Social Basis of Learning: From Small-Group Learning to Learning Communities

Karl A. Smith

It is indeed an honor to be invited to contribute to the thirtieth-anniversary volume of *New Directions for Teaching and Learning*. I recall my delight when I discovered the series, because it contained practical advice that was grounded in theory and promising practices. In 1980 I was an early-career engineering faculty member who was deeply interested in student learning. I was beginning to implement cooperative learning in my classes and was looking for ideas and resources, and especially for a community of like-minded colleagues.

My first encounter with the social basis of learning occurred in about 1974 in a Social Psychology of Education course taught by one of David Johnson's Ph.D. students, Dennis Falk (currently a Professor of Social Work at the University of Minnesota-Duluth). I began taking courses in the College of Education in the early 1970s because I had an overwhelming sense that there was a better way to help engineering students learn than what I was doing, which was essentially what had been done to me; that is, lectures, homework assignments, and individual exams. This overwhelming sense of a better way of doing things was prompted by questions the students asked, which revealed that they had no idea what I was talking about. A representative setting was a course in thermodynamics and kinetics—very abstract areas involving a lot of mathematics—where I was “teaching as taught.” My sense that there was a better way was grounded in
my training and experience as an engineer, where one of the fundamental ideas was “advancing the state of the art.” What I encountered in the Social Psychology of Education course, however, changed my life.

During the first session, Professor Falk assigned us to groups, which was a bit of a surprise to me, as I don’t think I had ever experienced this before. He said that there was a lot of dense content and many difficult concepts in the course, and that some of us could probably manage by ourselves but most would benefit from interacting with others. He stressed the ideas of interdependence and accountability, and modeled them through a series of group exercises and assignments. The emphasis on interdependence and accountability was a revelation for me, because it was familiar. This was the way I worked as an engineer on the job and in my research setting. Interdependence and accountability were central to success! At that moment I thought, “Why don’t we do this in engineering classes?” The rest, some will say, is history, as cooperative learning is now embraced by many engineering faculty, and its use is increasing by faculty at large, as indicated by the UCLA Higher Education Research Institute Survey of Faculty, as shown in Table 2.1 (DeAngelo and others, 2009).

My intention in this review of the social basis of learning is to summarize contributions on this topic to the *New Directions for Teaching and Learning* (abbreviated *NDTL*) series and connect them to events occurring more broadly.

### Table 2.1. The American College Teacher: National Norms for 2007–2008

<table>
<thead>
<tr>
<th>Methods Used in “All” or “Most” Classes</th>
<th>All Faculty 2005 (%)</th>
<th>All Faculty 2008 (%)</th>
<th>Assistant 2008 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooperative learning</td>
<td>48</td>
<td>59</td>
<td>66</td>
</tr>
<tr>
<td>Group projects</td>
<td>33</td>
<td>36</td>
<td>61</td>
</tr>
<tr>
<td>Grading on a curve</td>
<td>19</td>
<td>17</td>
<td>14</td>
</tr>
<tr>
<td>Term/research papers</td>
<td>35</td>
<td>44</td>
<td>47</td>
</tr>
</tbody>
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### Social Basis of Learning in Inaugural Issues of *New Directions for Teaching and Learning*

Kenneth Eble, editor of *NDTL* 1 (1980), titled “*Improving Teaching Styles*,” writes, “Every teacher develops a particular way of going about the complex task of teaching, and those distinctive characteristics of behavior and approach make up what is identified as teaching ‘style’.” (Eble, 1980, p. vii). The social nature of learning is included in this inaugural issue, most prominently in Edward Glassman’s article. Glassman (1980) features
cooperative learning, and elaborates on his 1978 article in *Biochemical Education*, “Teaching Biochemistry in Cooperative Learning Groups.”

Joseph Axlerod also has an intriguing article in the first volume (Axlerod, 1980). He refers to his 1973 book *The University Teacher as Artist* (Axlerod, 1973), in which he articulates several “teacher mental images about teaching,” as shown in Table 2.2.

Axlerod’s taxonomy provides a fascinating perspective on the era, and a window into the future. Prior to the Barr and Tagg (1995) and Campbell and Smith (1997) arguments on the shift from teacher-centered to student-centered learning, most of the emphasis was on the teacher and “teacher styles.” One of the first places the comparison of old and new paradigms of teaching appeared was Johnson, Johnson, and Smith (1991). See Table 2.3.

### Table 2.2. Teacher Mental Images About Teaching (Axlerod, 1973)

<table>
<thead>
<tr>
<th>Mental Image</th>
<th>Motto</th>
<th>Characteristics</th>
<th>Disciplines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content</td>
<td>I teach what I know</td>
<td>Pour it in, lecture</td>
<td>Science, math</td>
</tr>
<tr>
<td>Instructor</td>
<td>I teach what I am</td>
<td>Modeling, demonstration</td>
<td>Many</td>
</tr>
<tr>
<td>Student—cognitive development</td>
<td>I train minds</td>
<td>Active learning, discussion</td>
<td>English, humanities</td>
</tr>
<tr>
<td>Student—development of whole person</td>
<td>I work with students as people</td>
<td>Motivation, self-esteem</td>
<td>Basic skills teachers</td>
</tr>
</tbody>
</table>

### Table 2.3. Comparison of Old and New Paradigm of Teaching

<table>
<thead>
<tr>
<th></th>
<th><strong>Old Paradigm</strong></th>
<th><strong>New Paradigm</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>Transferred from faculty to students</td>
<td>Jointly constructed by students and faculty</td>
</tr>
<tr>
<td>Students</td>
<td>Passive vessel to be filled by faculty’s knowledge</td>
<td>Active constructor, discoverer, transformer of knowledge</td>
</tr>
<tr>
<td>Faculty purpose</td>
<td>Classify and sort students</td>
<td>Develop students’ competencies and talents</td>
</tr>
<tr>
<td>Relationships</td>
<td>Impersonal relationships among students and between faculty and students</td>
<td>Personal transaction among students and between faculty and students</td>
</tr>
<tr>
<td>Context</td>
<td>Competitive/individualistic</td>
<td>Cooperative learning in classroom and cooperative teams among faculty</td>
</tr>
<tr>
<td>Teaching assumption</td>
<td>Any expert can teach</td>
<td>Teaching is complex and requires considerable training</td>
</tr>
</tbody>
</table>
The comparison of old and new paradigms was updated by Smith and Waller (1997), and the figure has been cited many times, and reproduced in numerous publications, such as Colander (2004). The second issue, *Learning, Cognition, and College Teaching*, edited by Wilbert McKeachie, continues to set the stage for powerful connections between research and practice. Distributed throughout the second issue are important features of the social nature of learning, such as McKeachie’s (1980) citation of research on surface versus deep processing and the importance of instructor strategies to facilitate deep processing.

Research on “deep learning” is still very active, and a recent article explores connections between student engagement and deep learning, especially in terms of disciplinary differences (Nelson-Laird and others, 2008).

**Social Basis of Learning Throughout the Thirty Years of New Directions for Teaching and Learning**

Over the thirty-year history of *New Directions for Teaching and Learning*, the social nature of learning was emphasized in at least 15 issues (out of 120 or 12.5%), numbers 1, 2, 14, 32, 41, 42, 47, 59, 67, 74, 81, 95, 108, 116, and 117; and it was the central feature of many of these.

*New Directions for Teaching and Learning* No. 14, *Learning in Groups*, edited by Clark Bouton and Russell Garth (1983), was transformative for me, and raised the prominence of the social basis of learning. The entire issue was devoted to the theory and practice of small-group learning, and I found this level of emphasis very reassuring. Influential chapters for me included “Teachers and Learning Groups: Dissolution of the Atlas Complex” (Finkel and Monk, 1983) and “Developing Student Skills and Abilities” (Bouton and Rice, 1983).

The National Institute of Education (1984) report, *Involvement in Learning: Revitalizing Involvement in Learning: Realizing the Potential of American Higher Education. Final Report of the Study Group on the Conditions of Excellence in American Higher Education*, was published in 1984, as was Astin’s (1984) “Student Involvement” article. The congruence of support for the social basis of learning provided by this work on the importance of student involvement in learning strengthened my resolve to focus in this area, and I think helped build the foundation of support that influenced the broader community.

A couple of the *NDTL* volumes, 32 and 81, focused on large classes, and included several chapters emphasizing the social basis of learning. Examples include Frederick’s (1987) article “Student Involvement: Active Learning in Large Classes,” and the Cooper and Robinson (2000) article “The Argument for Making Large Classes Seem Small.” Teaching large classes well is an ongoing challenge for college and university faculty, and many books and articles have been written to help faculty, such as Stanley and Porter (2002).
The late 1980s and early 1990s was a landmark period for supporting and advancing the social basis of learning. In 1987 the “Seven Principles for Good Practice in Undergraduate Education” was published in the AAHE Bulletin (Chickering and Gamson, 1987). Three of the seven principles emphasized the social basis of learning: Good practice encourages student-faculty contact, good practice encourages cooperation among students, and good practice encourages active learning. Chickering and Gamson followed up on the AAHE Bulletin article in volume 47 (1991), Applying the Seven Principles for Good Practice in Undergraduate Education. Gamson (1991) noted in her history of the Seven Principles that more than 150,000 copies were ordered directly from the Johnson Foundation and, since it wasn’t copyrighted, an unknown (and likely very large) number of copies were distributed electronically. The publication of the “Seven Principles for Good Practice in Undergraduate Education” was a marker event and provided enormous support for the change from competitive and individualistic learning to cooperative learning.

Several research studies supporting the social basis of learning were published during this period. Pascarella and Terenzini (1991) discussed the importance of engaging students in their synthesis of research about how college affects students, “Perhaps the strongest conclusion that can be made is the least surprising. Simply put, the greater the student’s involvement or engagement in academic work or in the academic experience of college, the greater his or her level of knowledge acquisition and general cognitive development . . . If the level of involvement were totally determined by individual student motivation, interest, and ability, the above conclusion would be uninteresting as well as unsurprising. However, a substantial amount of evidence indicates that there are instructional and programmatic interventions that not only increase a student’s active engagement in learning and academic work but also enhance knowledge acquisition and some dimensions of both cognitive and psychosocial change.”

Research using a variety of theoretical frameworks and methodologies supported the claim that the frequency and quality of student-student and student-faculty interaction are most influential for college students’ academic development, personal development, and satisfaction (Astin, 1993; Light, 1992; Johnson, Johnson, and Smith, 1991b). Astin’s (1993) large-scale correlational study of what matters in college (involving 27,064 students at 309 baccalaureate-granting institutions) found that two environmental factors were by far the most predictive of positive change in college students’ academic development, personal development, and satisfaction. These two factors—interaction among students and interaction between faculty and students—carried by far the largest weights and affected more general education outcomes than any other environmental variables studied, including the curriculum content factors. This result indicates that how students approach their general education and how the faculty actually deliver the curriculum is more important than the formal
Assessment study by Light (1992) of Harvard students indicates that one of the crucial factors in the educational development of the undergraduate is the degree to which the student is actively engaged or involved in the undergraduate experience. Johnson, Johnson, and Smith (1991a) summarized meta-analysis results for randomized design field and laboratory studies of cooperative, competitive and individualistic learning and reported significant effect sizes for cooperative learning for academic success, quality of relationships, and psychological adjustment. Several follow-up reports have provided further support for cooperative learning (Johnson, Johnson, and Smith, 1998, 2007; Smith, Sheppard, Johnson, and Johnson, 2005; Springer, Stanne, and Donovan, 1999).

Emphasis on the importance of student engagement in learning continued in NDTL 67 and 74. Sutherland and Bonwell (1996) featured a broad range of faculty options for using active learning and college classes in NDTL 67, and Anderson and Speck (1998) argued that we need to change the way we grade student performance under the new learning paradigm.

I was delighted to see problem-based learning featured in NDTL 68, since it provided more support for student engagement and highlighted the role of structure and tasks. Many of the articles in this volume were salient for me; however, the opening paragraph of the concluding section continues to resonate with me: “Common to many of the stories in this issue is a complaint about the skills of university graduates. In business, education, science, architecture, and medicine, we are concerned to note that our graduates possess a knowledge base that is too theoretical and abstract, that they are out of touch with important problems of society or their discipline, and that they lack communication skills. Our authors have turned to problem-based learning (PBL) as one means of addressing these concerns. In a problem-based classroom, students are actively engaged in constructing knowledge and developing skills in using that knowledge for problem analysis and resolution through self-directed study and collaborative discussion” (Wilkerson and Gijselaers, 1996, p. 101). I, too, had turned to problem-based learning, and discovering that I was part of a larger community was reassuring.

A strong presence for learning communities emerged during this period, including NDTL 41 (Gabelnick and others, 1990), and this work has continued to flourish. A recent synthesis of this extraordinary work is Learning Communities: Reforming Undergraduate Education (Smith and others, 2004). Learning communities continue to be advocated as a “high impact educational practice” (Kuh, 2008), and I am confident that the prominence of learning communities will increase, and will have an enormous influence on students’ personal and academic development as well as their sense of belonging.
The emphasis on the social basis of learning was maintained during the first decade of the twenty-first century, the third decade of NDTL. Strategies for Energizing Large Classes: From Small Groups to Learning Communities presented the stories of forty-eight instructors across the North American continent who are infusing their classes with small-group activities or are working explicitly to create student community within large classes (MacGregor, Cooper, Smith, and Robinson, 2000). A common response among the instructors who were interviewed was their surprise at our interest. They didn’t think anyone was interested and they were frustrated that their colleagues didn’t seem to care. They thought they were the only one, and as a result of NDTL 81 they discovered that there is a broader community of faculty who are committed to facilitating student learning in large classes.

Problem-based learning was revisited in 2003 in NDTL 95, and the editors (Knowlton and Sharp) addressed the role of PBL in the information age. Specifically, they provided articles that emphasized design and implementation issues, including philosophical and theoretical issues, integration of design and implementation, and implementation and facilitation.

One of the most research-intensive volumes that focused on the social basis of learning was NDTL 108, Developing Student Expertise and Community: Lessons from How People Learn (Petrosino, Martin, and Svhila, 2006), in which the authors describe results from a collaboration of learning scientists, assessment experts, learning technologists, and bioengineering domain experts who described a vision to transform bioengineering education to produce adaptive experts. McKenna (2006), “Implementing Learning—Science Research in University Settings: New Research Opportunities,” highlighted the differences between K–12 teachers (where much of the learning science research is based) and university faculty and argued that because university faculty are predominantly subject-matter experts and few have training in learning methods and theories, there is a pressing need for learning science research.

Two recent volumes, NDTL 116 and 117, focused on the social basis of learning, one devoted to a very specific form of student engagement, team-based learning (Michaelson, Sweet, and Parmelee, 2008), and the other focused on improving the climate for undergraduate teaching and learning (Baldwin, 2009).

The social basis of learning is sufficiently developed and embraced by the higher educating community that there is a mushrooming of specific practices emerging—team-based learning (TBL), peer instruction (PI), process-oriented guided-inquiry learning (POGIL), just-in-time-teaching (JITT), and many more. Two of my favorites are the large-class implementation of PBL in undergraduate courses at the University of Delaware (Allen, Duch, and Groh, 1996), and student-centered active learning environment for undergraduate programs (SCALE-UP) (Beichner, 2006).
New Directions for Teaching and Learning 117 focused on science, mathematics, engineering, and technology (STEM) fields (Baldwin, 2009), fields that have lagged in embracing the social basis of learning. As noted in Table 2.1, 59% of faculty report that they use cooperative learning in all or most courses, and 17% reporting grading “on the curve.” One indication of the lag is Astin’s (1993) comparison of engineering faculty with all faculty. Astin reported that 43% of engineering faculty reported “grading ‘on the curve,’” compared with 22% of all faculty. Sadly, many STEM faculty have not figured out that it is difficult, if not impossible, to get students to work together and help one another if they are pitted against one another by a competitive grading system (grading ‘on the curve’). STEM disciplines are getting considerable attention, and one prominent example that is highly relevant for the social basis of learning is the Board of Science Education Workshop, Evidence on Promising Practices in Undergraduate Science, Technology, Engineering, and Mathematics (STEM) Education.

Fairweather (2008) argues in his summary report on the workshop, “. . . although faculty in STEM disciplines vary substantially on a broad array of attitudinal and behavioral measures” (Fairweather and Paulson, 2008) careful reviews of the substantial literature on college teaching and learning suggest that the pedagogical strategies most effective in enhancing student learning outcomes are not discipline dependent (Pascarella and Terenzini, 2005). Instead, active and collaborative instruction coupled with various means to encourage student engagement invariably lead to better student learning outcomes irrespective of academic discipline (Kuh, Kinzie, Schuh, and Witt, 2005; Kuh, Kinzie, Buckley, Bridges, and Kayek, 2007). The assumption that pedagogical effectiveness is disciplinary specific can result in “reinventing the wheel,” proving yet again that pedagogies engaging students lead to better learning outcomes (2005, pp. 4 and 5).

Social Basis of Learning and the Future of New Directions for Teaching and Learning

What will the next thirty years bring and what role will NDTL play? There is strong agreement that it’s impossible to predict the future; however, based on the history of NDTL and my experience as an author of several NDTL articles, it seems reasonable to speculate.

Svinicki (1990, p. 1) wrote, “There is a real need for ‘translators and disseminators’ whose job it is to extract the best from the array of potential ideas and pass it along in workable form to individual faculty members,” and I think this will continue to be a crucial need and a role that NDTL will help fulfill. The challenges are great, however, as Fairweather (2008) argues. “Finally, resistance to adopting more effective teaching strategies in part derives from the perception of STEM faculty that the teaching process is at odds with the research process, and that research is more interesting and more valued at their institutions (Fairweather, 1996; Massy, Wilger,
The perception of the importance of teaching in faculty rewards and the perceived consequence of spending more time on improving teaching, namely having less time for research, adversely affects faculty involvement in pedagogical reform” (Fairweather, 2005). This behavioral pattern holds true even when faculty members express a deep commitment to teaching and to their students (Leslie, 2002).

I sincerely hope NDTL will continue to focus on the nexus between theory and practice and that more faculty will turn to NDTL for guidance in identifying and embracing evidence-based promising practices.

Thirty years have passed since I first encountered NDTL and I still eagerly open each issue as it arrives in anticipation of the new ideas and insights. A big part of my current work with graduate students and faculty (especially early-career faculty) is to help them develop a deep interest in and appreciation of the importance of connections between theory and practice, as is captured very well in NDTL. Best wishes with the transition. Keep up the terrific work.

References


**KARL A. SMITH** is the cooperative learning professor of engineering education in the School of Engineering Education, at Purdue University West Lafayette. He has been at the University of Minnesota since 1972 and is in phased retirement as Morse-Alumni Distinguished Professor of Civil Engineering. Karl has worked with thousands of faculty all over the world on pedagogies of engagement, especially cooperative learning, problem-based learning, and constructive controversy. Please refer to his Web site for details—http://www.ce.umn.edu/~smith/. He has co-authored eight books, including How to Model It: Problem Solving for the Computer Age; Active Learning: Cooperation in the College Classroom (3rd ed.); Cooperative Learning: Increasing College Faculty Instructional Productivity; Strategies for Energizing Large Classes: From Small Groups to Learning Communities; and Teamwork and Project Management (3rd ed.).