

I Never Knew Joe Paterno

An Essay on Teamwork and Love

Clyde Freeman Herreid

I was a Nittany Lion for a couple of years when I was in my last stages of graduate school. I transferred to Penn State when my thesis advisor decided to pack up and leave Johns Hopkins University and head to real football country. Not that he was interested in football, but the Penn State prowess with the pigskin was a bonus. Joe Paterno, Penn State's all-time great coach, was still in the future, so I didn't get to have even a glimpse of this gray eminence on campus.

I regret this chronological faux pas, for Joe Paterno is clearly one of the great teachers of teamwork in the world of sports. He has been voted coach of the year for an unprecedented four times and has won more gridiron victories than any other major active collegiate coach. He does it not by browbeating, but by developing love between his players. This is the kind of teacher that many of us aspire to be.

People love sports almost as much as they love stories. And the most popular sports are team events: football, basketball, baseball and, of course, the world's leading sport, soccer. This is notwithstanding the current craze for wrestling, which hardly qualifies for a sport but ranks right up there with the best of soap operas as an emotional bouillabaisse.

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The reason we were so good, and continued to be so good, was because he [Joe Paterno] forces you to develop an inner love among the players. It is much harder to give up on your buddy, than it is to give up on your coach. I really believe that over the years the teams I played on were almost unbeatable in tight situations. When we needed to get that six inches we got it because of our love for each other. Our camaraderie existed because of the kind of person Joe was.

—Dr. David Joyner

What is it about team events that seems to transcend individual events such as track, swimming, tennis, or ice skating as spectator sports? If you will let me get away with a little pop psychology here, I believe it is a reflection of both the competitive and cooperative sides of our human nature. To see the basic human nature exposed for what it is, we only have to turn to that sensational TV show *Survivor*, where 16 strangers were placed on an island for a few weeks. There they acted as perfect primates, working together by forming alliances yet at the same time acting as conniving selfish individuals to the bitter end. The show quickly captured the fancy of the public and catapulted the last survivors into media darlings. Yup, that's us—in the raw.

Not much in our world can get done without teams. We don't have to turn to examples of building the pyramids or space rockets to see this. Teams are everywhere from the operating room to the boardroom. Cooperation is a valued trait even if it is tainted with a bit of self-interest. "I will pay more for the ability to deal with people than any other ability under the sun." This, ironically, was said by oil executive John D.

Rockefeller, whose maverick ways won him a fortune.

It's not surprising that teams might be useful in the teaching business, too. Indeed, teams are the *modus operandi* for two prime methods of using case studies in the classroom: problem-based learning and team learning. Both strategies depend upon the instructor setting up permanent teams of students in a class where no formal lectures are given. And both, from my perspective, are the best ways to teach cases.

Let me pause for a moment to make the argument that groups work best for learning. The Brothers Johnson (David and Roger) along with Karl Smith from the University of Minnesota have produced a string of books on the power of cooperative learning. They have performed a meta-analysis of over a thousand studies comparing the effectiveness of cooperative-learning strategies with the traditional lecture-based classroom. Guess what? The data are unambiguous: groups are the best way to go. Students working in groups retain information better, like the subjects better, develop a better appreciation for a diversity of opinions, and develop better skills in self-expression. Better. Better. Better.



Lectures don't come close to delivering the goods.

I don't know about you, but that impresses me. I like data. So, right away, with my bias toward stories, I am going to be looking for a way to combine cases with small group teaching. Stories delivered via lecture are nice but it is still a lecture. (And I can't help remembering the Arizona study (J. Chem Ed, 1993) where several professors with a wide range of skills as lecturers taught different sections of general chemistry. Yet, their students all performed at about the same level on the tests, regardless of who their instructor was. Those of us who pride ourselves on our lecture style need to pause and reflect a moment on this one.)

Stories (cases) delivered by the discussion method (as in the business school model) are nice, too, but they are still orchestrated by a professor standing in front of the room hand waving. No matter how good the sage is, he is still the head honcho, center stage, and has most of the "air time." There are limited

opportunities for students to explore their own ideas.

That brings us to groups. For the moment, don't ask me for tips on how to make groups work; we'll save that for another day. Let's start with the powerful point that groups get the job done better than lectures. But success is not attained when groups are merely thrown together and told to discuss things. Careful planning is required so that the basics of cooperative learning are accomplished. That is, one must choose group tasks that can't be successfully accomplished alone.

Let's take a look at the five basic tenets of cooperation. These are the things that we must accomplish or the whole enterprise falls apart.

(1) Positive interdependence. Students must understand that they sink or swim together. The tasks we set as instructors must really be group activities that require many hands and minds to get the job done. Either the task must be too complex to do it alone or it must be too large to get it done in the time available. If the students know that they can do it

better alone, they won't buy into the notion of a group activity.

- (2) Face-to-face interaction. The instructor must promote situations where the students are physically together helping, encouraging, and explaining things to one another.
- (3) Individual accountability. The teacher must set up a system where the efforts of the individual are identifiable so that students can't hitchhike on the work of others.
- (4) Social skills. Students must be taught social skills that allow them to be effective in groups. They must learn leadership, decision-making, trust building, communication, and conflict management skills. Group roles such as leader, recorder, and reporter need to be rotated regularly so everyone has a crack at these tasks.
- (5) Group processing. Groups must analyze how they are doing. They need to discuss what they can personally do to make the group perform better. They should periodically turn in a written analysis that is signed by everyone. This debriefing process is essential because it forces students to

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come to terms with their own role in the success of the group.

It isn't easy to accomplish all of these things; but neither is it easy to deliver a great lecture.

So, that brings me to case study teaching and groups. Obviously, it is possible in any classroom, even where lectures are normally given, to suddenly put students into small groups and hand them a case. Although this will surely spice up your day, it is not the most ideal arrangement. Students are like the rest of us, they need practice to get good at anything. There is an apocryphal tale about the eminent violinist, Jascha Heifetz, that makes the point. Heifetz, who was known to wander the streets of New York as an old man, was stopped one day by a bewildered tourist and asked, "How do you get to Carnegie Hall." Heifetz pondered this a moment and responded, "Practice. Practice. Practice." So it is with us; we must practice if we wish to get to Carnegie Hall.

Problem-based learning (PBL) is one of the most successful methods of integrating cases into the classroom on a regular basis. For the past 25 years or

so it has been used to teach medical students at McMaster University in Canada. Cases are a natural way to teach in medical school for each patient is a case study. At McMaster, virtually the entire curriculum is a collection of cases, and a couple dozen other medical schools in the United States and in other countries have followed suit because of its success.

On the undergraduate level, there are two major efforts to use PBL. The first is at the University of Delaware, where they began to use the method in science courses in the early 1990s. This initiative soon broadened to other disciplines. Take a look at their web site at <http://www.udel.edu/pbl/>.

More recently, Samford University in Alabama has taken the plunge into PBL wholeheartedly with a large curriculum effort across the disciplines. They just held a conference on the method and their web site is at http://www.samford.edu/pbl/pbl_main.html.

PBL develops independent critical thinkers better than any method I know. Students are placed into small groups with a facilitator who is generally a faculty member or an experienced student. They stay together for the semester since it takes time to develop the bonds that are necessary for success in group work. Every two or three class periods, the groups are given a new case to analyze.

You can see examples of such cases laid out in the special case issue of the JCST published this past September. Better yet, take a look at the textbook written by Deborah Allen and Barbara Duch, *Thinking Toward Solutions: Problem-Based Learning Activities for*

General Biology, published in 1998 by Saunders College Publishing.

PBL cases come in parts, with the students receiving them piecemeal over several class periods. This has become known as "progressive disclosure." When they receive the first part of the case, the groups read it over and decide what they know about the unfolding problem and what they need to research. They divide up the jobs among the group members and everyone heads off to the library, the lab, or the Internet to search out the answers. The next time the class gets together, the students in their groups share their findings with their teammates. The process is repeated as the case unfolds and the denouement is reached.

One of the big knocks against the use of PBL is the question of coverage. Critics lament that using cooperative methods limits the amount of material that can be covered by an instructor. True enough. But let us recall that "covering the material is not the same thing as learning." Surely we have enough Fs and Ds in our classrooms to remind us of this fact! Also, it is well to remind ourselves that we faculty are survivors of the lecture system. No wonder we love it. Do students with different learning styles always have to head off to the social sciences and humanities to find a home?

You say you're not satisfied? You say that you must cover 14 chapters of your 1,000-page organic chemistry text



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otherwise your students will never be able to compete? Stay in your seats, for help is on the way. Here is team learning coming to your rescue. This innovative technique was developed by Larry Michaelsen at the University of Oklahoma (see The Organizational Behavior Teaching Review 1984-1985).

Team learning involves several steps:

- (1) Individual study. Students are given reading assignments, which they must read or they fall into a flaming abyss, as you will see in a moment.
- (2) Individual quizzes. Students are given 15 to 20 multiple-choice questions over the readings almost the moment they walk into the classroom each day.
- (3) Group quizzes. Students working in their permanent groups take the same multiple-choice quiz that they did moments before, but this time they talk over the questions together to reach a consensus on the answers. Both individual and group quizzes are immediately graded by the students using a portable Scantron scoring machine in the classroom so they get immediate feedback.
- (4) Preparation of written appeals. The students are given a brief time to consult their textbooks and write appeals if they think that the questions are unfair or ambiguous. These must be signed by all group members and are best read by the instructor after class to avoid incessant bickering.
- (5) Instructor input. The teacher gives a short mini-lecture to clarify any issues that may crop up during the test. And that's it. The 50-minute class is over.

Now this sequence of activities can be repeated day after day as you march through the textbook. Frank Dinan of Canisus College in Buffalo, NY, has taught his organic chemistry course just this way and was able to cover more chapters than ever before and the students got higher grades than when he used the traditional lecture approach (J. Chem. Ed, 1995)!

But a full appreciation of the method occurs when cases are used with the mini-quizzes. Michaelsen says that step six,

application-oriented activities, should occupy a major part of team learning. This is when some classes are turned over to group projects such as case studies. For example, when I am teaching evolutionary biology and the students have covered a topic like species formation, I give them a case study on the Galapagos Islands (JCST September 2000, pp. 56-63) to work on in their groups. Case studies drive the central points of the readings home.

Team learning gives teachers the luxury of depending on the students to cover the major points of a topic without lecturing so that class time can be devoted to understanding of real problems. In my experience using the method for nearly 10 years, there are other bonuses.

The students get higher grades. I get to know the students much better

than when I lecture. The students almost universally prefer the method, although some grumble about the hard work when they realize there is no hiding from their responsibilities. Plus, there is the striking fact that there are practically no absences! And why is that? Because the students invariably say they simply can't let their classmates down. Compare that to the traditional classroom.

So the bottom line here is love, although I doubt that a student would go so far as to use the word. But another hard-nosed football coach, Vince Lombardi of the world champion Green Bay Packers, had no trouble with the "L" word, saying, "Love is loyalty. Love is teamwork. Love respects the dignity of the individual."

I never knew Vince Lombardi either, but he and Joe Paterno got it right.