

Student-Student Collaboration in an Interdependent World

Karl A. Smith
University of Minnesota
ksmith@umn.edu

**CIC/ALP Fellows
Lilly Teaching Fellows**

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Opinion

A17
Editorials, A18

A selection of voices from the community, nation and world

Living in an interdependent world

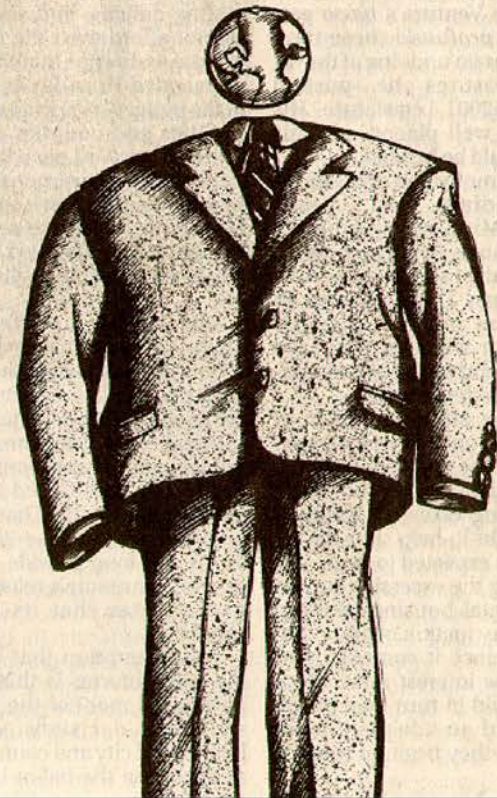
Former President Bill Clinton addresses the question: Is the age of interdependence going to be good or bad for humanity? He thinks it will turn out to be good — but he cautions that the West must help those who are being left behind.

By William Jefferson Clinton

NEW YORK — The great question of this new century is whether the age of interdependence is going to be good or bad for humanity. The answer depends upon whether we in the

Fourth, from a political point of view, you might have said the dominant factor of the 21st-century world will be the explosion of democracy and diversity.

For the first time in the history of humanity, more than half of the



What is a System?

A system is a perceived whole whose elements "hang together" because they continually affect each other over time and operate toward a common purpose.

The word descends from the Greek verb *sunistánai*, which originally meant “to cause to stand together.” As this origin suggests, the structure of a system includes the quality of perception with which you, the observer, cause it to stand together.

Excerpted from *The Fifth Discipline Fieldbook*. Copyright 1994 by Peter M. Senge, Art Kleiner, Charlotte Roberts, Richard B. Ross, and Bryan J. Smith.
http://www.solonline.org/solonline/About_SoL/structure.html (Accessed 9/6/00)

Systems Thinking

Systems thinking is a discipline for seeing wholes. It is a framework for seeing interrelationships rather than things, for seeing patterns of change rather than static "snapshots." It is a set of principles and a set of specific tools and techniques. (Senge, 1990)

Senge, Peter. 1990. The fifth discipline: The art and practice of the learning organization. New York: Doubleday.

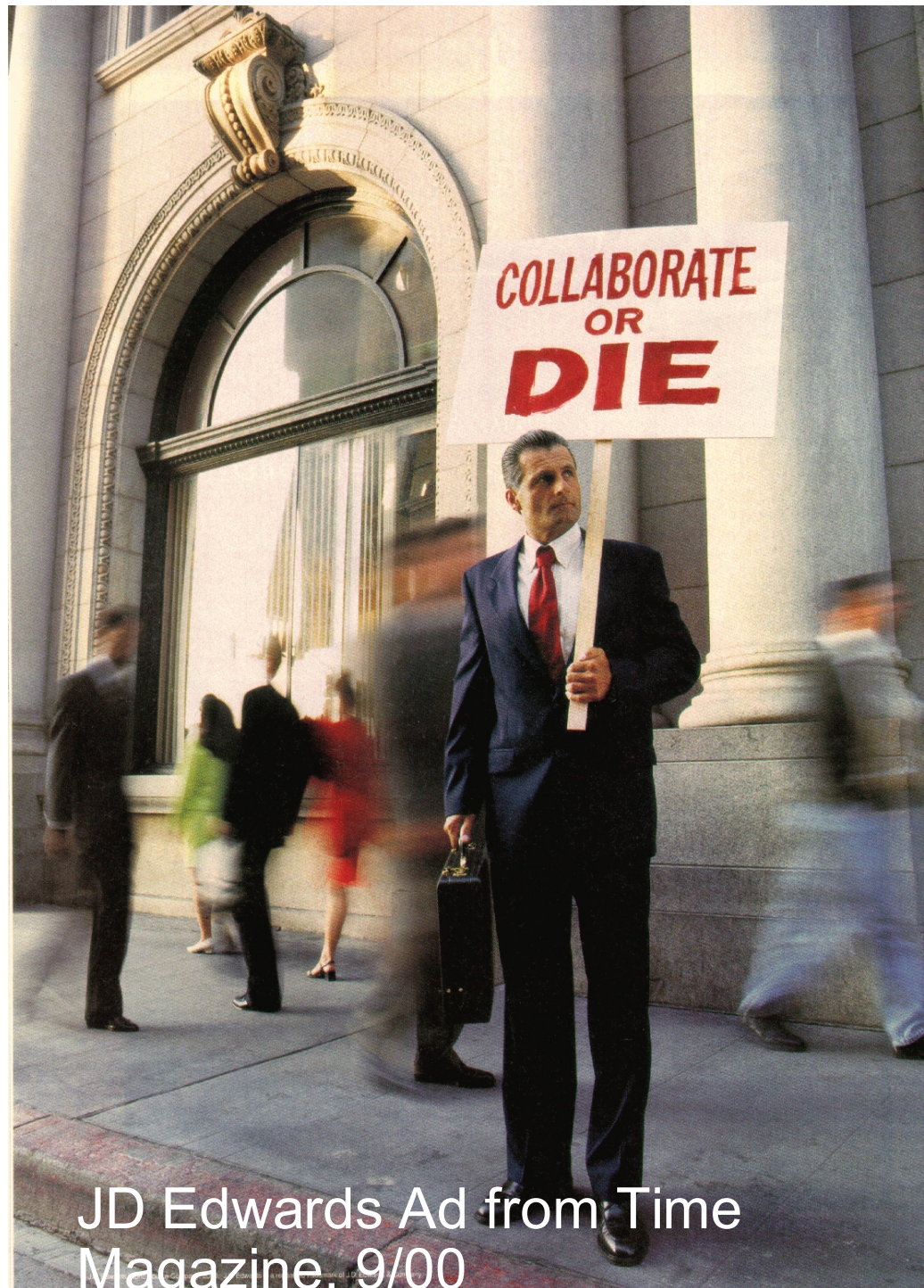
Collaboration

Collaboration is a *purposive* relationship. At the heart of collaboration is a desire or need to

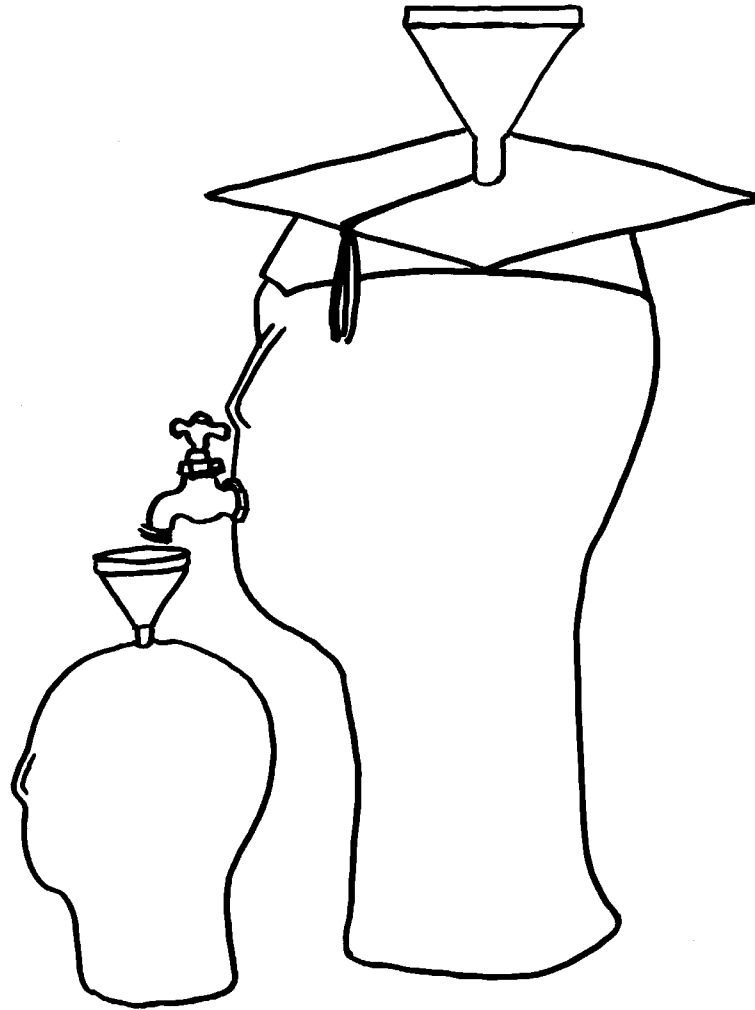
- solve a problem,
- create, or
- discover something

Within a set of constraints, including expertise, time, money, competition, and conventional wisdom (p. 36)

Michael Schrage. 1991. *Shared minds: The new technologies of collaboration.*



JD Edwards Ad from Time
Magazine, 9/00



Lila M. Smith

Pedago-pathologies – Lee Shulman

Amnesia

Fantasia

Inertia

Shulman, Lee S. 1999. Taking learning seriously.
Change, 31 (4), 11-17.

What do we do about these
pathologies? – Lee Shulman

Activity

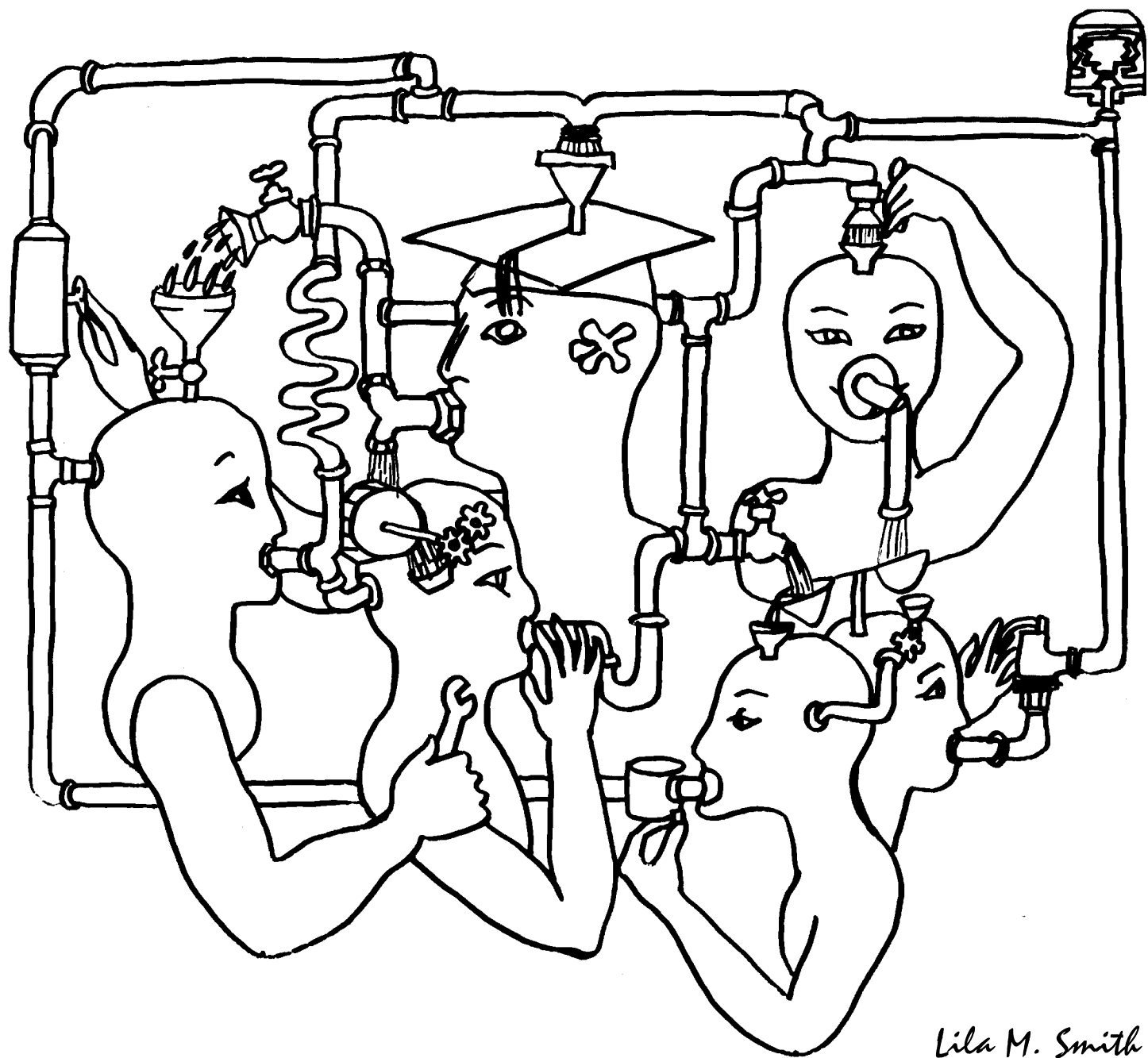
Reflection

Collaboration

Passion

Combined with *generative content*
and the creation of powerful learning
communities

Shulman, Lee S. 1999. Taking learning seriously.
Change, 31 (4), 11-17.



Lila M. Smith

Foundations for Student-Student Collaboration

1. Learning is a social activity (John Dewey)
2. Innovative learning requires ambiguity (Stuart Pugh)
3. All learning requires un-learning (John Seely Brown)

Design & Learning

- Engineering design is a social activity
- Designers require ambiguity
- All design is re-design
- Education is a social activity
- Learning requires ambiguity
- All education is re-education

Foundations - John Dewey

John Dewey's ideal school

- a “thinking” curriculum aimed at deep understanding
- **cooperative learning within communities of learners**
- interdisciplinary and multidisciplinary curricula
- projects, portfolios, and other “alternative assessments” that challenged students to integrate ideas and demonstrate their capabilities.

Dewey, John. 1915. The school and society, 2nd ed. Chicago: University of Chicago Press.

Cooperative Learning



Cooperative Learning

Kurt Lewin - Social Interdependence Theory

1. The essence of a group is the interdependence among members (created by common goals) which results in the group being a "dynamic whole" so that a change in the state of any member or subgroup changes the state of any other member or subgroup
2. An intrinsic state of tension within group members motivates movement toward the accomplishment of the desired common goals.

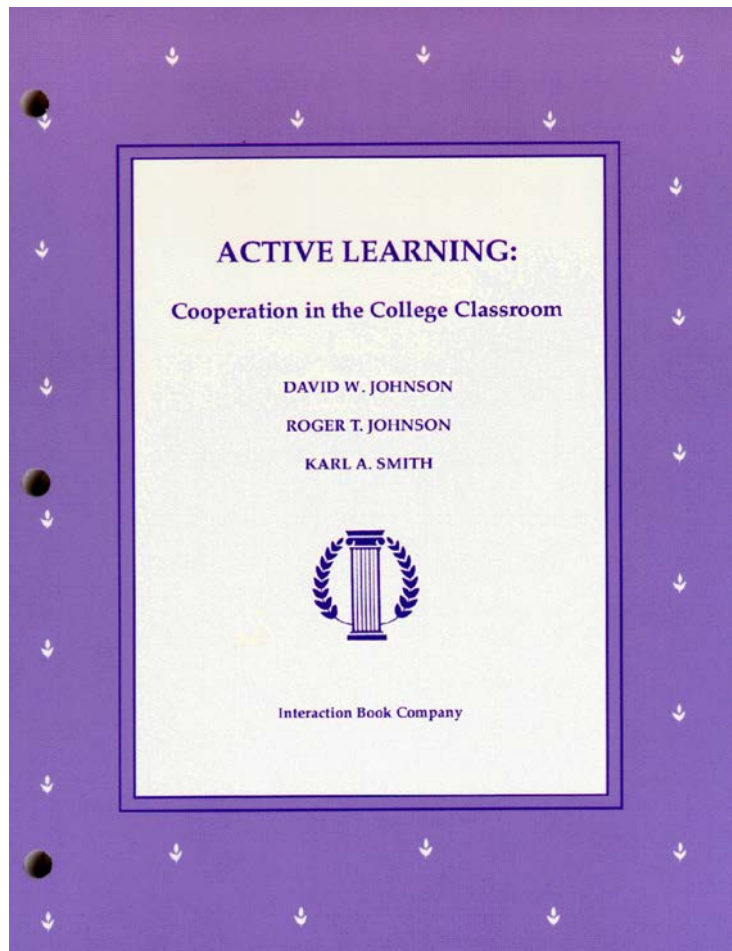
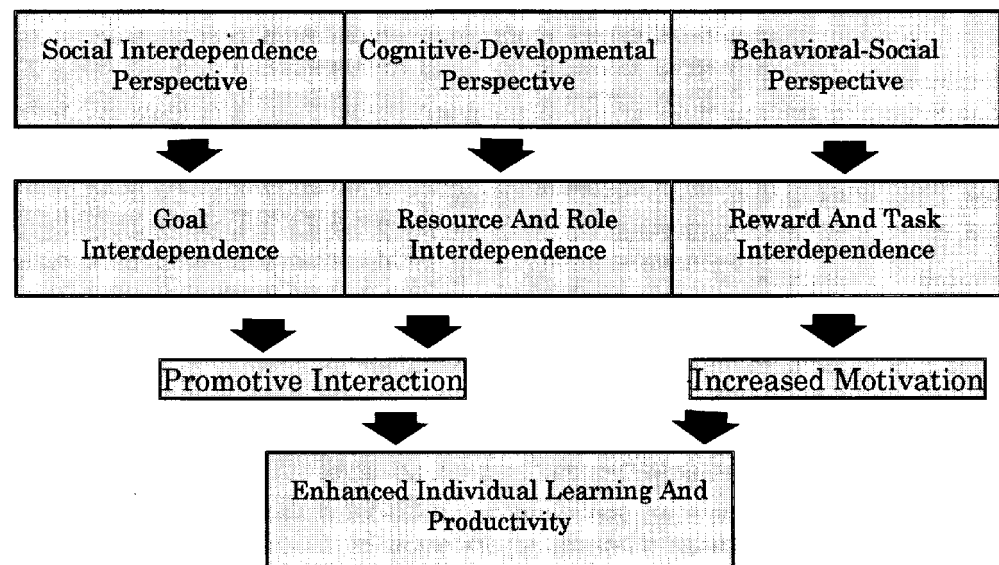


Figure A.1 A General Theoretical Framework



Creative Performance From Students (& Faculty) Requires Maintaining a Creative Tension Between Challenge and Security

Pelz, Donald, and Andrews, Frank. 1966. Scientists in Organizations: Productive Climates for Research and Development. Ann Arbor: Institute for Social Research, University of Michigan.

Pelz, Donald. 1976. Environments for creative performance within universities. In Samuel Messick (Ed.), *Individuality in learning*, pp. 229-247. San Francisco: Jossey-Bass

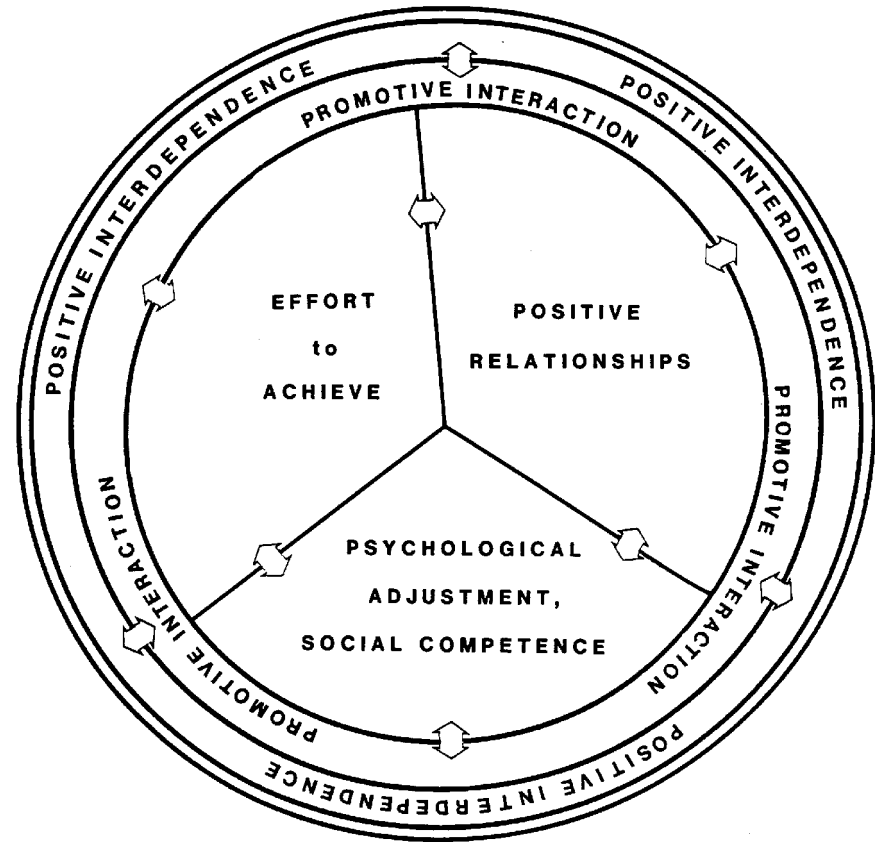
Cooperative Learning Research Support

Johnson, D.W., Johnson, R.T. & Smith, K.A. 1998. Cooperative learning returns to college: What evidence is there that it works? *Change*, 30 (4), 26-35.

- Over 300 Experimental Studies
- First study conducted in 1924
- High Generalizability
- Multiple Outcomes

Outcomes

1. Achievement and retention
2. Critical thinking and higher-level reasoning
3. Differentiated views of others
4. Accurate understanding of others' perspectives
5. Liking for classmates and teacher
6. Liking for subject areas
7. Teamwork skills



Small-Group Learning: Meta-analysis

Springer, L., Stanne, M. E., & Donovan, S. 1999. Effects of small-group learning on undergraduates in science, mathematics, engineering, and technology: A meta-analysis. *Review of Educational Research*, 69(1), 21-52.

Small-group (predominantly cooperative) learning in postsecondary science, mathematics, engineering, and technology (SMET). 383 reports from 1980 or later, 39 of which met the rigorous inclusion criteria for meta-analysis.

The main effect of small-group learning on achievement, persistence, and attitudes among undergraduates in SMET was significant and positive. Mean effect sizes for achievement, persistence, and attitudes were 0.51, 0.46, and 0.55, respectively.

NEW DIRECTIONS FOR TEACHING AND LEARNING



Strategies for Energizing
Large Classes:
From Small Groups to
Learning Communities

Jean MacGregor, James L. Cooper,
Karl A. Smith, Pamela Robinson

EDITORS

NUMBER 81, SPRING 2000
JOSSEY-BASS PUBLISHERS

***Strategies for
Energizing Large
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Jean MacGregor,
James Cooper,
Karl Smith,
Pamela Robinson

New Directions for
Teaching and Learning,
No. 81, 2000.
Jossey- Bass

Active/Cooperative Learning Success Story

Reflect on and Talk about your
Active/Cooperative Learning
Success(es)

1. Context?
2. Structure/Procedure?
3. Outcome?

“Insider Knowledge” and Communities of Practice

Where do students gain the “insider knowledge” about surviving (or thriving) in a university, i.e., where do they learn how to act, talk, and think like an successful student?

Where do engineering students gain the “insider knowledge” of engineering, i.e., where do they learn how to act, talk, and think like an engineer?

According to Seely Brown & Duguid (1991), “Learning that is informal, social, and focused on meaningful problems helps create ‘insider knowledge’.”

Gaining insider knowledge is a major part of becoming a member of a community of practice.

Situated Learning and Communities of Practice

Depends on two claims:

1. It makes no sense to talk of knowledge that is decontextualized, abstract or general.
2. New knowledge and learning are properly conceived as being located in communities of practice.

Pointers for practice:

- Learning is in the relationships among people.
- Educators' role is to help people become participants in communities of practice.
- Learning is a part of everyday life, that is, there is a connection between knowledge and activity.

Lave, J. & Wenger, E. 1991. *Situated learning: Legitimate peripheral participation*. Cambridge University Press.

The Social Life of Information



John Seely Brown
Paul Duguid

HARVARD BUSINESS SCHOOL PRESS

- Learning – In theory and in practice
- Re-education

Learning a practice involves becoming a member of a 'community of practice' and thereby understanding its work and its talk from the inside (p. 126)

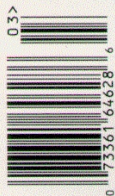
www.slofi.com

Change

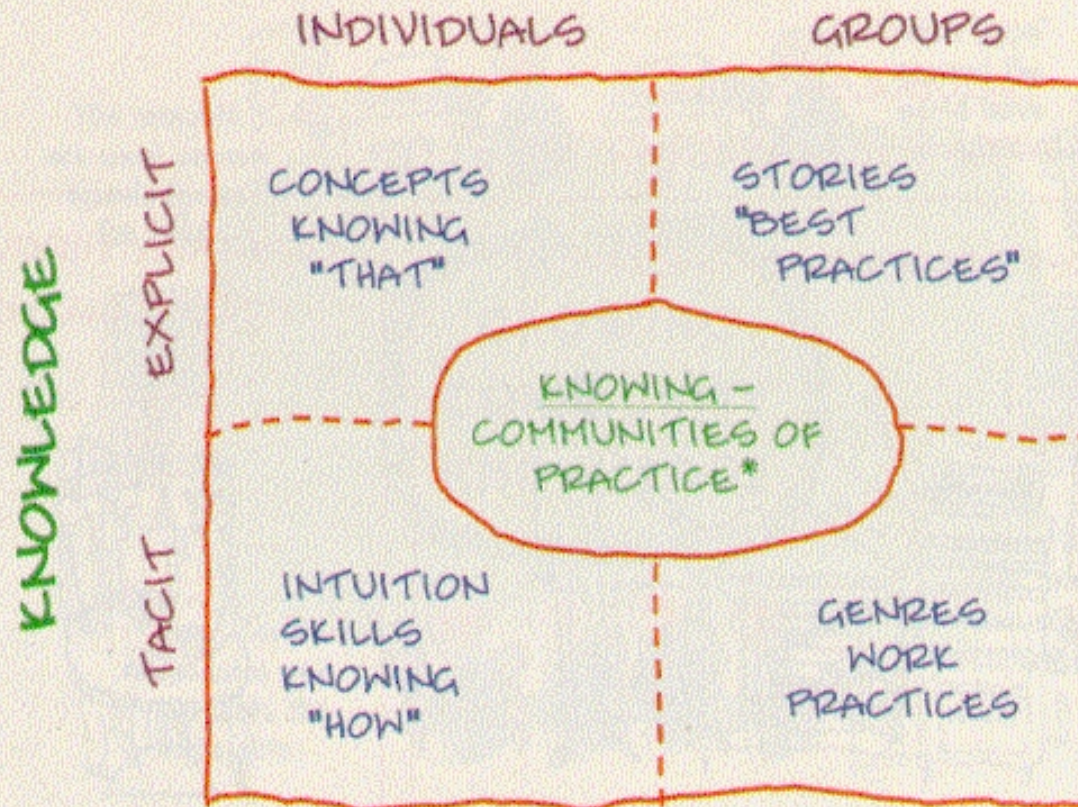
THE MAGAZINE OF HIGHER LEARNING

MARCH/APRIL 2000

U.S. \$3.95
CANADA \$5.25



DISTRIBUTED INTELLIGENCE



* SOCIAL FABRIC THAT EMERGES FROM SHARING TASKS
OVER A SUBSTANTIAL PERIOD OF TIME

John Seely Brown. Growing up digital: The web and a new learning ecology. *Change*. March/April 2000.

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Communities of Practice

Learning, Meaning, and Identity

ETIENNE WENGER



Cambridge U Press, 1998

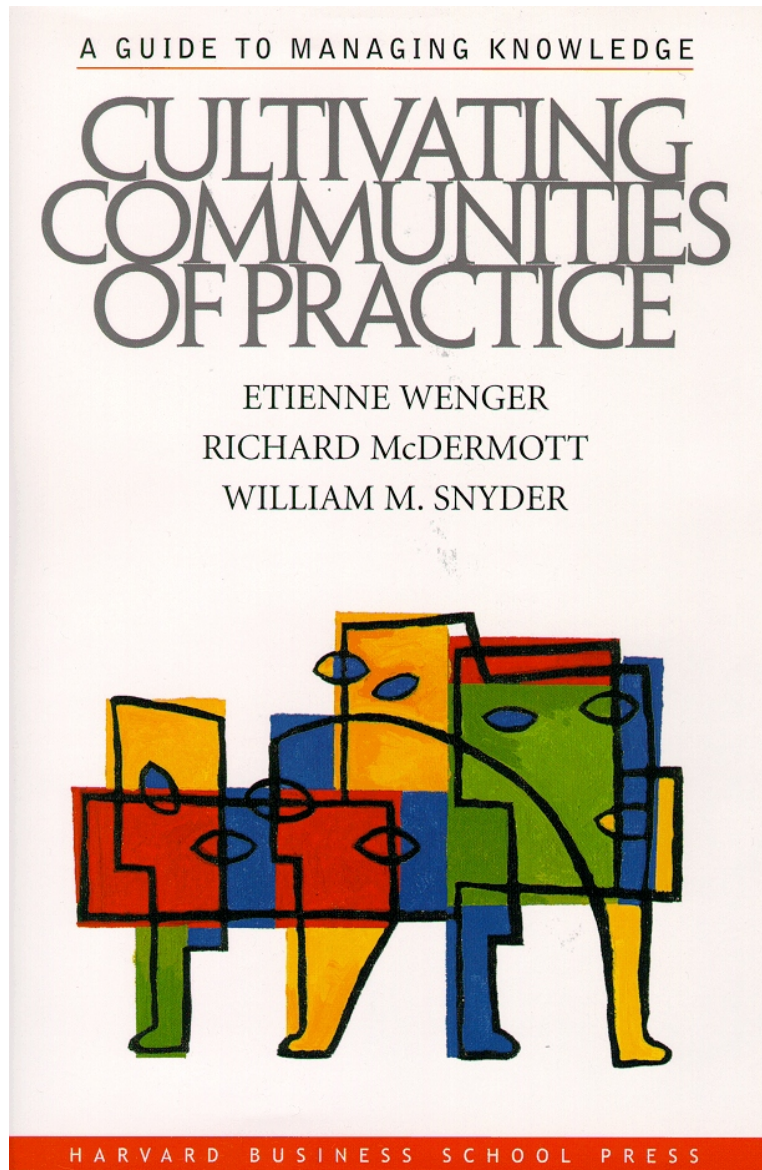
LEARNING IN DOING: SOCIAL, COGNITIVE, AND COMPUTATIONAL PERSPECTIVES

Communities of practice:

A group of people who:

- Share an interest in a topic (**Domain**),
- Interact and build relationships (**Community**)
- Share and develop knowledge (**Practice**).

Communities of practice: The organizational frontier --
Harvard Business Review,
Jan/Feb 2000



Communities of practice are groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis.

Wenger, Etienne, McDermott, Richard, and Snyder, William. 2002. *Cultivating Communities of Practice*. Cambridge, MA: Harvard Business School Press.

Personal reflection on communities of practice (After Wenger, 2002)

Talk about a community you belong(ed)
to:

1. What were the characteristics that made it special?
2. Why did you join? What made you stay? What made you leave?
3. How did it affect you...your identity, your knowledge, your performance?

Parker Palmer notes a longing among faculty for

“Good talk about teaching”

The Courage to Teach: Exploring the Inner Landscape of a Teacher’s Life. Jossey-Bass, 1998

How do we build opportunities for

“Good talk about teaching and learning”

The Courage to Teach: Exploring the Inner Landscape of a Teacher's Life

Parker Palmer

Chapter VII Divided No More: Teaching from a Heart of Hope

Is it possible to embody our best insights about teaching and learning in a social movement that might revitalize learning?

Parker Palmer : “Movement Approach” to Educational Reform

Stage 1. Isolated individuals make an inward decision to live “*divided no more,*” finding a center for their lives outside of institutions.

Stage 2. These individuals begin to discover one another and form *communities of congruence* that offer mutual support and opportunities to develop a shared vision.

Stage 3. These communities of congruence start *going public*, learning to convert their private concerns into the public issues they are and receiving vital critiques in the process.

Stage 4. A system of *alternative rewards* emerges to sustain the movement’s vision and to put pressure for change on the standard institutional reward system.

Opportunities for Conversations About Teaching and Learning

TA development programs, Preparing Future Faculty (PFF) programs, Courses on teaching and learning for graduate students

Campus-based early career faculty development programs – Lilly Teaching Fellows Program, Bush Early-Career Program

Regional and National programs – NETI, SEESP, CIC Academic Leadership Program

Next generation?

Conversations About Teaching and Learning are important for building Social Capital

”The norms and social relations embedded in social structures that enable people to coordinate action to achieve desired goals”
– World Bank

“Social capital refers to features of social organizations such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit” – Robert Putnam

“Social capital consists of the stock of active connections among people: the trust, mutual understanding, and shared values and behaviors that bind the members of human networks and communities and make cooperative action possible” – Don Cohen & Laurence Prusak

Investing in Social Capital

Making connections

Enabling trust

Fostering cooperation

Cohen, Don & Prusak, Laurence. 2001. "How to invest in social capital." *Harvard Business Review*, June, 86-93.

Cohen, Don & Prusak, Laurence. 2001. *In good company: How social capital makes organizations work*. Cambridge, MA: Harvard Business School Press.

Age of Interdependence

Tom Boyle of British Telecom calls this the age of interdependence; he speaks of the importance of people's NQ, or network quotient – their capacity to form connections with one another, which, Boyle argues is now more important than IQ, the measure of individual intelligence.

Cohen, Don & Prusak, Laurence. 2001. *In good company: How social capital makes organizations work*. Cambridge, MA: Harvard Business School Press.

Mitakuye Oyasin

"We are all related"

Education is an art of process,
participation and making connection.

Albert White Hat, Sr. & Cheryl Medearis
Sinte Gleska University, Rosebud, SD