Teacher Professionalism, Computer Use, and Instructional Reform

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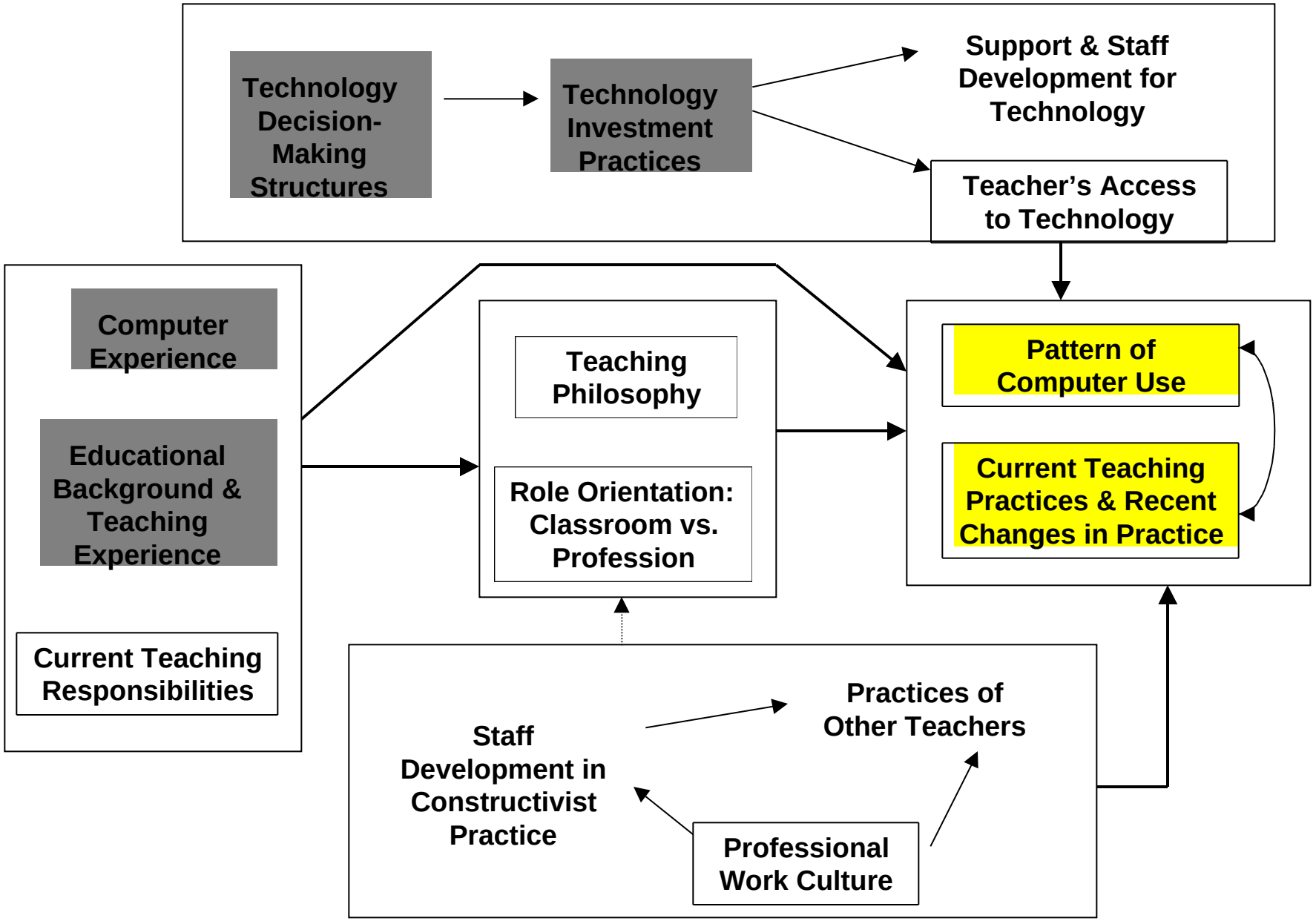
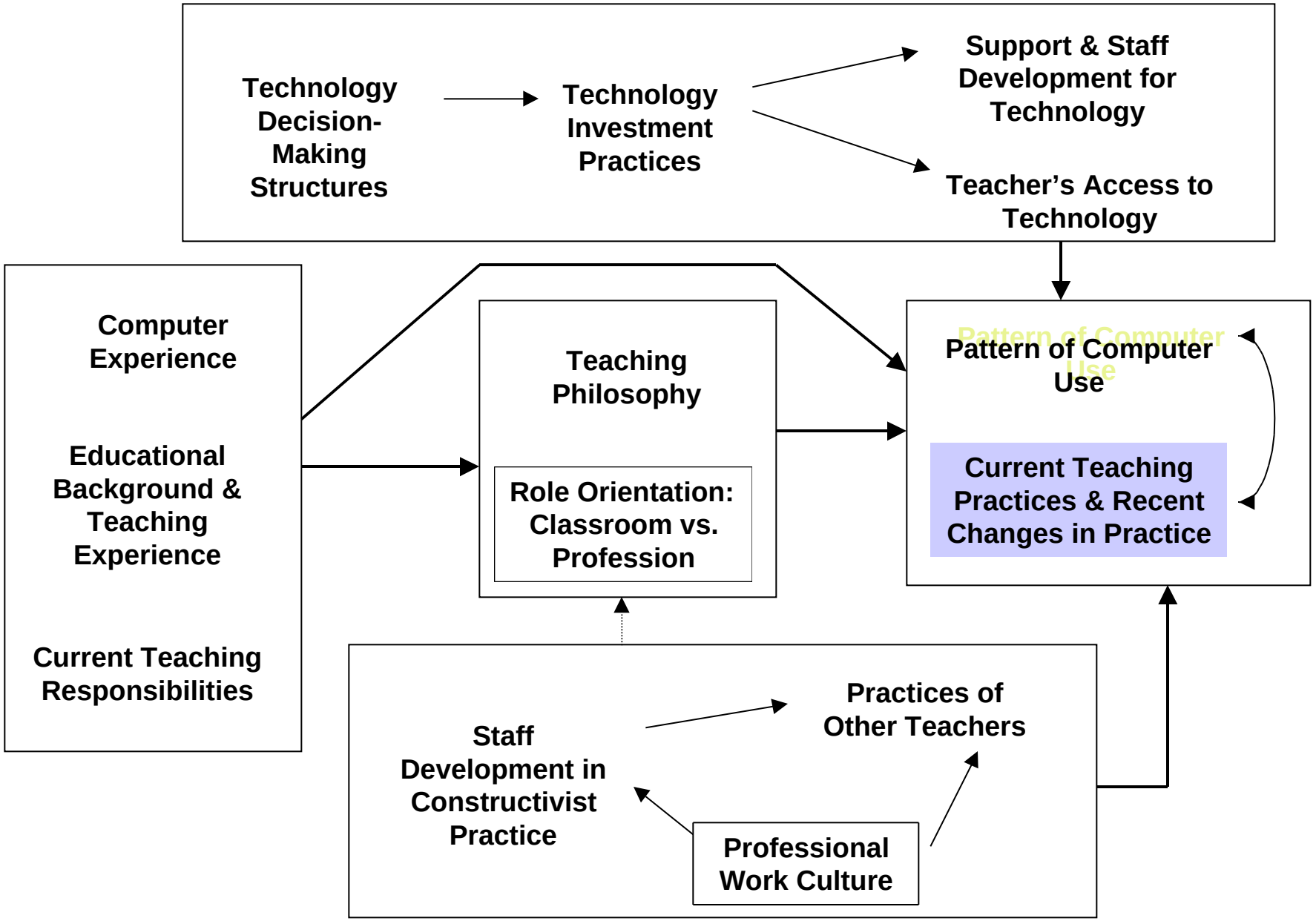
TLC Project: Purpose

To investigate the conditions under which teachers' use of computers involves teaching practices consistent with constructivist instructional reform.

Model of Effects on Computer Use Practices and General Pedagogy



Teacher Professionalism: Role Orientation and Work Culture



The TLC Sample

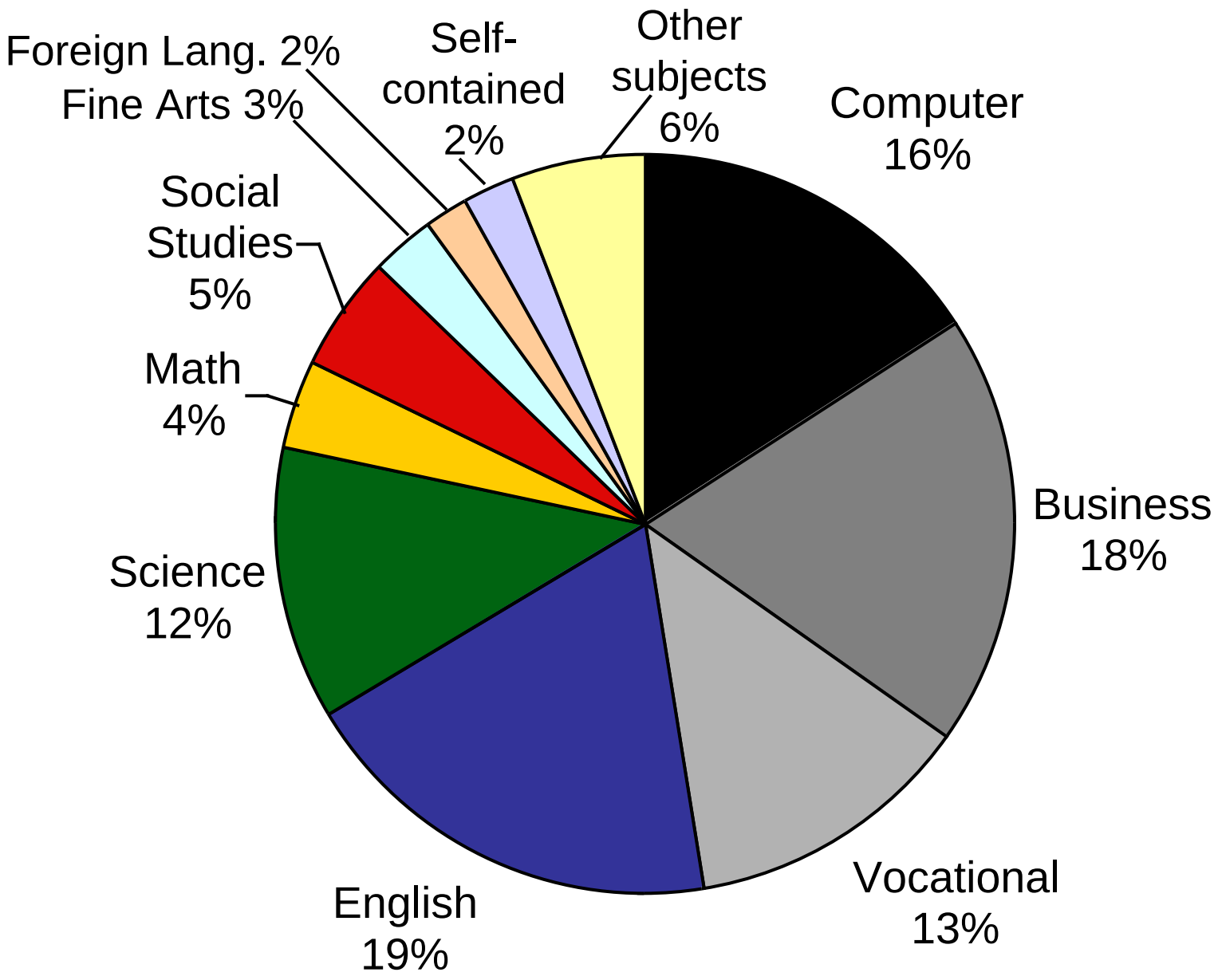
- A representative sample of all U.S. schools, public and private (Probability Sample: 655 schools participated)

- 378 schools from more than 50 major reform projects
- 182 schools with high-end technology (Purposive Sample)

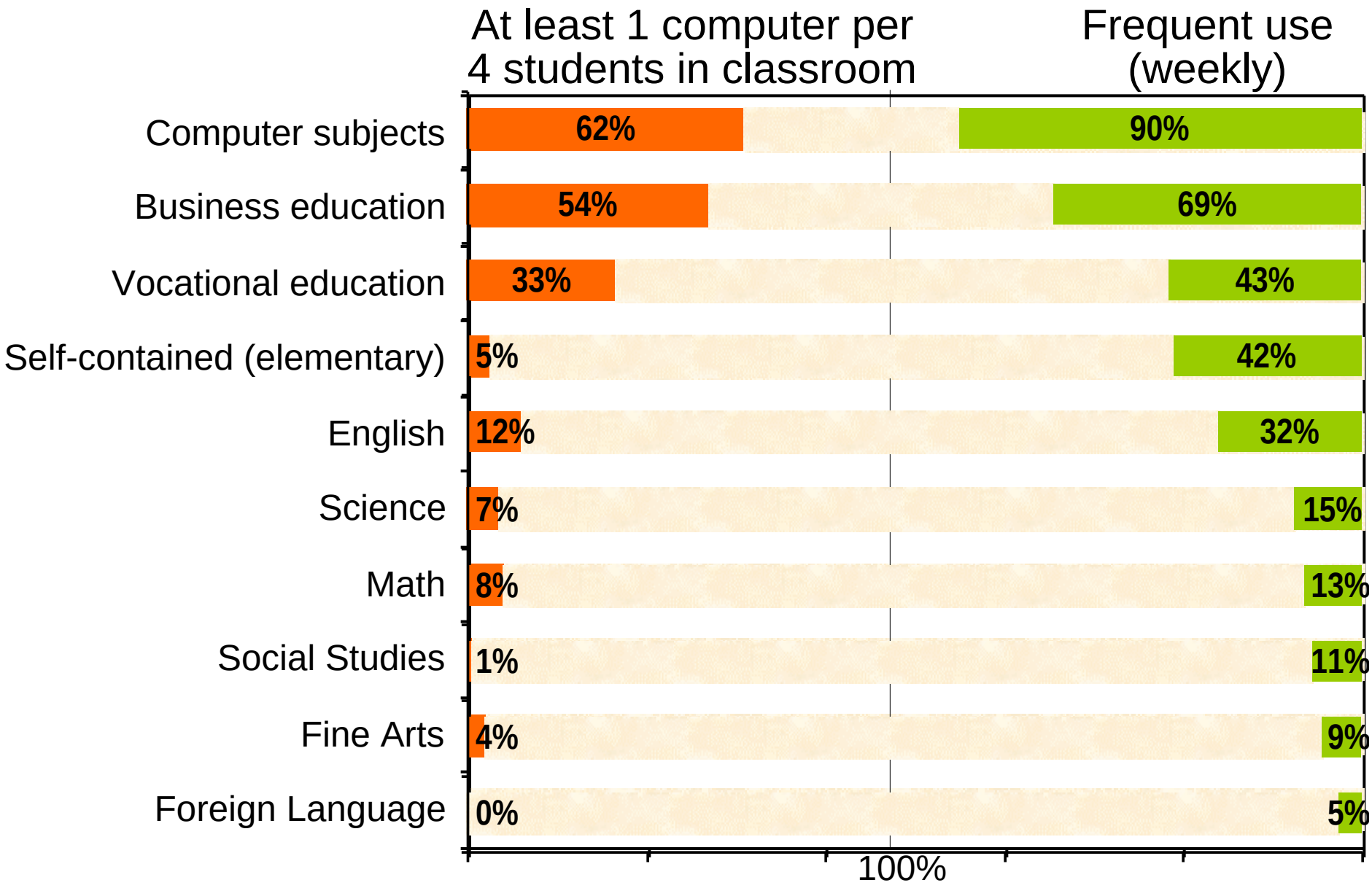
- Three-quarters of sampled schools participated in the study

- Over 4,100 teachers from grades 4-12 participated, nearly 70% of those sampled
  - Completed 20 page questionnaires
  - Four different versions; heavily overlapping questions

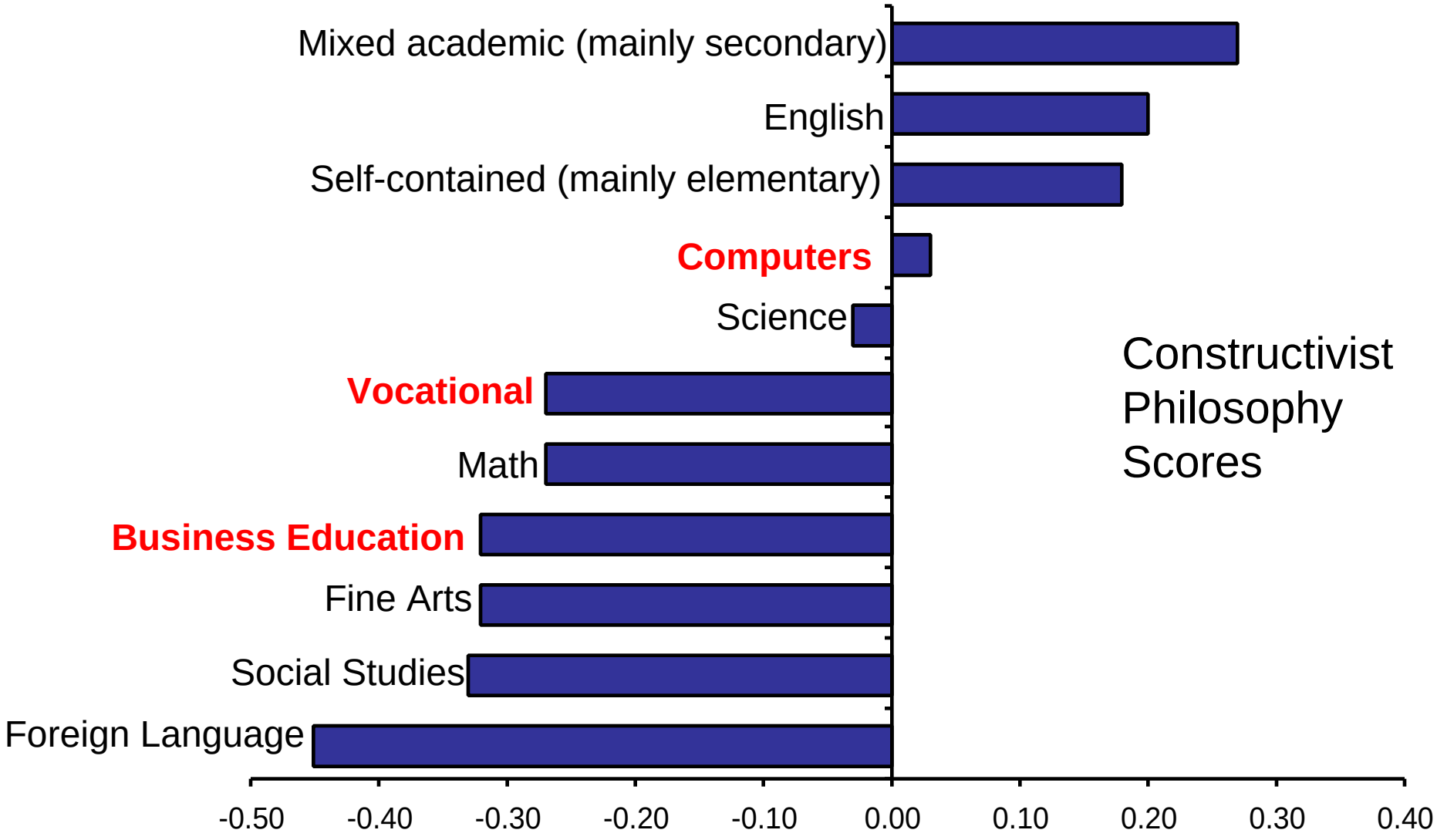
Most High School Computer Experience is Outside the Academic Curriculum



Computer Use Requires Access: Who Has Computers?



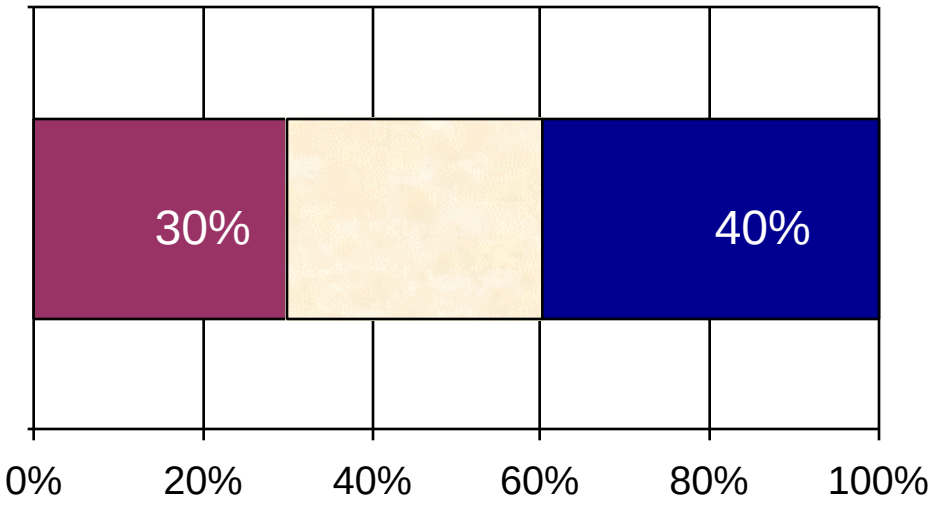
The Subjects Where Most Computer Use Occurs DO NOT Have Particularly Constructivist Teachers



Teaching Philosophy: Teacher as Instructor Or Facilitator?

Instructor

"My students won't really learn the subject unless you go over the material in a structured way. It's my job to explain, to show students how to do the work and to assign specific practice."



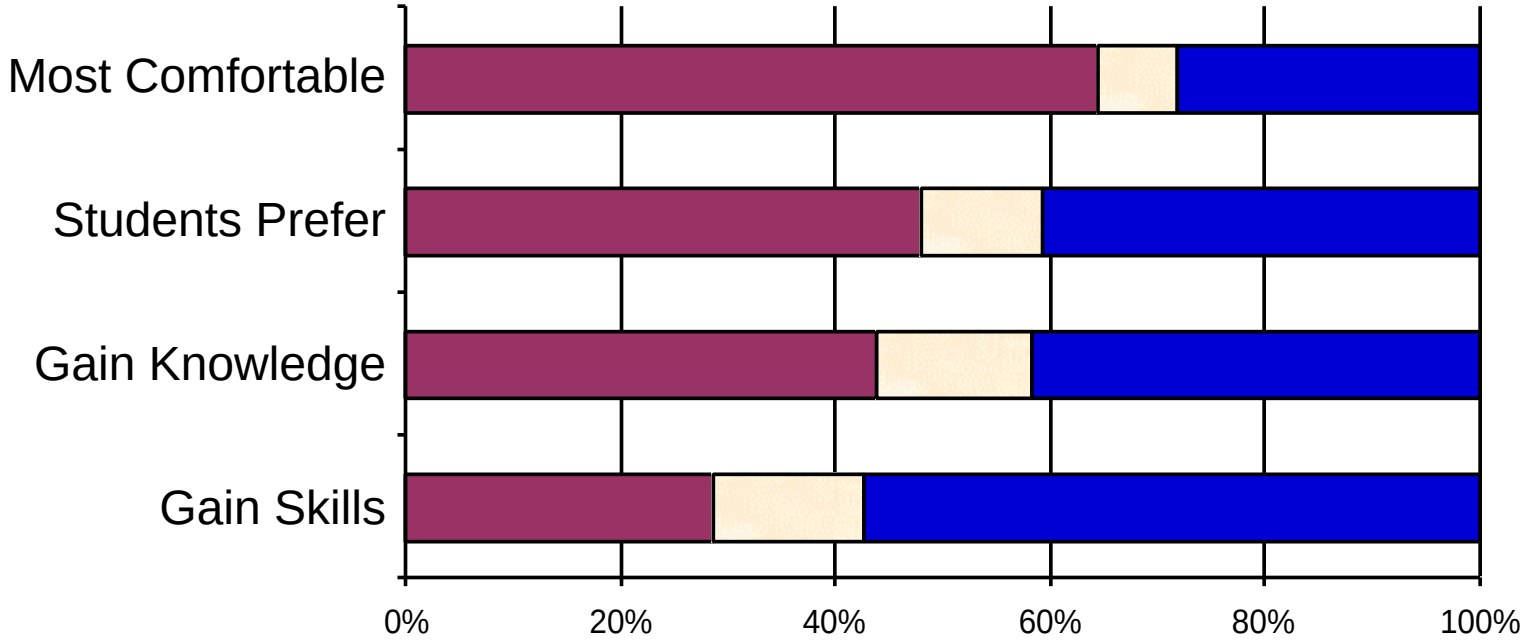
Facilitator

"I try to provide opportunities and resources for my students to discover or construct concepts for themselves."

Two Teachers Compared

Ms. Hill:
Asked questions the students could answer quickly, based on reading they had done before. New material is taught using simple questions to keep students attentive.

Mr. Jones:
Many questions came from students themselves. Though Mr. Jones could clarify questions and suggest sources of relevant information, he couldn't really answer most of the questions himself.



Philosophy Index

Constructivist Philosophy

- Knowledge is built through class and group discussions
- Students need to find answers to their own questions and problems
- Students construct concepts for themselves
- “Sense-making” and guided inquiry
- Authentic, integrated tasks
- Diverse classroom projects

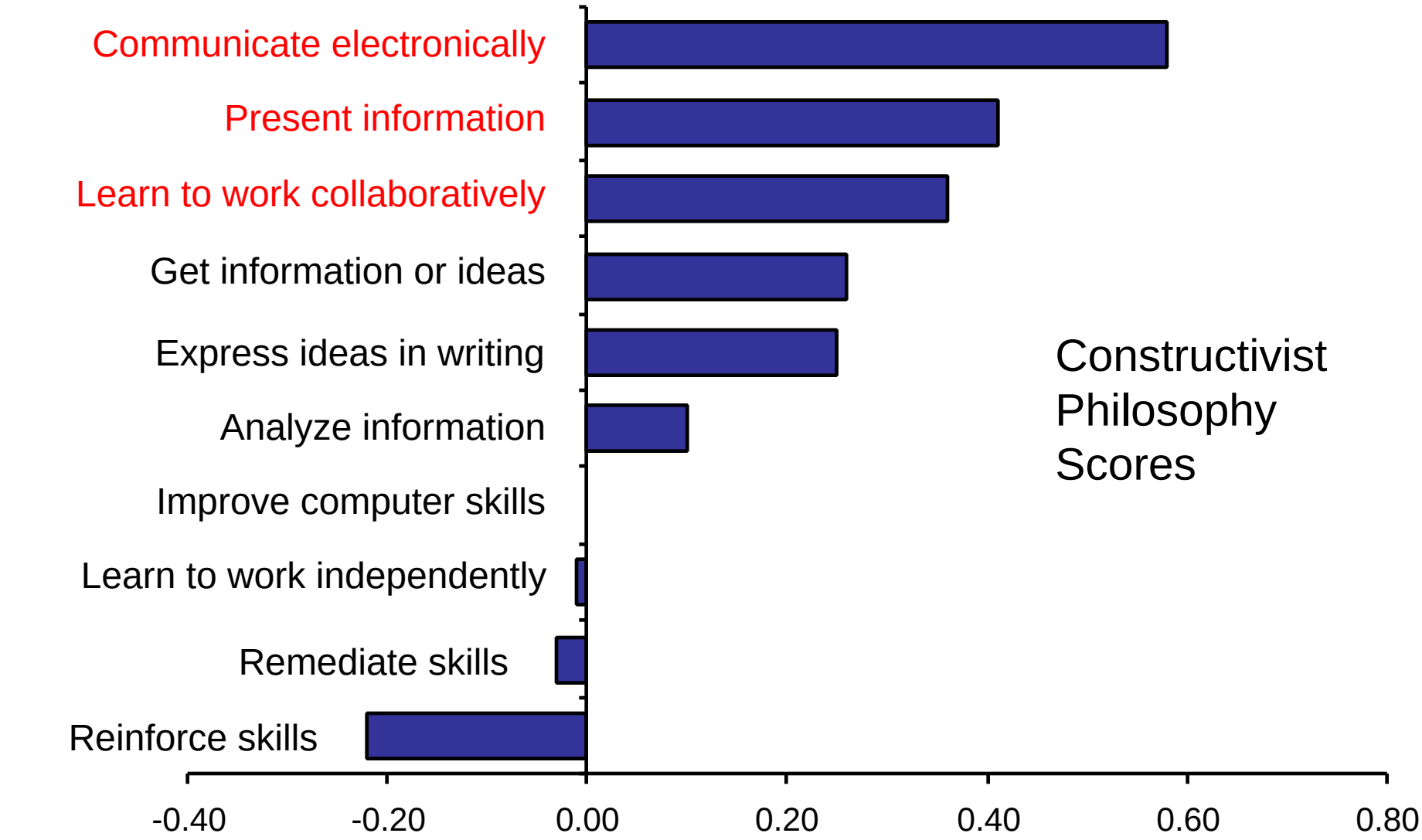
Traditional Philosophy

- Teachers describe and explain concepts, and students learn this content
- A quiet classroom is important for learning
- Acquiring basic content knowledge and skill primary
- Teacher - not students - determine activities
- Instruction is built around problems with clear, easily found, correct answers
- Teaching facts and skills provides the foundation for later learning

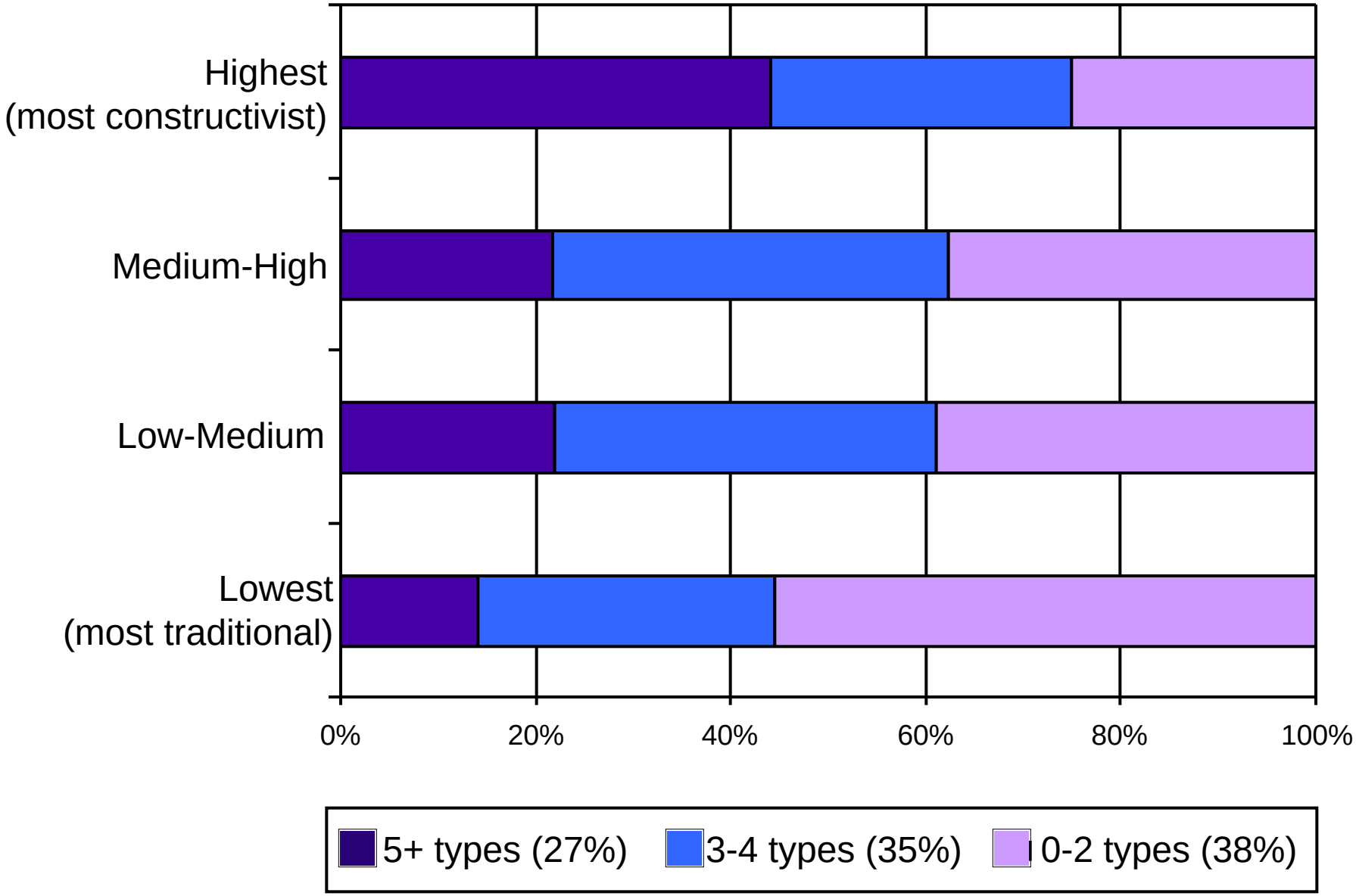
Constructivist Pedagogy Index

Deep Thinking	Project-Based	Student-Designed
• Hold a debate and argue for a particular point of view which may not be their own. • Represent the same idea in more than one way (in math by a table and a graph; in English, by a poem and an essay). • Work on problems for which there is no obvious method of solution. • Seriously assess their own work. • Make conjectures about what they will learn or discover in a new unit.	• Make a product that will be used by someone else. • Do hands on/laboratory activities. • Work on projects that take a week or more. • Demonstrate their work to an audience including people other than from the school or their family.	• Relate what they are working on to their own experience. • Suggest or help plan classroom activities. • Decide on their own procedures for solving a complex problem and then discuss among themselves their different procedures and results.

Among Computer-Using Teachers, Those with Communications Objectives Have the Most Constructivist Philosophies



Among Computer-Using Teachers, The Most Constructivist Pedagogically Use a Wider Variety of Software

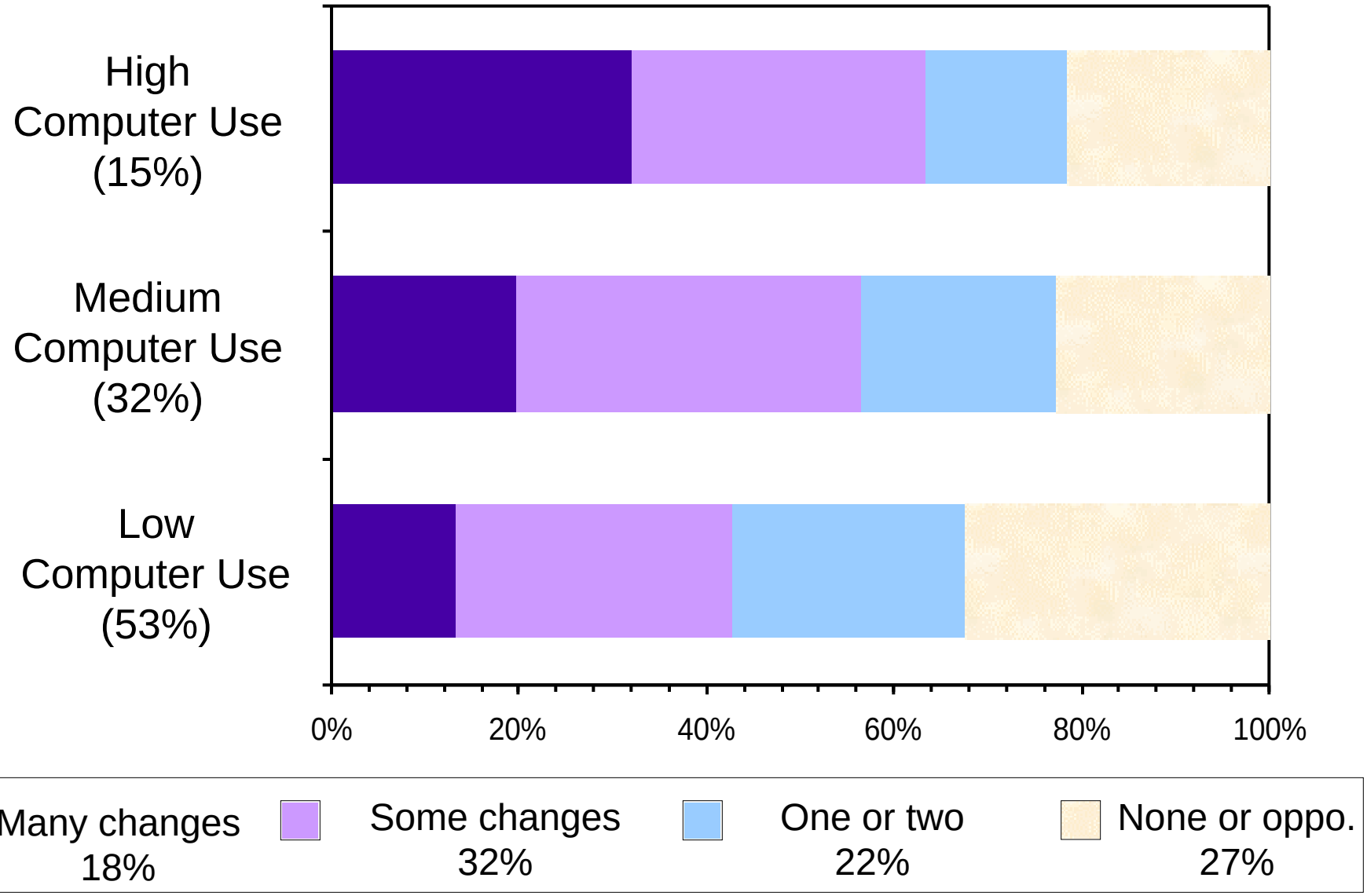


Changes in Pedagogy Over Previous Three Years

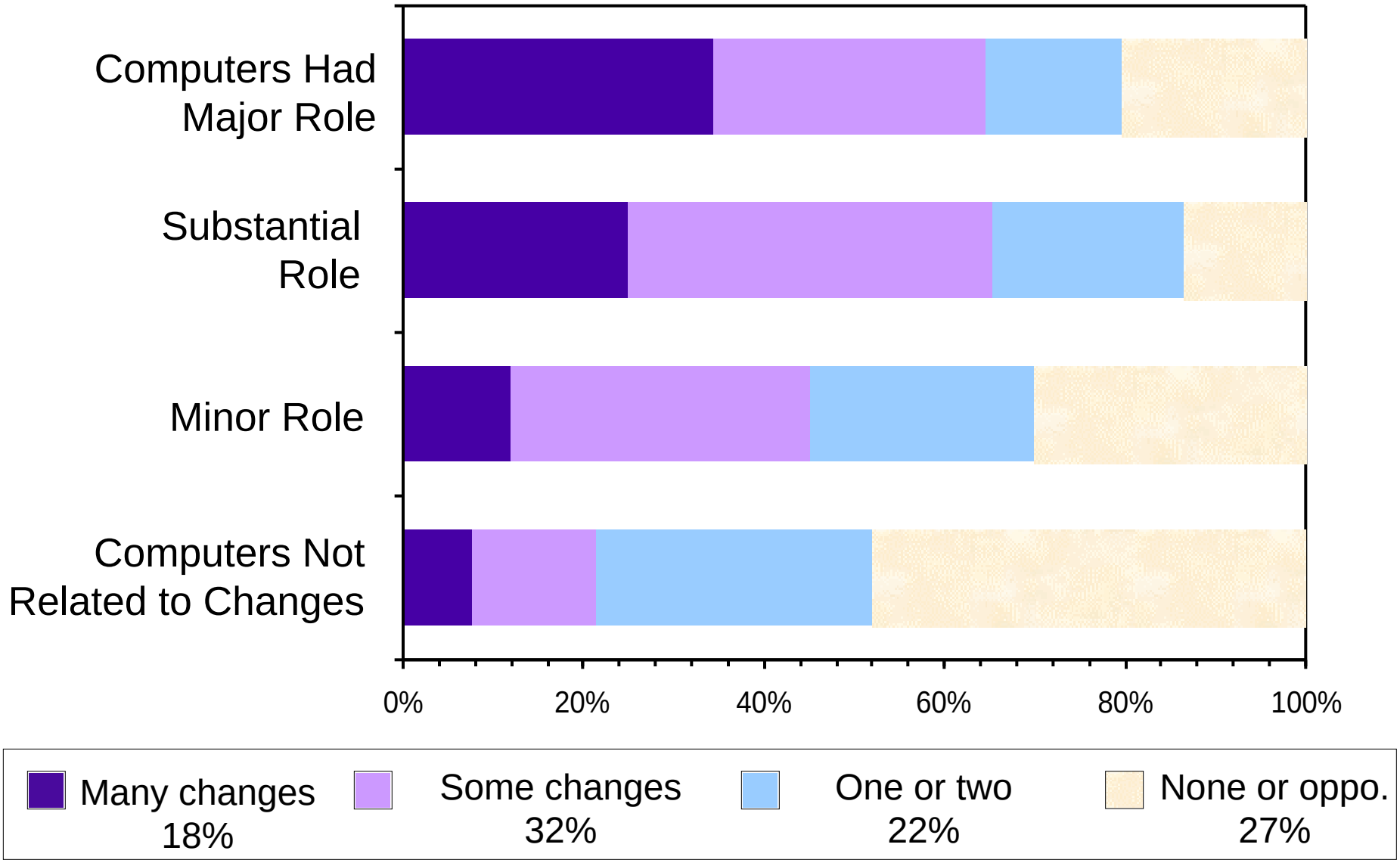
- Constructivist Direction
- More often have students teach or help other students.
- More often have students work on long projects.
- More often have students write a page or more on a single subject.
- More often evaluate students through their products instead of tests.
- More often allow myself to be taught by students.
- More often have many activities going on in the room at the same time.
- 5 others
- (Away from) Traditional Direction
- Have students answer questions in their textbooks.
- Closely monitor and supervise students while they work.
- Plan a lesson using principles of direct instruction.
- 2 others

The More Active Computer-Users Reported More Changes Towards Constructivist Practice

(among computer-using teachers)

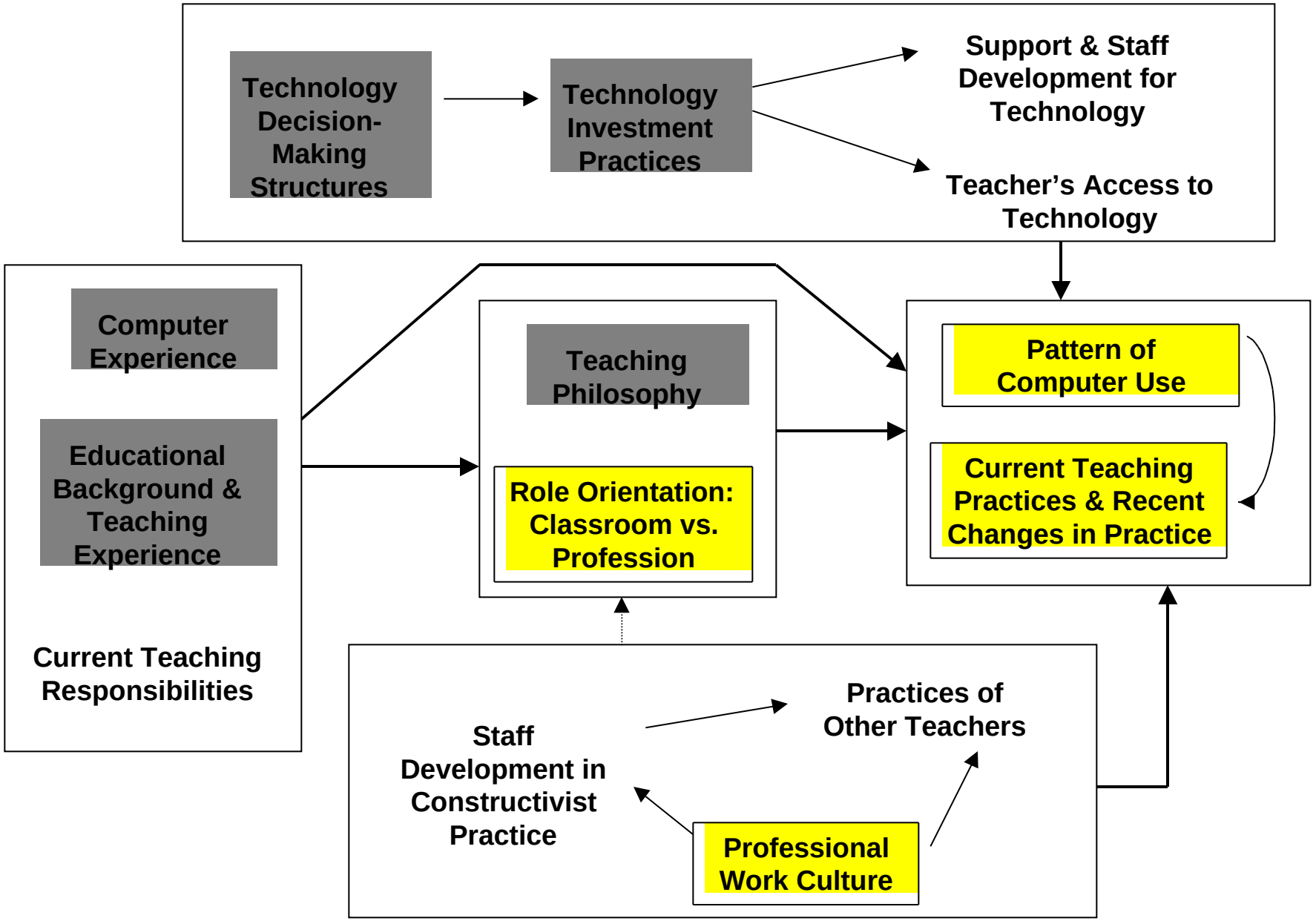


Teachers Who Perceive Computers to Have Had a Major Role in Changes they Made Reported MORE CHANGES



Teacher Professionalism, Constructivist Pedagogies, and Constructivist Uses of Computers

Model of Effects on Computer Use Practices and General Pedagogy



Teacher's Work Role Orientation: Professional Leadership vs. Classroom Focus

1. Teacher Professional Contacts at School:

   Discussions of Teaching, Learning, Subject-matter, Technology
   Classroom Visits to Observe Teaching

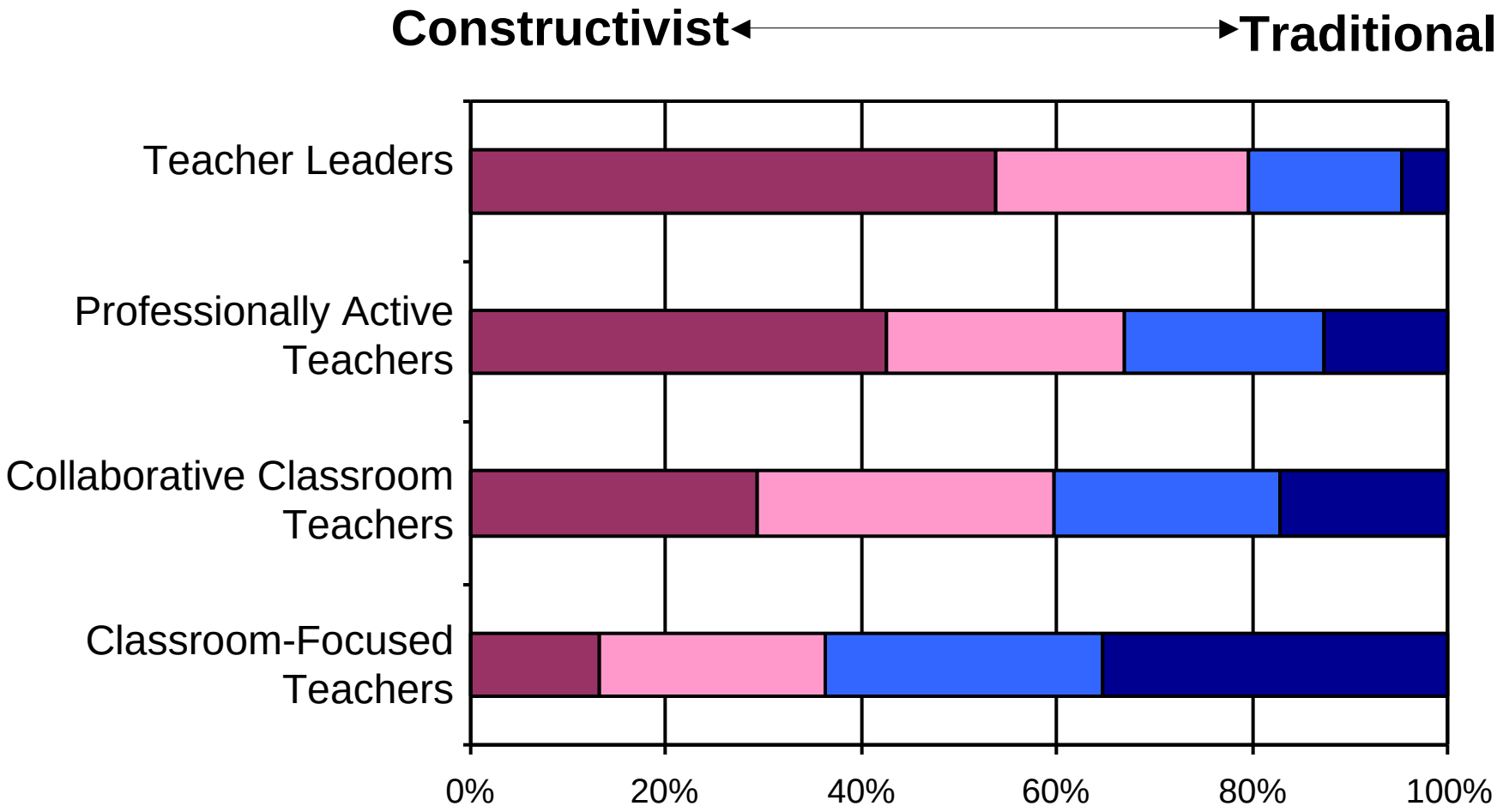
2. Teacher Interactions Beyond the School:

   Attends Workshops
   Participates on Committees
   Professional exchanges through E-mail

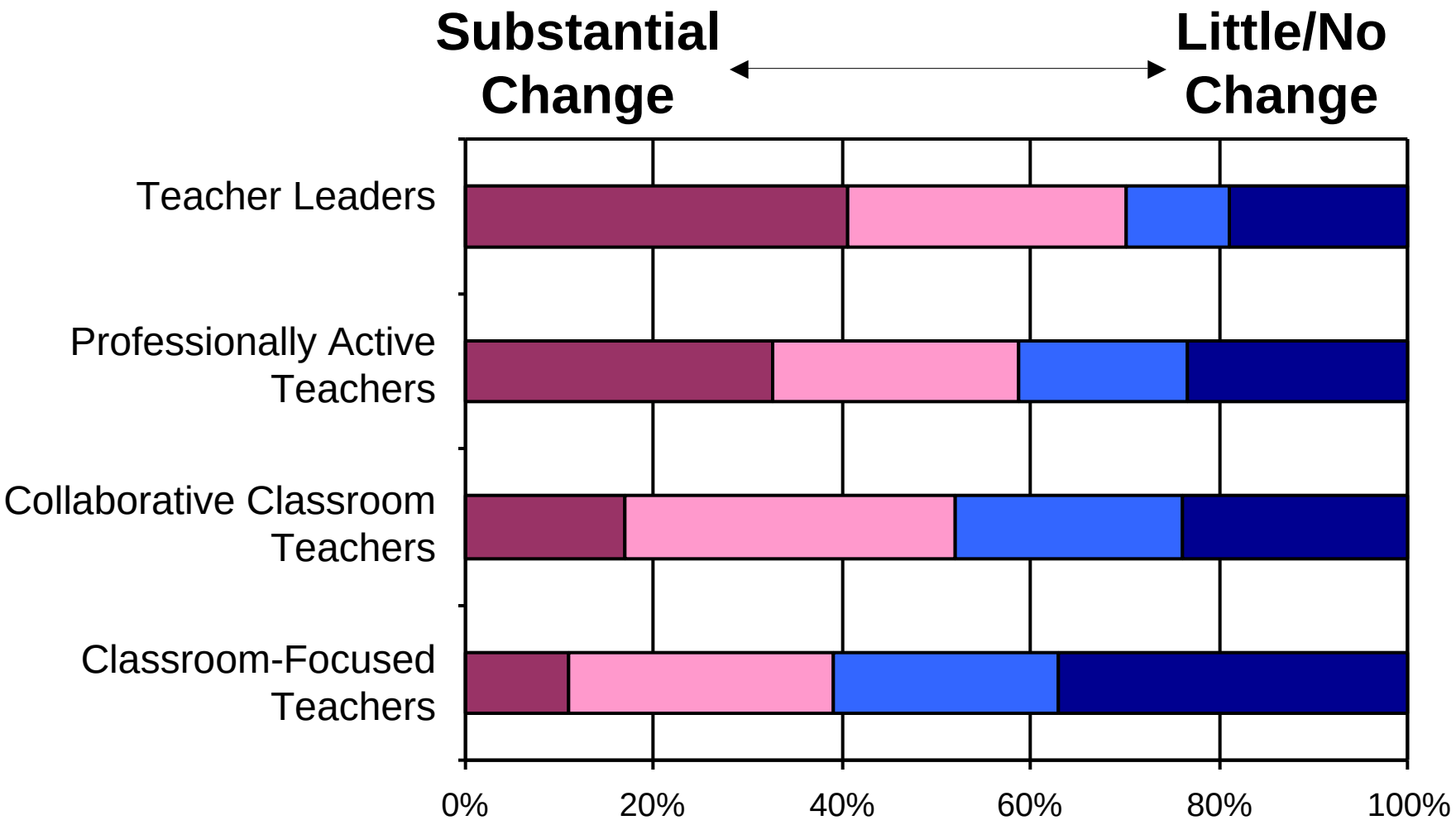
3. Leadership Activities over Past 3 Years:

   Mentoring
   Teaching Peers in Workshops/Conferences
   College Teaching
   Publishing Articles for Practitioners

Teacher Pedagogy by Work Role Orientation



Change in Pedagogy in a Constructivist Direction



Professional School Culture

Teacher Learning Community

It is common for us to share samples of student work
Other teachers encourage me to try out new ideas

Evaluation: Teacher Recognition and Constructive Peer Criticism

Teachers who successfully innovate are given public recognition
Most teachers will press another if that person is not teaching well

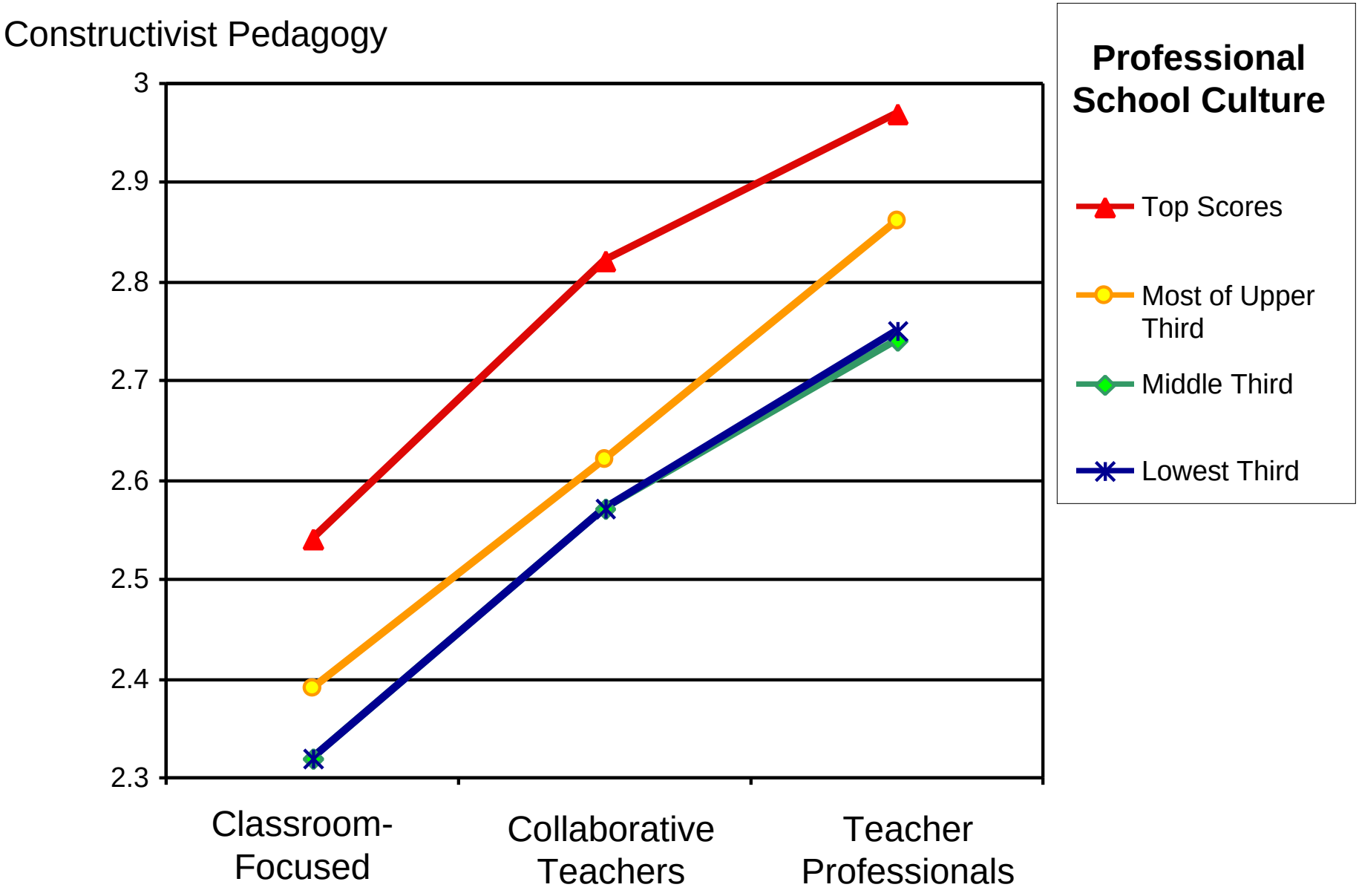
Integrated, Teacher-Respecting Staff Development

Staff development is followed by support to help teachers implement ideas
New ideas presented are discussed by teachers afterwards

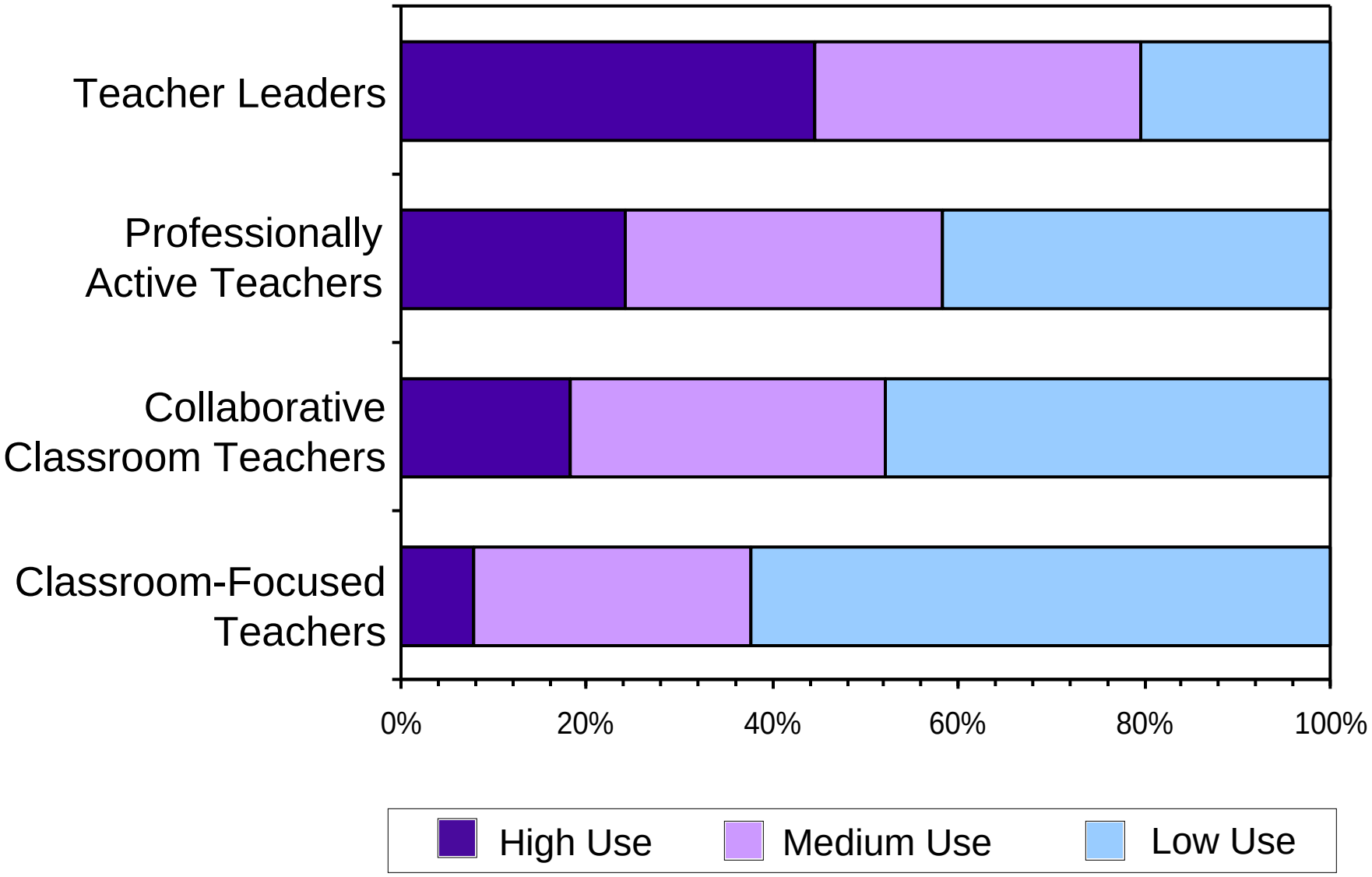
Goal Consensus

The principal's philosophy of education is similar to my own
Most teachers share my beliefs about the central goals of the school

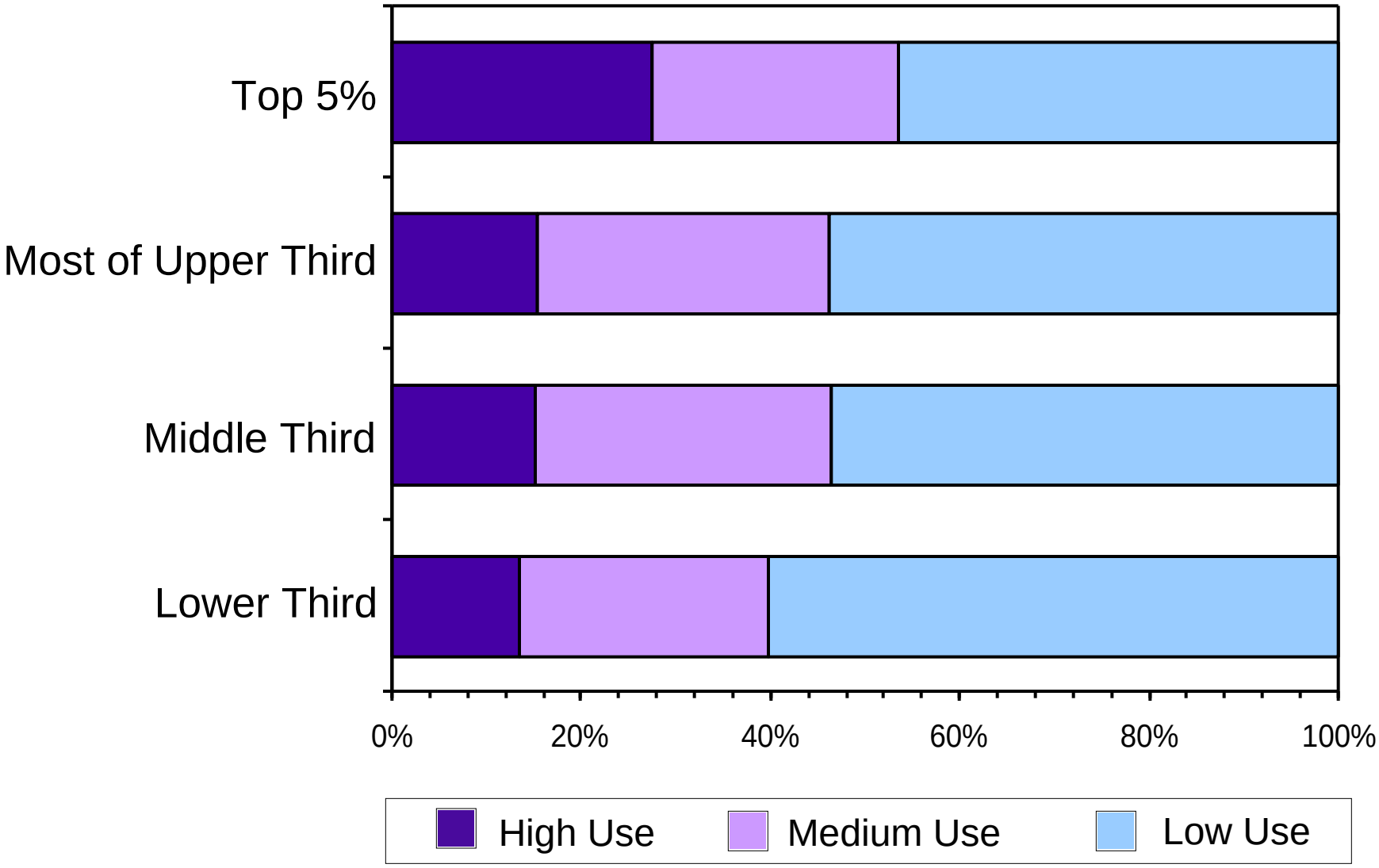
Pedagogy by School Culture by Work Role Orientation



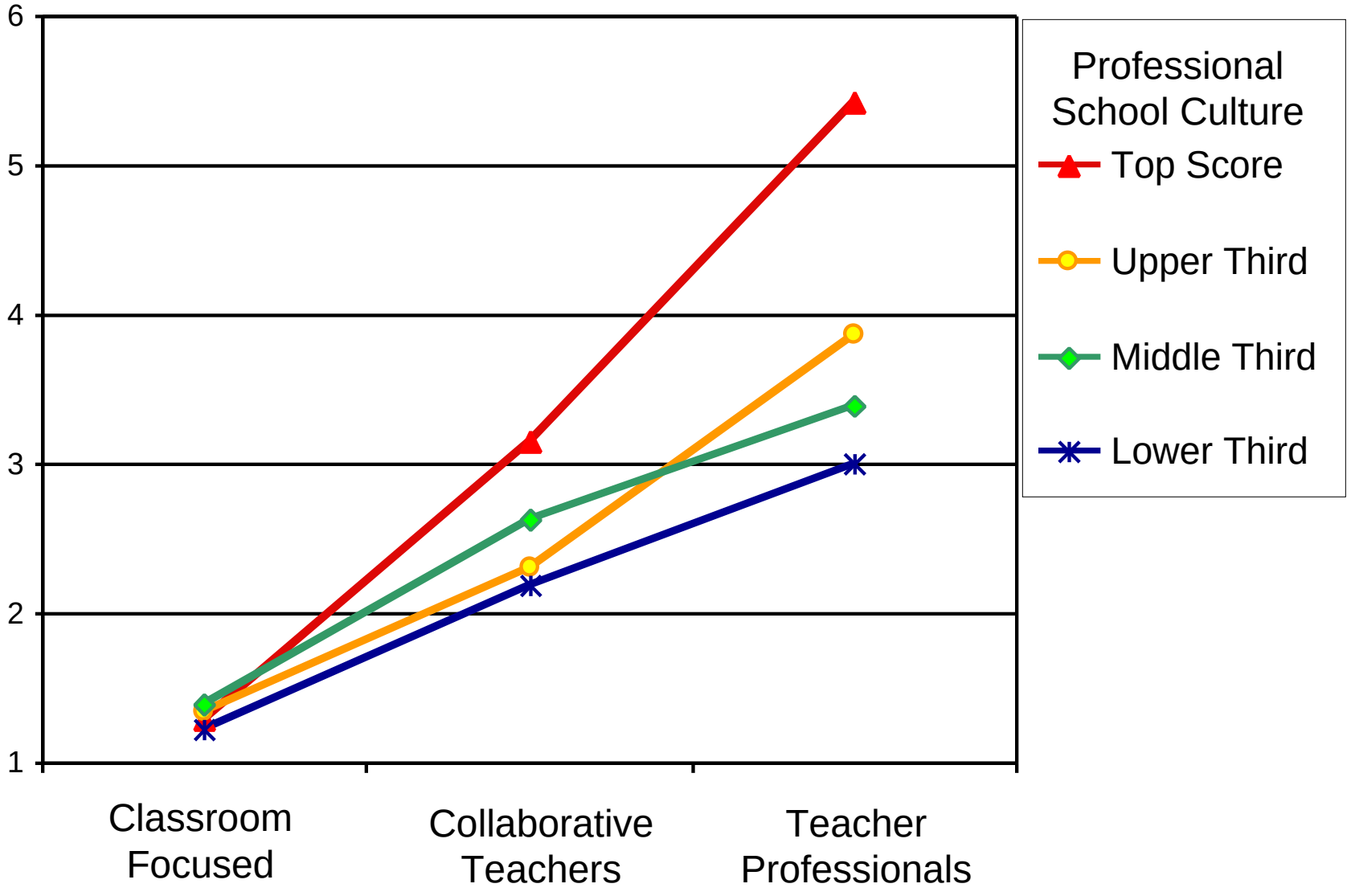
Extent and Variety of Constructivist Computer Use by Teacher Role Orientation



Extent and Variety of Constructivist Computer Use by School Work Culture



Use of World Wide Web Browser, by Role Orientation, by School Culture (Selected Subjects)



Professional Practice vs. Private Practice

The position of the teachers in the education community mirrors the position of students in the classroom community.

If teachers take leadership role in the education community, they are more likely to encourage student leadership in the classroom.

Teacher collaboration at school is linked to student collaboration in the classroom.

If teachers implement ideas that are delivered to them, they are more likely to create a learning context in which ideas and skills are delivered to their students.

Private Practice is related to individualized learning practices.

Teacher Professionalism, Constructivist Learning, and “Staff Development”

I’m very much a learner here: sharing what I’ve learned from Brian Lord...

Words are only words, but...

- “Constructivist” teaching doesn’t necessarily produce better student outcomes
- “Implementation” doesn’t necessarily produce successful practice
- “Staff development” generally suggests a transmission model of learning
  - Isolated skills, one-shot,…
  - Motivation: political cover
  - Attractive: teachers’ time-constraints; here-and-now
- Constructivism for Teachers:
  - Understanding requires immersion in complex, collaborative problem-solving and making a product for a real audience
  - Principal goal: to affect WHICH QUESTIONS teachers’ have about their own practice

What Else is Involved?

- Teachers being willing to raise questions about their own conflicting goals, beliefs
- Developing teachers' interest and skills in systematic information gathering and reasoning from evidence (instead of decision-making by anecdote or happenstance)
- Creating a climate where teachers want to assume responsibility for collective learning
- Developing participants' empathy and tolerance for conflict and ambiguity
- Developing conflict resolution skills

Structures for Change

- 1. Informal study groups
- 2. Peer observation and critique
- a) assessments of videotaped teaching excerpts
- 3. Case studies/stories
- 4. Journal writing and analysis
- 5. Action research
- 6. Grant-writing; collaborative proposal review
- 7. Collaborative curriculum development, review of standards
- 8. Teacher networks across distances, settings

The Role of Specialists: Facilitation of Participation

For More Information visit our Research Project Web Site:

www.crito.uci.edu/TLC

- New findings presented weekly
- Discussion group
- Reports and newsletters: view or download
- Archive of previous newsletters and findings