

Afterword: New Paradigms for College Teaching¹

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A paradigm shift is taking place in college teaching, many aspects of which are described by the authors of this book. As each chapter's extent of change illustrates in detail, minor modifications in current teaching practices will not solve the current problems with college instruction. Teaching success in today's world requires a new approach. This chapter starts by summarizing the paradigm we're leaving behind at various rates in colleges and universities across the country. We then present our take on the paradigms we are entering into, explore implications of the changing paradigm for students and faculty, and close by offering some suggestions for fostering change. The aim of this chapter is to stimulate thinking about the changing nature of college teaching and learning and to encourage the reader to engage in reflection and conversation.

The old paradigm of college teaching is based on John Locke's *tabula rasa*: the untrained student mind is like a blank sheet of paper waiting for the instructor to write on it. Student minds are viewed as empty vessels into which teachers pour their wisdom. Because of these and other

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assumptions, teachers think of teaching in terms of these principal activities and perspectives:

- **Transferring knowledge from teacher to students.** The teacher's job is to give it; the student's job is to get it. Teachers transmit information to students in a one-way interaction.
- **Filling passive, empty vessels with knowledge.** Students are passive recipients of knowledge. Teachers own the knowledge but students are not invited to share that ownership.
- **Students are expected to memorize relevant information.** Tests typically require recall or recognition, e.g., recall memorized formulae and plug in values. Homework assignments are typically pattern matching—see examples in class, do similar problems on homework with the data changed. Although faculty routinely claim that they are interested in promoting critical thinking, course syllabi show that they require memorization, recognition and recall.
- **Classifying students** by deciding who gets which grade and **sorting students into categories** by deciding who does and does not meet the requirements to be graduated, go on to graduate school, and get a good job. There is constant inspection to weed out any defective students. Teachers classify and sort students into categories under the assumption that ability is fixed, is observable in the current system, and is unaffected by effort and education.
- **Students strive to obtain certification** by checking off requirements, then promptly forgetting much of what occurred in each class that was checked off.
- **Conducting education within a context of impersonal relationships among students**

and between teachers and students. Based on the assembly line model of industrial organizations, students and teachers are perceived to be interchangeable and replaceable parts in the educational machine.

- **Maintaining a competitive classroom structure** in which students work to outperform their classmates and faculty work to outperform their colleagues.
- **Cultural uniformity in the classroom is assumed;** students are expected to conform. The same background is assumed for all students through tightly controlled sequences of prerequisites. The goal for each student is the same—one size fits all. "Fairness" means treating each student exactly the same despite their individual differences or needs. The context of knowledge development is ignored or discounted, e.g., math developed by Persians or Mayans.
- **Power is tightly held by faculty.** All topics, assignments, and activities are decided by faculty. An individual student is seen as an independent, self-sufficient unit. Faculty judge student performance, answer questions, explain the correct way of doing or interpreting, etc. Students sit quietly in their seats—eyes front, feet on floor, and mouth shut.
- **Assessment conducted in "objective" mode, often by multiple choice tests.** Minimal assessment formats and infrequent testing (mid-term and final) are common. Student rating of instruction at the end of the course is the only form of faculty/course assessment.
- **A logico-scientific mode of knowing** is assumed. Rational, logical arguments are the only ones accepted. Data must be objective and quantitative. Individual's experiences are averaged together to find the "normal" experience. Logical proof of propositions is

required. Empirical evidence must be statistically significant to count.

- How we know is based on the **reductionist**, building-block universe model. Conciseness and elegance are highly valued. The final result is all that matters.
- The use of **instructional technology** is actively resisted by many faculty. "Chalk and talk was good enough for me so it's good enough for them" is a common reaction to the use of instructional technology. Fear of being replaced by a machine is another common (and irrational) reaction to instructional technology.
- **Assuming that anyone with expertise in their field can teach without training to do so.** This is sometimes known as the content premise—if you have a Ph.D. in the field, you can teach. Few college faculty have ever taken a formal course in college teaching; therefore, they typically do not know much about educational research, have not read the literature, and hence do not know the state-of-the-art of college teaching.

Thus, the old paradigm is to transfer faculty's knowledge to passive students as the faculty classify and sort students in a norm-referenced way through competition. Many teachers consider the old paradigm to be the only possibility. Lecturing, while requiring students to be passive, silent, isolated, and in competition with each other, seems the only way to teach. The old paradigm is carried forward by sheer momentum. However, many faculty recognize a growing concern that all is not well.

In many college classrooms, we are dropping the old paradigm of teaching and adopting new paradigms based on theory and research that has clear applications to instruction.

- **Classmates and teachers are seen as collaborators rather than as obstacles to students' own academic and personal success.** Teachers, therefore, structure learning

situations so that students work together to maximize each other's achievement.

Administrators, likewise, create a cooperative, team-based organizational structure within which faculty work together to ensure each other's success.

- **Students construct, discover, transform, and extend their own knowledge.** Learning is something the learner does, not something that is done to a learner. Students do not passively accept knowledge from the teacher or curriculum. They use new information to activate their existing cognitive structures or construct new ones. The teacher's role in this activity is to create the conditions within which students can construct meaning from new material, study by processing it through existing cognitive structures, and then retain it in long-term memory where it remains open to further processing and possible reconstruction.
- **Students learn by creating connections; by discovering relationships.** Teachers foster thinking about connections among subject matter and across disciplines. Instead of asking students to memorize formulae, they give them a list of formulae and ask them to use them, explain them, justify them, and explore further implications of them.
- **Teachers' efforts are aimed at developing students' competencies and talents.** Colleges and universities add value to graduates by cultivating talent. A 'cultivate and develop' philosophy must replace the 'select and weed out' philosophy. Students' competencies and talents are developed under the assumption that with effort and education, any student can improve.
- **Students approach school as an opportunity to learn and grow.** They work on developing competencies and accomplishing their goals. Students work to build

portfolios containing relevant and meaningful experiences.

- **Teachers and students work together, making education a personal transaction.** All education is a social process that can occur only through interpersonal interaction. The more pressure placed on students to achieve and the more difficult the material to be learned, the more important it is to provide social support within the learning situation. Challenge and support are balanced so that students can cope successfully with the stress inherent in learning situations. Learning results when individuals cooperate to construct shared understandings and knowledge. Teachers build positive relationships with students and create the conditions within which students build caring and committed relationships with each other. The school becomes a learning community of committed scholars in the truest sense.
- **A cooperative context is required.** When students interact in a competitive context, communication is minimized, misleading and false information is often communicated, assistance is viewed as cheating, and classmates and faculty tend to dislike and distrust each other. A cooperative learning situation, on the other hand, encourages active construction of knowledge and the development of talent by connecting previously isolated students and creating positive relationships among classmates and teachers.
- **Diversity of life experiences are celebrated and used to enrich all students' experience.** Personal development goals are set by each student. 'Fairness' means meeting each student where they currently are and helping them progress as far as possible. Faculty recognize context and encourage student connection with it.
- **Power is shared between students and faculty.** Students are given choices of project

topics and among a variety of evaluation methods. Individuals are part of an interdependent team. Students assess themselves and others. They use primary sources and develop their own ways of learning. Students arrange physical space to their best advantage—working in groups, on board, at computers, etc.

- **Assessment is conducted in a variety of formats.** A rich variety of assessment formats (written, oral, group, personal-portfolio, journal, etc.) and frequent testing (classroom assessment, progress checks, etc. in addition to mid-term and final) are common. Students review instruction at mid-term in addition to the end of the course. Student management teams are commonly used to build quality into the process rather than inspecting it in at the end.
- **Knowing is narrative.** According to the founder of social psychology, Kurt Lewin, "All theory is really autobiography." Context and personal experience are valued. Faculty and students acknowledge the filters people use in gathering and interpreting data. Qualitative data in addition to quantitative data is valued. Each individual's experience is valued on its own. Different experiences are woven together through synthesis. Intuition and initial hypotheses are valued. Even small sample sizes can provide insight.
- **Learning in a constructivist epistemology involves personal self-reflection to resolve internal issues.** The resolution of inner issues occurs through concrete experience, collaborative discourse, and self-reflection. Multiple ways of understanding are sought and valued. The process of developing one's current understanding important.
- **Technology has great potential to enhance the capabilities of the learner and the teacher.** Recent developments in computer-based multimedia, networking, software

tools, graphics, etc. indicate that technology can enhance both what students learn and how they learn it. The rapid growth of the Internet and World Wide Web in educational settings are outstanding examples of the positive potential of technology.

- **Teaching is a complex application of theory and research that requires considerable training and continual refinement of skills and procedures.** Becoming a good teacher is an ongoing commitment that requires a sustained effort.

Major differences between the old and new paradigms of college teaching are summarized in the following table.

Comparison of Old and New Paradigms for College Teaching²

	Old Paradigm	New Paradigm
Knowledge	Transferred from Faculty to Students	Jointly Constructed by Students and Faculty
Students	Passive Vessel to be Filled by Faculty's Knowledge	Active Constructor, Discoverer, Transformer of Knowledge
Mode of Learning	Memorizing	Relating
Faculty Purpose	Classify and Sort Students	Develop Students' Competencies and Talents
Student Goals	Students Strive to Complete Requirements, Achieve Certification within a Discipline	Students Strive to Grow, Focus on Continual Lifelong Learning within a Broader System
Relationships	Impersonal Relationship Among Students and Between Faculty and Students	Personal Transaction Among Students and Between Faculty and Students

²Adapted from Johnson, David W., Johnson, Roger T., & Smith, Karl A. 1991. *Active learning: Cooperation in the college classroom*. Edina, MN: Interaction Book Company.

	Old Paradigm	New Paradigm
Context	Competitive/Individualistic	Cooperative Learning in Classroom and Cooperative Teams Among Faculty
Climate	Conformity/Cultural Uniformity	Diversity and Personal Esteem/ Cultural Diversity and Commonality
Power	Faculty Holds and Exercises Power, Authority, and Control	Students are Empowered; Power is Shared Among Students and Between Students and Faculty
Assessment	Norm-Referenced (i.e., Graded "On the Curve"); Typically Multiple Choice Items; Student rating of instruction at end of course	Criterion-Referenced; Typically Performances and Portfolios; Continual Assessment of Instruction
Ways of Knowing	Logico-Scientific	Narrative
Epistemology	Reductionist; Facts and Memorization	Constructivist; Inquiry and Invention
Technology Use	Drill and Practice; Textbook Substitute; Chalk and Talk Substitute	Problem Solving, Communication, Collaboration, Information Access, Expression
Teaching Assumption	Any Expert can Teach	Teaching is Complex and Requires Considerable Training

Implications of the New Paradigms and Questions to Ask Self and Students

Just as a fish cannot see the water it lives in, students and faculty often have difficulty seeing the context within which they live. What is your reaction to our list of shifting paradigms? Let's look at some specific aspects. For example, a common fear of beginning faculty is whether they will have enough material to cover during a class period. Bishop and Fulwiler mention this fear in their chapter. Is this a fear of yours? Having enough material to

cover is a central tenet of the old paradigm of college teaching. A question faculty would ask under the new paradigms is "How shall I structure the learning environment so that students can explore and discover the important concepts in this course?"

Many beginning faculty assume that students will help each other outside of class, without crossing the line of cheating. However, it is difficult for students to know where that line is if they only work independently in the classroom. The new paradigms ask "How can I help students learn to work cooperatively where each member pulls their own weight?"

Practicing teamwork in class will lead to improved teamwork, without cheating, outside of class.

As a final example, consider power negotiation. In the old paradigm, faculty hold power and decision-making with any negotiation being done implicitly. The new paradigm calls for explicit negotiation of power. One way of doing this is to have students write what they like best about the course on one side of an index card and what they would like changed on the other. Then the faculty can sort the change requests into three piles: (1) things that are easy to change, e.g., using bigger chalk that is easier to see from the back of the room; (2) things that the faculty member cannot or will not change, e.g., the temperature of the room or written lab reports; and (3) things that will be explicitly negotiated at the next class meeting, e.g., the dates for exams. One can conduct this assessment and negotiation at two weeks, four weeks, and eight weeks to keep the communication and negotiation explicit and open.

The environment of college teaching is changing rapidly. For example, there are growing pressures in many schools to do more with less and to do a better job. The sense of isolation that many faculty feel, coupled with these mounting pressures, make it very difficult to challenge the status quo and adopt a new paradigm of college teaching. In the next section we will provide

some of our thoughts on fostering change.

Fostering Change

Major change, by its nature, is intentionally disruptive and largely unprogrammable. In comparing the management of major versus normal change, one top executive said, "It used to be like I-75. You'd lay it out from Toledo to Tampa. Now it's more like a whitewater raft ride. You try to get the right people in the raft and do the best you can to steer it. But you never know what's just around the bend." (Katzenbach & Smith, 1993, p. 208)

Innovation in higher education is contingent on faculty deciding to change the way they work with students and with each other. We suggest establishing or, if already present, strengthening three key conditions for personal and organizational change (Johnson & Johnson, 1989):

1. Promote an attitude of experimentation. Changing the way in which faculty help students learn requires an atmosphere in which there is a willingness to try things and learn from what is attempted.
2. Synthesize common goals, such as "How well are we doing with our students and faculty?". Meaningful change requires everyone pulling together to achieve a common goal.
3. Create collegial support networks of faculty, students, and administrators. Change is hard and typically does not occur without a group of colleagues who care and provide support and encouragement for one another. The research support for cooperation among faculty is just as strong as that for cooperation among

students.

One of the best described examples of change in higher education is the restructuring of the MBA program at the Weatherhead School of Management at Case Western Reserve University (Boyatzis, Cowen & Kolb, 1994). They restructured from a focus on teaching to a focus on learning. Specifically, they decided to focus on how students' organize knowledge by reorganizing the curriculum in a less discipline-defined and more problem-centered and contextual way. They followed six principles for increasing the likelihood of successful organizational change:

1. Adopt an outside-in perspective.
2. Build on the seeds of vision and strategy that lie within.
3. Develop a collaborative attitude.
4. Challenge convention and tradition.
5. Focus on substance rather than form.
6. Provide multifaced leadership.

Further examples of the new paradigm in higher education include the move to problem-based learning in medicine (see Chapter 1 for a brief description) and veterinary medicine and the extensive changes as a result of the reform calculus movement (including active and interactive learning and the new four prong approach to teaching calculus—symbolic, graphical, numerical and linguistic).

Conclusions

The biggest and most long-lasting reforms of undergraduate education will come when

individual faculty or small groups of instructors adopt the view of themselves as reformers within their immediate sphere of influence, the classes they teach every day. (Cross, 1993).

Our favorite means of shifting to the new paradigms of teaching in the college classroom is to use cooperative learning. Cooperative learning provides the means of operationalizing the new paradigm of college teaching and provides the context within which the development of student talent is encouraged. Carefully structured cooperative learning ensures that students are cognitively, physically, emotionally, and psychologically actively involved in constructing their own knowledge and is an important step in changing the passive and impersonal character of many college classrooms. Cooperative learning among students in the classroom, and among faculty in departments, colleges and universities is central to achieving positive and constructive change in higher education.

Other contributors to this book suggest different paths to a new paradigm: encouraging students to write to learn (Bishop and Fulwiler), using stories in teaching (Noddings), beginning each course with complete and inclusive syllabi (Collins), guiding students to learn actively (Nelson), building quality into the learning process through student management teams (Nuhfer), forming learning communities (Bystrom), providing electronic means of connecting with students (Creed), drawing knowledge maps (Dansereau and Newbern), and providing a structure for constructively managing controversy on the classroom (Johnson and Johnson). The various proponents of these techniques are convinced that they help students learn.

But don't forget Parker Palmer's admonition: good teaching cannot be reduced to technique. Good teaching, he told us in Chapter 1, is a matter of creating the capacity for connectedness between students, between students and the teacher, between students and the

material. Any of the techniques described in this book—and a host of others—can be used to create that capacity for connectedness. What’s the right technique for you? It all depends: on you, on your students, on your subject matter, on the goals you and your students bring to the course.

We encourage you to try any or all of the techniques presented in this volume. Take a piece of one, a fragment of another, the philosophical underpinnings of a third, and combine them together to create a new paradigm of college teaching for yourself. Try it, modify it, try something different, modify that, combine it with your first effort, modify it again, and so on. Your students will profit and you’ll have much more fun teaching.

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