied under the heading of "metacognition…." Metacognition refers to people's abilities to predict their performances on various tasks (e.g., how well they will be able to remember various stimuli) and to monitor their current levels of mastery and understanding.[18] Teaching practices congruent with a metacognitive approach to learning include those that focus on sense-making, self-assessment, and reflection on

[15] *See, e.g.,* Filippa Marullo Anzalone, *It All Begins With You: Improving Law School Learning Through Professional Self-Awareness and Critical Reflection*, 24 HAMLINE L. REV. 324, 359-69 (2001) (describing research in human cognition and learning styles and its application to legal education); Anthony S. Niedwiecki, *Lawyers and Learning: A Metacognitive Approach to Legal Education*, 13 WIDENER L. REV. 33 (2006) (examines importance of teaching law students metacognitive skills); Jane Welch Wegner, *Reframing Legal Education's "Wicked Problems,"* 61 RUTGERS L. REV. 867(2009) (describing developments in "learning sciences" and adult learning theory and their relevance to legal education).

[16] HOW PEOPLE LEARN: BRAIN, MIND, EXPERIENCE, AND SCHOOL (John Bransford, Ann Brown, Rodney Cocking eds. , 2000) (hereinafter "HOW PEOPLE LEARN").

[17] *Id.* at vii (Preface).

[18] *Id.* at 12 (citing, Brown, 1975; Flavell, 1973).

> what worked and what needs improving. These practices have been shown to increase the degree to which students transfer their learning to new settings and events….[19] The new science of learning is beginning to provide knowledge to improve significantly people's abilities to become active learners who seek to understand complex subject matter and are better prepared to transfer what they have learned to new problems and settings. Making this happen is a challenge,[20] but it is not impossible. The emerging science of learning underscores the importance of re-thinking what is taught, how it is taught, and how learning is assessed."[21]

A promising teaching method that integrates the Carnegie apprenticeships and achieves the goal of student metacognition described above is teaching through "ill-structured simulations" that pervade the entire semester-long course.[22] The idea behind such course design is that it is possible to teach "doctrinal" law within the context of practice through such a "whole-course" simulation. And the concept of the "ill-structured simulation" is that there are no pat, ready answers or one entirely predictable result– as would be the case with an overly structured simulation. Rather, the problem that frames the simulation permits a broad range of reasonable responses to each of its facets.

One of the great benefits of this teaching method is that it creates many opportunities for active learning, sense-making, self-assessment, and reflection by the students, as the students work with each other to construct the subject of the course together in collaborative exercises. These strategies provide a better way to achieve transfer and long-term retention of information while also providing an integrated law school experience emphasizing not only legal analytical thinking, but also practical skills and professionalism in a single class. Two examples are described below – in a Labor Law course, and in a Discovery Law course.

These active and collaborative learning interventions used in upper level law school courses have been implemented with some success for student metacognition. Research in the education field has shown the promise of intertwined active and collaborative learning approaches in simulations. Simulations have the benefit of supporting the professional identity apprenticeship – often overlooked in legal education - since they put the students in the role of the lawyer in a world in which lawyers increasingly work as members of problem-solving teams. Moreover, simulations support collaborative and active learning almost by definition. For example,

> "Collaborative learning … emphasizes the virtues of active involvement. It requires students to take the initiative in the classroom, to become active creators rather than passive recipients of knowledge, and to rely on each other as much or more than on the teacher's authority."[23] Education studies show that "the difficult abilities of

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[19] *Id.* (citing, Palincsar and Brown, 1984; Scardamalia et al., 1984; Schoenfeld, 1983, 1985, 1991).
[20] *Id.* at 13 (citing, Elmore et al., 1996).
[21] *Id.* at 12-13.
[22] *See, e.g.,* David Jonassen, *Instructional Design Models for Well-Structured and Ill-Structured Problem Solving Learning Outcomes,* 45 EDUC. TECH. RES. & DEV. 65 (Mar. 1997). *See also* DAVID JONASSEN, LEARNING TO SOLVE PROBLEMS: A HANDBOOK FOR DESIGNING PROBLEM-SOLVING LEARNING ENVIRONMENTS (2011) .
[23] Edmund J. Hansen & James A. Stephens, *The Ethics of Learner-Centered Education,* CHANGE 41, 44 (Sept./Oct. 2000).

> decision-making and problem-solving are best taught through learning groups." [24] "Drawing analogies from everyday learning, researchers argue that knowledge is contextualized; that is, learners construct knowledge by solving complex problems in situations in which they use cognitive tools, multiple sources of information, and other individuals as resources.[25] Moreover, because learning occurs in a social context, learners interact with and internalize models of knowing and thinking represented and practiced in a community."[26]

Active and collaborative learning models focusing on student performance rather than teacher performance for complex decision-making and problem-solving are adaptable to law school.

III. *Simulations in Two Distinct Upperclass Law Courses*

A robust simulation model creating "ill-structured" environments in law school classrooms supports metacognitive goals and helps us to reach students in important ways that are critical to student learning and achievement, not just in law school but beyond law school as well. After all, a professor in a professional school should not be solely concerned with student development for the benefit of the student, but for the benefit of that student's future clients as well. Progression from law school to law practice should be more or less a seamless web of active study and constant learning, and further, should support the formation of skills for life-long learning in the graduate. Law schools must find a way to develop those skills while students are still in school, and the simulation model provides a structure within which to do this.

A. The Labor Law Class

The labor law simulation that takes place in Roberto Corrada's labor law class reflects a metacognitive approach to teaching and learning. Students become involved in planning the course and in taking control,in the labor law class through collective bargaining typically. The simulation is not completely worked out by the professor in advance – it does not have a particular "right" or correct ending. The class presents the opportunity for students to organize a union and bargain with the professor about the terms and conditions of the class. The class is organized so that the topics the students would need to know are presented first. Corrada also introduces active learning by committing an unfair labor practice at the beginning of the class. The unfair labor practice is intended to allow students to see that the classroom becomes a metaphor for the workplace. Once students see the metaphor that transforms the classroom into the workplace, the challenge is a strategic one for students, requiring engagement of critical thinking skills – what can they do to change the class to achieve a desired outcome? How can they use casebook learning to effect a real change in their environment? What kind of arguments will work? Will they need a coalition

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[24] *Id.* at 43; Larry L. Michaelson, L.D. Fink & Arletta Knight, *Designing Effective Group Activities: Lessons for Classroom Teaching and Faculty Development,* 16 TO IMPROVE THE ACADEMY 373(1997).

[25] *See* John Seely Brown, Allan Collins, & Paul Duguid, *Situated Cognition and the Culture of Learning,* 18 EDUC. RES. 32 (Jan. 1989); Lauren B. Resnick, The 1987 Presidential Address: *Learning In School and Out,* 16 EDUC. RES. 13 (Dec. 1987).

[26] Phyllis C. Blumenfeld et al., *Motivating Project-Based Learning: Sustaining the Doing, Supporting the Learning,* 26 EDUC. PSYCHOLOGIST 369, 371 (1991).

or can they effect change on their own? Is a legal strategy the best? A series of imbedded and serendipitous unfair labor practices enter into the classroom environment to be plucked by students who can transfer knowledge from the casebook to the classroom. Effectiveness of a strategy can be measured by outcome – does the student action change things?[27] This ill-structured approach simulates the real world of lawyering in its uncertainty, but in a controlled context of the classroom.

Corrada begins the class by creating four committees/groups to provide feedback to me about student desires concerning assessment. What should count for credit in the course? How much should participation count towards a final grade? What kind of participation should count? Should there be a midterm? A final? What should these exams look like? The committees meet regularly during the first weeks of class, ultimately arriving at varying approaches to course assessment. During this period of time, students are assigned a case, *Electromation*, in which an employer creates committees to provide the employer feedback about personnel policies in the workplace. The case reveals that the employer's creation of the committees is an unfair labor practice, a violation of National Labor Relations Act Section 8(a)(2) prohibiting employer domination of a labor organization. The students should see that classroom practice mirrors the approach of the employer in *Electromation.* A student or students should then realize that is up to them to file an unfair labor practice charge against their professor/employer. This should be an "aha" moment for them. Corrada does not tell them that he expects unfair labor practices to be filed, but there are external links to the National Labor Relations Board on the class website. The NLRB web page contains charge forms. When the unfair labor practice charge is filed, Corrada typically institutes the *Electromation* remedy – disestablishment of the in-class committees. Students should then see that the way is clear to form a union, and that organizing one is entirely up to them. Like someone suddenly realizing they are stuck in quicksand, there should be a student realization that there is no escape from the circumstances created by the simulation.

The lesson of Section 8(a)(2) is then more solidly learned than could ever happen through a straight case and problem approach. The students seeking to organize a union are asked where the union stands on the very questions posed by professor to the in-class committees. Unfortunately, the union advocates are not treading on fresh ground. The students/employees have now coalesced into three or four views on the subject. The students should see that the employer creation of personnel committees has created subtle, but daunting, barriers to unionization. Students should understand that employer power is not simply the function of law or a legal relationship, but that workplace socialization is as important. Hopefully, students begin to see that legal doctrine is shaped by understandings about these relationships, that law and social context are co-dependent and co-constitutive.

The students eventually vote to unionize or reject unionization. There is always an election. Only once in about ten classes has the union been voted down, and in that class only by a couple of votes. In the class that voted the union down, though, there were challenges to employer/professor conduct during the election, necessitating a full-blown

[27] For a more detailed discussion of the basic setup of the class, see Roberto Corrada, *A Simulation in a Labor Law Class,* 45 J. LEGAL ED. 445 (1996); *see also* Educating Tomorrow's Lawyers, http://educatingtomorrowslawyers.du.edu..

post-election hearing. And, although that class continued in the traditional style, Corrada was able to use the earlier active class experience to inform the facts and the law in later cases. As a result of the simulation, Corrada could easily analogize these cases to the classroom.

Typically, though, the students vote for a union and the class moves to collective bargaining, shifting from a litigation-focused class to one that is transaction-focused. The students then see that everything is up for grabs, including the class content. Corrada cannot choose what area of labor law to discuss or what readings to assign without consulting the union. The students are presented with several choices about where the class should go in terms of coverage. Students also learn that power comes with responsibility. What should the professor teach us? What do we want to know? What should we want to know and why? Should union power be delegated to a committee? Do I trust people? Should I trust them? What is my role? Do any of these confounded cases help me with any of these questions? And, then, what do I want in the labor contract? Do I care about the type of exam I take? What about participation? What are the bounds of collective bargaining? Can I ask for anything? Will the professor agree to anything? Why? Do these confounded cases help me to answer these questions? Do we stop when the professor says he refuses to agree? Do we believe him? Do we strike to get what we want? What does the professor want? These are all questions covered in the traditional labor law class, but, Corrada maintains, in the crucible of a live simulation involving personal stakes related to class outcomes, the material is truly learned.

Student power and responsibility coupled with a legal process defined by the National Labor Relations Act is a very powerful tool for learning. Students know the questions to ask because they're driven by the class context, their context now, not the context of GM auto workers on the assembly line. The remainder of the class is a surprise, neither side knows the outcome.

B. The Discovery Law Class

A discovery litigation course might be thought of as just a skills course, leaving to some other course the teaching of the applicable doctrine. Most schools do not have a course focused just on Discovery law, in part because it is believed that the subject is sufficiently covered in first year Civil Procedure. Unfortunately, while all students take Civ Pro in the first year, they rarely learn much of the detail of the discovery phase in a civil litigation during that course. A typical Civil Procedure casebook runs to 1200 pages, and allocates but 40 pages on the discovery rules. While some courses might direct some effort at those rules, the overwhelming focus of the first year course is on such mainstream topics as jurisdiction, venue, pleading, and the *Erie* doctrine. This is done for two primary reasons: first, those are subjects that can be tested on a final exam more substantively than the discovery rules can be tested, and second, because those are the topics tested on the bar exam. Which is all understandable (and perhaps even appropriate), but it creates a problem: a law school graduate going into a litigation practice will have a good grounding in those subjects that can be tested on a summative exam, but will rarely have any idea how to actually draft a set of interrogatories, or why one would want to.

The Discovery Practice course taught by David Thomson is focused around the doctrine of the 13 FRCP that govern discovery. And while one could teach such a course in a "traditional" format, with lectures and a final exam, such a structure would not address the Carnegie Report's concerns about proper use of the upper level years in law school, and the integration of doctrine, skills, and professional identity formation. And so the structure of this course is set fully around a simulated litigation that is taking place during the course, lead by the students in teams of two. Each team of two students are simulating the same litigation, so there are 8-10 versions of the case going on in each administration of the course. In such a course design, students learn about (for example) Rule 33 – Interrogatories, by studying the rule, by discussing key cases that interpret the rule, and by learning various strategies as to how and when they are used in litigation. And then the students *prepare* a set of interrogatories, and at the next class they *serve* their assigned opposing counsel the set that they have drafted. And so on throughout the course, and a dozen discovery documents, one per week. In this simulation-based course design there is still class time, of course, and there is doctrine to cover. But there are many more active learning methods of teaching that can be implemented in this sort of simulation course.[28]

The problem set the students work on during the course is a product liability prescription drug case. It is an ill-structured problem in the sense that the case has a range of reasonable outcomes, although it is not entirely unpredictable how it is likely to turn out. At the beginning of the course, students are given a précis about the problem, a complaint and answer, and a portion of the file. They spend the rest of the course learning about the rules, cases, and strategy in class, and then they *use* the discovery tools they have learned to find out the rest of the information that is available – just as in a real litigation. In this way, the students are producers of knowledge about the case. But there are also ways in which they produce the knowledge about the discovery rules they learn during the course. One of those ways is that they work in collaborative groups to research one of the lesser important rules of discovery law (such as Rule 28 – Persons Before Whom Depositions May Be Taken) and present to the class what they have learned. There are 5 of these groups, and they each prepare a wiki-based research site and present in class from the site they have prepared. This way, other students have the sites on these rules to reference throughout the rest of the course.

C. Applying the Science of Learning: Law Simulation Courses and Metacognition

In How People Learn, a vast study of the science of learning commissioned by the National Research Council, three key findings are highlighted because they have both a solid research base to support them and strong implications for how we teach.[29]In the following section, we list the findings from the study (in bold) and the supporting research from the study (in italics) and then proceed to relate these to the labor and discovery classes discussed above.

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[28] For materials used in the Discovery Practice course, see Educating Tomorrow's Lawyers, http://educatingtomorrowslawyers.du.edu (Course Materials>Discovery Practicum).

[29] HOW PEOPLE LEARN, *supra* note 16, at 14-19.

1. Students come to the classroom with preconceptions about how the world works. If their initial understanding is not engaged, they may fail to grasp the new concepts and information that are taught, or they may learn them for purposes of a test but revert to their preconceptions outside the classroom.

Research on early learning suggests that the process of making sense of the world begins at a very young age. Children begin in preschool years to develop sophisticated understandings (whether accurate or not) of the phenomena around them (Wellman, 1990). Those initial understandings can have a powerful effect on the integration of new concepts and information. Sometimes those understandings are accurate, providing a foundation for building new knowledge. But sometimes they are inaccurate (Carey and Gelman, 1991). In science, students often have misconceptions of physical properties that cannot be easily observed. In humanities, their preconceptions often include stereotypes or simplifications, as when history is understood as a struggle between good guys and bad guys (Gardner, 1991). A critical feature of effective teaching is that it elicits from students their pre-existing understanding of the subject matter to be taught and provides opportunities to build on – or challenge – the initial understanding.[30]

a. As Applied to the Labor Law Class

What do students understand about unions? Most students enter the labor law class with a positive or negative, but roughly ill-formed, notion of how they feel about labor unions. At the University of Denver Sturm College of Law, most students entering the class have a negative view, usually informed by generalized ideas about union corruption or ineffectiveness. Oftentimes, student views are somewhat more benignly negative in their articulation to Corrada, based, he believes, on their belief that Corrada is pro union, and that their views therefore should be stated in other than absolute terms. That view is usually stylized in the following way: "I think unions have done a lot of good, and are responsible for higher wages and benefits enjoyed by workers, but they have outlived their usefulness…." Students who have a positive view of unions have usually had some sort of more intimate experience with a union – either they have been a union member or a close relative has had an experience as a union member. Corrada has found it to be true, and research cited above tends to support the idea, that a student's initial beliefs about unions will affect how she or he receives information in the class.

One of Corrada's key goals in the labor law classroom is to ensure that students confront their typically narrow, limited, and not very well informed idea of labor management relations in the United States. Corrada's hope is to have their views transmuted from all positive or all negative to a more sophisticated, nuanced view that understands the strengths and weaknesses of arguments surrounding particular policy approaches. The traditional class is deficient in being able to deliver this kind of result. Transformative experiences are lived experiences much more closely simulated in an active learning environment. In the traditional class, students personal, possibly deeply-held, beliefs about unions are seldom confronted. In the simulation class, the student-elected and student-run union becomes the catalyst for change in the classroom, with real stakes for students. The students see first-hand the strengths and weaknesses of the collective model. Ultimately, Corrada would like students to see that the National Labor Relations Act represents one scheme for seeking to give employees a voice in the workplace, and that a union is often

[30] *Id.* at 14-15.

what members make it. At the same time, Corrada makes sure, through the simulation, that students learn litigation and transaction skills critical to being good labor lawyers.

b. As Applied to the Discovery Law Course

Similarly, in the Discovery course, students come into the class with well-formed notions of how the litigation system works (or how it does not work) mostly drawn from popular media such as TV shows and movies. Typically, attorneys are depicted in the popular media as unethical sharks who use the litigation system for combat, often using it to unfairly overwhelm their opponents. The design of the Discovery course is to put students into nearly "real" situations, representing a client, and working with an opposing counsel, conducting a deposition, and ultimately reaching a settlement. Through these stages of the course, the students can see for themselves that – at least most of the time – it is not about "winning" the case for a client, but more about managing a process according to the governing rules and reaching an acceptable result for the client.

Because over 98% of cases settle (at least in Federal Court), the course ends with a settlement negotiation, which the students conduct themselves with the professor only acting as a facilitator where needed. In some cases, the professor acts as one or the other student attorney's client (depending on which side the student is representing). Almost every time, students successfully settle the case within a fairly broad, but still reasonable, range of settlement terms. On rare occasions, perhaps one pair of students every other administration of the course struggle to settle the case. On one occasion, the settlement broke down, and the professor acted as a mediator, shuttling between rooms to facilitate the settlement. In another, the settlement negotiation took place over parts of two days, and ultimately reached a successful conclusion. In a traditional course, the professor can lecture, explain, tell war stories, etc. about the subject matter of the course. But when students learn on a metacognitive level - through exercises such as a mock deposition or a settlement conference, they learn the subject of the course much more deeply, and often on a personal level. Further, they are put in situations by the simulation where they have to begin to form their own professional identity, and consider difficult questions such as "how will I behave in this situation as an attorney?" and "what kind of attorney do I want to be, an obstreperous one or a cooperative one?" or more simply: "what is my style of lawyering going to be?"

Further, with each discovery document the students prepare through the course of the semester, they also prepare a "strategy and reflection" memo to the professor detailing their planned and attempted strategies in the particular document they drafted. In that memo, they also address the ethical issues they faced, and how (and why) they resolved them. This feature of the course also provides an opportunity for metacognitive learning, as well as further development of the professional identity of the student.

2. To develop competence in an area of inquiry, students must: (a) have a deep foundation of factual knowledge, (b) understand facts and ideas in the context of a conceptual framework, and (c) organize knowledge in ways that facilitate retrieval and application.

This principle emerges from research that compares the performance of experts and novices and from research on learning and transfer. Experts, regardless of the field, always draw on a richly structured information base; they are not just "good thinkers" or "smart people." The ability to plan a task, to notice patterns, to generate reasonable arguments and explanations, and to draw analogies to other problems are all more closely intertwined with factual knowledge than was once believed.

But knowledge of a large set of disconnected facts is not sufficient. To develop competence in an area of inquiry, students must have opportunities to learn with understanding. Deep understanding of a subject matter transforms factual information into usable knowledge. A pronounced difference between experts and novices is that experts' command of concepts shapes their understanding of new information: it allows them to see patterns, relationships, or discrepancies that are not apparent to novices. They do not necessarily have better overall memories than other people. But their conceptual understanding allows them to extract a level of meaning from information that is not apparent to novices, and this helps them select and remember relevant information. Experts are also able to fluently access relevant knowledge because their understanding of the subject matter allows them to quickly identify what is relevant. Hence, their attention is not overtaxed by complex events.

* * *

A key finding in the learning and transfer literature is that organizing information into a conceptual framework allows for greater "transfer"; that is, it allows the student to apply what was learned in new situations and to learn related information more quickly. . . . The student who has learned geographical information for the Americas in a conceptual framework approaches the task of learning the geography of another part of the globe with questions, ideas and expectations that help guide acquisition of the new information. Understanding the geographical importance of the Mississippi River sets the stage for the student's understanding of the geographical importance of the Nile. And as concepts are reinforced, the student will transfer learning beyond the classroom, observing and inquiring, for example, about the geographic features of a visited city that help explain its location and size (Holyoak, 1984; Novick and Holyoak, 1991).[31]

a. As Applied to the Labor Law Class

The focus of law school study is rules of law and the policy behind them. The case method allows students to see short glimpses or syntheses of more complex factual scenarios, but, for the most part, engaging raw, complex, sometimes tedious, and long factual scenarios is foreign to the traditional law school class. Casebooks have snippets of facts and their resolution, but nothing in the world of actual law practice is like this. Even the most basic legal case has multiple aspects and complex facts.

The labor law simulation allows students to become experts at facts developing around them, of which they are an integral and connected part. Each week that the class continues produces increasing factual complexity. For example, one precept of labor law is that employers generally cannot discriminate between union organizers and other employees pursuing similar activities. So, for example, an employer may not be able to bar a union organizer's solicitation of coworkers as disruptive if the employer also allows a weekly football pool to be sent around or solicitation to buy holiday wrapping paper for a worker's daughter fundraising for her elementary school. In the classroom, students need to keep tabs on, or remember, whether Corrada allows student groups to leave messages on the white

[31] *Id.* at 16-17.

board or whether he has allowed a Student Bar Association representative to make an announcement to the class. Did Corrada allow these and yet prohibit similar union solicitation? As another example, sometimes Corrada polls the students about whether they support the union. Corrada typically does this polling just before students learn labor law doctrine related to polling. When the students learn that polling may be unlawful, they then must try to remember the facts of the polling. How did Corrada do the polling? Did he state a reason for polling? Did he undertake to preserve anonymity? Was the polling coercive? In a traditional class, the professor supplies a problem in a fact pattern that the students can count on as the facts of the problem. In Corrada's class the students have to come to grips with recollection of facts and the haziness of memory. This type of uncertainty about facts is much closer to the real world of facts confronted by lawyers. A world of uncertain, at times contested, facts. Importantly, students begin to see how seemingly benign occurrences can have supreme importance. Each case becomes a piece of data, providing a tool or perspective within which benign events of the class become important. The ability to adapt the law (cases and statutes) to an ill-structured, somewhat out of control, developing complex fact pattern has metacognitive benefits that better prepare students to engage in the kind of legal problem solving they'll face as lawyers. Since the class provides a semester-long, constantly developing, unbound fact scenario with no predetermined outcome, the class itself becomes a profound ill-structured problem within which real lawyerly thinking and strategizing about what constitutes evidence, which facts are important, which understanding of particular law is superior, is deeply tested. The labor law simulation and its large connected fact set provides students with the opportunity to learn with understanding – to acquire a deeper understanding of the subject matter.

b. As Applied to the Discovery Law Class

So much of the law school paradigm is focused around the acquisition of knowledge and repetition of that knowledge. Overall, other than "issue spotting" in final exams, through much of law school acquisition of knowledge is favored over use of knowledge. This impacts learning negatively, because the opportunities for information transfer are limited to the exam, and since the exam is at the end of the course, there is little or no opportunity for students to benefit from the information transfer during the course. While this is an argument in favor of midterm exams, and many professors are adding at least that sort of opportunity for formative assessment, courses designed around a simulation, with regular formative feedback, support information transfer throughout the course.

In the Discovery class, because the students are given only a small portion of the factual material in the simulated litigation at the beginning of the course, they must – by necessity – spend the semester constructing the "rest of the story" through the use of the discovery tools. Furthermore, each student has a different "piece" of the file at the beginning of the semester, so the experience for each student is somewhat different, and in this sense, creates an ill-structured learning environment. In addition, the discovery documents they draft are not perfect instruments (they are not in practice, either) and so they learn the facts of the case at different times and in different ways. Just after the mid-point of the semester, we have the "deposition day." On that day, each student takes a deposition, defends one, and acts as a witness for one. (This has the benefit of giving each student the full 360 degree experience of a deposition). We also have student court reporters (from a local court reporting school) who take down the depositions, and a week

or so later, we have a complete set of transcripts. In this way the students get the direct benefit of reading the transcript for their deposition, which closes out the deposition learning experience. But also, all transcripts are posted, so at that point, all of the most important facts of the case are known.

Bringing an approximate end to the factual uncertainty and myriad pathways for learning and constructing knowledge is important in the Discovery course because students would be unable to prepare a good set of Requests to Admit, much less answer the set they are served, without having as close to a complete set of the facts as is possible. Further, they would be unable to properly settle the case, which is where the course ends. So, while the problem and the pathways for learning are ill-structured, and there are many metacognitive benefits to that part of the course, maintaining full indeterminacy would impact the final stages of the simulated litigation. Even so, to a large extent students do not know until the settlement meeting exactly how their opposing counsel has assessed the value of the litigation, and the first half hour or so of each settlement meeting is usually taken up with introductory remarks from each party. Even during these meetings, certain facts – or at least novel views of known facts – are revealed.

3. A "metacognitive" approach to instruction can help students learn to take control of their own learning by defining learning goals and monitoring their progress in achieving them.

In research with experts who were asked to verbalize their thinking as they worked, it was revealed that they monitored their own understanding carefully, making note of when additional information was required for understanding, whether new information was consistent with what they already knew, and what analogies could be drawn that would advance their understanding. These meta-cognitive monitoring activities are an important component of what is called adaptive expertise (Hatano and Inagaki, 1986).

Because metacognition often takes the form of an internal conversation, it can easily be assumed that individuals will develop the internal dialogue on their own. Yet many of the strategies we use for thinking reflect cultural norms and methods of inquiry (Hutchins, 1995; Brice-Heath, 1981, 1983; Suina and Smolkin, 1994). Research has demonstrated that children can be taught these strategies, including the ability to predict outcomes, explain to oneself in order to improve understanding, note failures to comprehend, activate background knowledge, plan ahead and apportion time and memory. Reciprocal teaching, for example, is a technique designed to improve students' reading comprehension by helping them explicate, elaborate, and monitor their understanding as they read (Palincsar and Brown, 1984). The model for using the meta-cognitive strategies is provided initially by the teacher, and students practice and discuss the strategies as they learn to use them. Ultimately, students are able to prompt themselves and monitor their own comprehension without teacher support.

The teaching of metacognitive activities must be incorporated into the subject matter that students are learning (White and Frederickson, 1998). Theses strategies are not generic across subjects, and attempts to teach them as generic can lead to failure to transfer. Teaching metacognitive strategies in context has been shown to improve understanding in physics (White and Fredrickson, 1998), written composition (Scardamilia et al., 1984), and heuristic methods for mathematical problem solving (Schoenfeld, 1983, 1984, 1991). And metacognitive practices have been shown to increase the degree to which students transfer

to new settings and events (Lin and Lehman, in press; Palincsar and Brown, 1984; Scardamalia et al., 1984; Schoenfeld, 1983, 1984, 1991).

Each of these techniques shares a strategy of teaching and modeling the process of generating alternative approaches (to developing an idea in writing or a strategy for problem solving in mathematics), evaluating their merits in helping to attain a goal, and monitoring progress toward that goal. Class discussions are used to support skill development, with a goal of independence and self-regulation.[32]

a. As Applied to the Labor Law Class

Student independence in the realm of legal problem solving is extremely difficult to achieve. Even the best students fail to blossom as proactive, independent legal thinkers until after some three to five years of law practice. The labor law simulation provides some opportunities for the exercise of this type of metacognition. Students are told that, unless the collective bargaining agreement dictates otherwise, a substantial portion of the grade for the course will be class participation. What counts as class participation in the simulation class? Any meaningful engagement with the facts of the class, preferably involving the use of legal tools learned in class. The first example of this is pushed by Corrada. Early on in the class, as previously mentioned, Corrada commits an unfair labor practice by creating committees to discuss personnel issues (issues related to the terms and conditions of the class). When a student files an unfair labor practice charge against him for that conduct, they are adapting what they have learned from case law for use in the class. Corrada models for the class how to think through the law's applicability in the context of the work/class analogy. To what extent do students internalize this thinking in an adaptive way? Do they realize that they have the capacity to determine on their own that unfair labor practices are happening, and that they can use those to advantage by filing unfair labor practice charges. There have been some instances of this in class, demonstrated usually by the very top students in the class. But when these students explain their thinking, either in their brief or in class discussion of the charge, they reveal the extent of their independence with respect to legal strategizing. The discussion between them and fellow students about the problem and the concepts involved produces a sort of reciprocal and repetitional thinking about the material.

Corrada's goal to have students realize that they can be producers of knowledge and be involved in self-assessment and sense-making is realized by this type of activity. Students can tap into the class scenario in ways that produce questions to which Corrada does not know the answer. In one class, questions about whether "election only" authorization cards could support a union election and whether a group of professionals could be severed from another group of professionals in a mixed professional/professional unit were questions Corrada could not answer off the top of his head. For those questions, then, Corrada was as much a student as anyone else in the classroom. The class and Corrada together pursue a strategy and think about how to get the information needed to resolve the issue and how to think about the questions in a way that produces a meaningful resolution for the class simulation. Students hopefully become more independent with respect to their own learning and also learn that they can be a source of legal knowledge themselves.

b. As Applied to the Discovery Law Class

[32] *Id.* at 18-19.

The design of the Discovery course directly supports metacognitive monitoring activities, since each student must monitor their own understanding of the case throughout the course. They must also test whether new information they obtain is consistent with what they already knew, and they must then decide what information they need next. Class time is spent learning new discovery rules and the tools they enable, and only rarely the facts of the simulated litigation are discussed. Class time is focused on skill development, and this also encourages independence and self-monitoring. Indeed, each discovery document requires the student to engage in the "internal conversation" about what is known and unknown in terms of the facts of the case. Without such work, the documents are virtually impossible to write – at least not in a way that would achieve a passing grade. In addition, the memo to the file the students prepare with each discovery document provides an opportunity for reciprocal teaching, by allowing them to explain, elaborate, and monitor their understanding – to the professor but also to themselves - as they go through the course.

The overall goal of the Discovery class is for students to be given an opportunity to learn the rules and doctrine, but to do so in a safe learning environment (i.e. not with a live client), while they are acting as attorneys "in role" and reflecting on decisions they are making. This combination allows them to take advantage of the metacognitive learning benefits discussed here, and has the side – but important – benefit of providing regular opportunities for them to develop their emerging identity as a legal professional.

It is certainly true that the application of these teaching strategies will vary across subjects. Different courses will lend themselves to different sorts of simulations, different assignments, different methods of formative feedback, and different levels of ill-structured problem solving. But nearly all law courses can incorporate aspects of these learning methodologies by teaching the doctrinal subject of the course "in context" as much as possible, and providing multiple opportunities for metacognitive learning, formative feedback, and formation of professional identity.

IV. Collaborating on Innovative Teaching: Going Public through the *Educating Tomorrow's Lawyers* Website

Just as collaboration enriches students' experiences and the value of the knowledge they produce, collaboration among teachers improves our enterprise. This article is designed to showcase not just two particular courses; it also seeks to showcase the value of dialogue among those who are engaged in this type of teaching.

Discussing teaching methods is valuable not just for those who have been engaged in experiential learning for years. It is also valuable – perhaps even more valuable – for those who are interested in pursuing this type of teaching and learning for the first time. In fact, one of the most remarkable aspects of the types of classes discussed in this article is that they are transferrable. For example, several professors across the country have successfully implemented versions of Professor Corrada's labor law course.

That is the impetus behind projects like *Educating Tomorrow's Lawyers*.[33] When we adopted a strategic plan at the University of Denver that leaned heavily into Carnegie style education, we realized that many of our professors were extremely interested in this type of teaching and learning. It seemed exciting, and particularly well-suited to the challenges that our graduates will face in the legal market. But it also seemed a little daunting to many of us, both in terms of the work required and the potential for failure. It quickly became apparent that the key to expanding this type of teaching and learning was to provide a support network. If we could help professors who are interested in teaching this way by reducing workload (wheels do not need to be reinvented) and the potential for failure (we can learn from others' successes and failures), more would take the leap. And with better results.

Educating Tomorrow's Lawyers showcases innovations like the two courses in this article (and many others – an ever-increasing selection). Professors interested in submitting their Carnegie-style courses can do so. Course modules on the site are richly textured, with video and textual elements. You can even see the classrooms in action. So professors who are interested in adopting course elements into their own courses can do so. And those who want can contribute to on-line dialogues about the courses, asking questions or making suggestions. It is a true support network.[34]

This is not to say that individual schools do not need to support Carnegie style teaching and learning. Individual deans must provide incentives for this type of teaching, and individual faculties must provide a culture in which such teaching is valued. But what we can all do is contribute to a support network that facilitates and supports this type of teaching.

Providing this type of support may have the effect of shifting law school culture and increasing the value of legal education. More importantly, it will ensure that our students have had the opportunity to stand in the shoes of lawyers, with high-quality mentoring and supervision, before they graduate from law school. These students will be able to provide value to their clients from the day the graduate. And they will become the type of life-long learners that represent the finest of our profession.

[33] http://educatingtomorrowslawyers.du.edu.

[34] Notably, this network is getting positive attention – including from outlets that have tended to be somewhat critical of legal education. *See, e.g.*, *Action on Law School Reform: Legal educators are Organizing to Finally Move Beyond the Talking Stage*, NAT'L L. J., Aug. 22, 2011, at 1.

AN OVERVIEW OF COOPERATIVE LEARNING

Roger T. and David W. Johnson

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Without the cooperation of its members society cannot survive, and the society of man has survived because the cooperativeness of its members made survival possible.... It was not an advantageous individual here and there who did so, but the group. In human societies the individuals who are most likely to *survive are those who are best enabled to do so by their group.*

(Ashley Montagu, 1965)

How students perceive each other and interact with one another is a neglected aspect of instruction. Much training time is devoted to helping teachers arrange appropriate interactions between students and materials (i.e., textbooks, curriculum programs) and some time is spent on how teachers should interact with students, but how students should interact with one another is relatively ignored. It should not be. How teachers structure student-student interaction patterns has a lot to say about how well students learn, how they feel about school and the teacher, how they feel about each other, and how much self-esteem they have.

There are three basic ways students can interact with each other as they learn. They can compete to see who is "best," they can work individualistically toward a goal without paying attention to other students, or they can work cooperatively with a vested interest in each other's learning as well as their own. Of the three interaction patterns, competition is presently the most dominant. Research indicates that a vast majority of students in the United States view school as a competitive enterprise where one tries to do better than other students. This competitive expectation is already widespread when students enter school and grows stronger as they progress through school (Johnson & R. Johnson, 1991). Cooperation among students-who celebrate each other’s successes, encourage each other to do homework, and learn to work together regardless of ethnic backgrounds or whether they are male or female, bright or struggling, disabled or not, is still rare.

BASIC DEFINITIONS

Even though these three interaction patterns are not equally effective in helping students learn concepts and skills, it is important that students learn to interact effectively in each of these ways. Students will face situations in which all three interaction patterns are operating and they will need to be able to be effective in each. They also should be able to select the appropriate interaction pattern suited to the situation. An interpersonal, competitive situation is characterized by negative goal interdependence where, when one person wins, the others lose; for example, spelling bees or races against other students to get the correct answers to a math problem on the blackboard. In individualistic learning

situations, students are independent of one another and are working toward a set criteria where their success depends on their own performance in relation to an established criteria. The success or failure of other students does not affect their score. For example, in spelling, with all students working on their own, any student who correctly spells 90% or more words passes. In a cooperative learning situation, interaction is characterized by positive goal interdependence with individual accountability. Positive goal interdependence requires acceptance by a group that they "sink or swim together." A cooperative spelling class is one where students are working together in small groups to help each other learn the words in order to take the spelling test individually on another day. Each student's score on the test is increased by bonus points if the group is successful (i.e., the group totals meet specified criteria). In a cooperative learning situation, a student needs to be concerned with how he or she spells and how well the other students in his or her group spell. This cooperative umbrella can also be extended over the entire class if bonus points are awarded to each student when the class can spell more words than a reasonable, but demanding, criteria set by the teacher.

There is a difference between simply having students work in a group and structuring groups of students to work cooperatively. A group of students sitting at the same table doing their own work, but free to talk with each other as they work, is not structured to be a cooperative group, as there is no positive interdependence. Perhaps it could be called individualistic learning with talking. For this to be a cooperative learning situation, there needs to be an accepted common goal on which the group is rewarded for its efforts. If a group of students has been assigned to do a report, but only one student does all the work and the others go along for a free ride, it is not a cooperative group. A cooperative group has a sense of individual accountability that means that all students need to know the material or spell well for the whole group to be successful. Putting students into groups does not necessarily gain a cooperative relationship; it has to be structured and managed by the teacher or professor.

ELEMENTS OF COOPERATIVE LEARNING

It is only under certain conditions that cooperative efforts may be expected to be more productive than competitive and individualistic efforts. Those conditions are:

1. Clearly perceived positive interdependence
2. Considerable promotive (face-to-face) interaction
3. Clearly perceived individual accountability and personal responsibility to achieve the group's goals
4. Frequent use of the relevant interpersonal and small-group skills
5. Frequent and regular group processing of current functioning to improve the group's future effectiveness

All healthy cooperative relationships have these five basic elements present. This is true of peer tutoring, partner learning, peer mediation, adult work groups, families, and other cooperative relationships. This conceptual "yardstick" should define any cooperative relationship.

1. Positive Interdependence

The first requirement for an effectively structured cooperative lesson is that students believe that they "sink or swim together." Within cooperative learning situations, students have two responsibilities: 1) learn the assigned material, and 2) ensure that all members of the group learn the assigned material. The technical term for that dual responsibility is *positive interdependence.* Positive interdependence exists when students perceive that they are linked with group mates in such a way that they cannot succeed unless their group mates do (and vice versa) and/or that they must coordinate their efforts with the efforts of their group mates to complete a task. Positive interdependence promotes a situation in which students: 1) see that their work benefits group mates and their group mates' work benefits them, and 2) work together in small groups to maximize the learning of all members by sharing their resources to provide mutual support and encouragement and to celebrate their joint success. When positive interdependence is clearly understood, it establishes that:

1. Each group member's efforts are required and indispensable for group success (i.e., there can be no "free-riders").
2. Each group member has a unique contribution to make to the joint effort because of his or her resources and/or role and task responsibilities.

There are a number of ways of structuring positive interdependence within a learning group.

Positive Goal Interdependence Students perceive that they can achieve their learning goals if' and only if all the members of their group also attain their goals. The group is united around a common goal -- a concrete reason for being. To ensure that students believe they "sink or swim together" and care about how much each other learns, the teacher has to structure a clear group or mutual goal, such as "learn the assigned material and make sure that all members of the group learn the assigned material." The group goal always has to be a part of the lesson.

Positive Reward -- Celebrate Interdependence Each group member receives the same reward when the group achieves its goals. To supplement goal interdependence, teachers may wish to add joint rewards (e.g., if all members of the group score 90% correct or better on the test, each receives 5 bonus points). Sometimes teachers give students: 1) a group grade for the overall production of their group, 2) an individual grade resulting from tests, and 3) bonus points if all members of the group achieve the criterion on tests. Regular celebrations of group efforts and success enhance the quality of cooperation.

Positive Resource Interdependence Each group member has only a portion of the resources, information, or materials necessary for the task to be completed; the members' resources have to be combined for the group to achieve its goals. Teachers may wish to highlight the cooperative relationships by giving students limited resources that must be shared (one copy of the problem or task per group) or giving each student part of the required resources that the group must then fit together (the Jigsaw procedure).

Positive Role Interdependence Each member is assigned complementary and interconnected roles that specify responsibilities that the group needs in order to complete the joint task. Teachers create role interdependence among students when they assign them complementary roles such as reader, recorder, checker of understanding, encourager of participation, and elaborator of knowledge. Such roles are vital to high-quality learning. The role of checker, for example, focuses on periodically asking each group mate to explain what is being learned. Rosenshine and Stevens (1986) reviewed a large body of well-controlled research on teaching effectiveness at the pre-collegiate level and found "checking for comprehension" to be one specific teaching behavior that was significantly associated with higher levels of student learning and achievement. Although the teacher cannot continually check the understanding of every student, the teacher can engineer such checking by having students work in cooperative groups and assigning one member the role of checker.

There are other types of positive interdependence. Positive task interdependence exists when a division of labor is created so that the actions of one group member have to be completed if the next member is to complete his or her responsibility. Positive identity interdependence exists when a mutual identity is established through a name or motto. Outside threat interdependence exists when groups are placed in competition with each other. Fantasy interdependence exists when a task is given that requires group members to imagine that they are in a hypothetical situation.

We have conducted a series of studies investigating the nature of positive interdependence and the relative power of the different types of positive interdependence (Hwong, Caswell, Johnson, & Johnson, 1993; Johnson, Johnson, Ortiz, & Starme, 1991; Johnson, Johnson, Stanne, & Garibaldi, 1990; Low, Mesch, Johnson, & Johnson, 1986a, 1986b; Mesch, Johnson, & Johnson, 1988; Mesch, Lew, Johnson, & Johnson, 1986). Our research indicates that positive interdependence provides the context within which promotive interaction takes place. Group membership and interpersonal interaction among students do not produce higher achievement unless positive interdependence is clearly structured. The combination of goal and reward interdependence increases achievement over goal interdependence alone and resource interdependence does not increase achievement unless goal interdependence is present also.

2. Face-to-Face Promotive Interaction

In an industrial organization, it's the group effort that counts. There's really no room for stars in an industrial organization. You need talented people, but they can't do it alone. They have to have help.

(John F. Donnelly, President, Donnelly Mirrors)

Positive interdependence results in promotive interaction. Promotive interaction may be defined as individuals encouraging and facilitating each other's efforts to achieve, complete tasks, and produce in order to reach the group's goals. Although positive interdependence in and of itself may have some effect on outcomes, it is the face-to-face

promotive interaction among individuals fostered by the positive inter-relationships, and psychological adjustment and social competence. Promotive interaction is characterized by individuals providing each other with efficient and effective help and assistance; exchanging needed resources, such as information and materials, *and* processing information more efficiently and effectively; providing each other with feedback in order to improve their subsequent performance; challenging each other's conclusions and reasoning in order to promote higher quality decision making and greater insight into the problems being considered; advocating the exertion of effort to achieve mutual goals; influencing each other's efforts to achieve the group's goals; acting in trusting and trustworthy ways; being motivated to strive for mutual benefit; and maintaining a moderate level of arousal characterized by low anxiety and stress.

3. Individual Accountability/Personal Responsibility

What children can do together today, they can do alone tomorrow.

(Let Vygotsky, 1962)

Among the early settlers of Massachusetts there was a saying, "If you do not work, you do not eat." Everyone had to do their fair share of the work. The third essential element of cooperative learning is individual accountability, which exists when the performance of individual students is assessed, the results are given back to the individual and the group, and the student is held responsible by group mates for contributing his or her fair share to the group's success. It is important that the group-knows who needs more assistance, support, and encouragement in completing the assignment. It is also important that group members know they cannot "hitchhike" on the work of others. When it is difficult to identify members' contributions, when members' contributions are redundant, and when members are not responsible for the final group outcome, they may be seeking a free ride (Harkins & Petty, 1982; Ingham, Levinger, Graves, & Peckham, 1974; Kerr & Bruun, 1981; Latane, Williams, & Harkins, 1979; Moede, 1927; Petty, 1-larkins, Williams, & Latane, 1977; Williams, 1981; Williams, Harkins, & Latane, 1981). This is called social loafing.

The purpose of cooperative learning groups is to make each member a stronger individual in his or her own right. Individual accountability is the key to ensuring that all group members are, in fact, strengthened by learning cooperatively. After participating in a cooperative lesson, group members should be better prepared *to* complete similar tasks by themselves.

To ensure that each student is individually accountable to do his or her fair share of the group's work, teachers need to assess how much effort each member is contributing to the group's work, provide feedback to groups and individual students, help groups avoid redundant efforts by members, and ensure that every member is responsible for the final outcome. Common ways to structure individual accountability include:

1. Keeping the size of the group small. The smaller the size of the group, the greater the individual accountability may be.
2. Giving an individual test to each student.
3. Randomly examining students orally by calling on one student to present his or her group's work to the teacher (in the presence of the group) or to the entire class.
4. Observing each group and recording the frequency with which each member-contributes to the group's work.
5. Assigning one student in each group the role of checker. The checker asks other group members to explain the reasoning and rationale underlying group answers.
6. Having students teach what they learned to someone else. When all students do this, it is called *simultaneous explaining.*

There is a pattern to classroom learning. First, students learn knowledge, skills, strategies, or procedures in a cooperative group. Second, students apply the knowledge or perform the skill, strategy, or procedure alone to demonstrate their personal mastery of the material. Students learn it together and then perform it alone.

4. Interpersonal and Small-Group Skills

I will pay more for the ability to deal with people than any other ability under the sun.

(John D. Rockefeller)

The fourth essential element of cooperative learning is the appropriate use of interpersonal and small-group skills. In order to coordinate efforts to achieve mutual goals, students must: 1) get to know and trust each other, 2) communicate accurately and unambiguously, 3) accept and support each other, and 4) resolve conflict constructively (Johnson, 1990, 1991; Johnson & F. Johnson, 1991). Placing socially unskilled students in a group and telling them to cooperate does not guarantee that they have the ability to do so effectively. We are not born instinctively knowing how to interact effectively with others. Interpersonal and small-group skills do not magically appear when they are needed. Students must be taught the social skills required for high quality collaboration and be motivated to use them if cooperative groups are to be productive. The whole field of group dynamics is based on the premise that social skills are the key to group productivity (Johnson & F. Johnson, 1991).

The more socially skillful students are and the more attention teachers pay-to teaching and rewarding the use of social skills, the higher the achievement that can be expected within cooperative learning groups. In their studies on the long-term implementation of cooperative learning, Lew and Mesch (Lew et al., 1986a, 1986b; Mesch et al., 1988; Mesch et al., 1986) investigated the impact of a reward contingency for using social skills as well as positive interdependence and a contingency for academic achievement on performance within cooperative learning groups. In the cooperative skills conditions, students were trained weekly in four social skills and each member of a cooperative group was given two bonus points toward the quiz grade if all group members were observed by the teacher to demonstrate three out of four cooperative skills. The results indicated that the combination of positive interdependence, an academic contingency for

high performance by all group members, and a social skills contingency promoted the highest achievement.

5. Group Processing

Take care of each other. Share your energies with the group. No one must feel alone, cut off, for that is when you do not make it.

(Willi Unsoeld, Renowned Mountain Climber)

The fifth essential component of cooperative learning is group processing. Effective group work is influenced by whether or not groups reflect on (i.e., process) how well they are functioning. A process is an identifiable sequence of events taking place over time, and process goals refer to the sequence of events instrumental in achieving outcome goals (Johnson & F. Johnson, 1991). Group processing may be defined as reflecting on a group session to: 1) describe what member actions were helpful and unhelpful, and 2) make decisions about what actions to continue or change. The purpose of group processing is to clarify and improve the effectiveness of the members in contributing to the collaborative efforts to achieve the group's goals.

While the teacher systematically observes the cooperative learning groups, he or she attains a "window" into what students do and do not understand as they explain to each other how to complete the assignment. Listening in on the students' explanations provides valuable information about bow well the students understand the instructions, the major concepts and strategies being learned, and the basic elements of cooperative learning.

There are two levels of processing -- small group and whole class. In order to ensure that small-group processing takes place, teachers allocate some time at the end of each class session for each cooperative group to process how effectively members worked together. Groups need to describe what member actions were helpful and not helpful in completing the group's work and make decisions about what behaviors to continue or change. Such processing: 1) enables learning groups to focus on maintaining good working relationships among members, 2) facilitates the learning of cooperative skills, 3) ensures that members receive feedback on their participation, 4) ensures that students think on the metacognitive as well as the cognitive level, and 5) provides the means to celebrate the success of the group and reinforce the positive behaviors of group members. Some of the keys to successful small-group processing are allowing sufficient time for it to take place, providing a structure for processing (e.g., "List three things your group is doing well today and one thing you could improve."), emphasizing positive feedback, making the processing specific rather than general, maintaining student involvement in processing, reminding students to use their cooperative skills while they process, and communicating clear expectations as to the purpose of processing.

In addition to small-group processing, the teacher should periodically engage in whole-class processing. When cooperative learning groups are used, the teacher observes the

groups, analyzes the problems they have working together, and gives feedback to each group on how well they are working together. The teacher systematically moves from group to group and observes them at work. A formal observation sheet may be used to gather specific data on each group. At the end of the class period the teacher can then conduct a whole-class processing session by sharing with the class the results of his or her observations. If each group has a peer observer, the results of their observations may be added together to get overall class data.

An important aspect of both small-group and whole-class processing is group and class celebrations. It is feeling successful, appreciated, and respected that builds commitment to learning, enthusiasm about working in cooperative groups, and a sense of self-efficacy in terms of subject-matter mastery and working cooperatively with classmates.