

Editors' Comments

Twenty-fifth anniversaries of anything are significant milestones. The 25th anniversary of an association born of an innovative idea and frustration with the cul-de-sac of disciplinary domains that is the hallmark of traditional university education might seem destined to fail. Yet, in 2004, the concept of integration of knowledge across the disciplines and interdisciplinarity per se have become established at the level of national funding agencies from the National Institutes of Health, the National Science Foundation, and the Defense Department to the National Academies. Nothing could be more explicit than an editorial by The American Association for the Advancement of Science's CEO Alan Leshner (2004) on "Science at the Leading Edge" in the magazine *Science* which stated,

[N]ow many of our papers involve teams of scientists from many specialties, bringing diverse expertise to bear in an integrated rather than parallel way. The fact that interdisciplinarity characterizes so much of today's most exciting work may portend the demise of single-discipline science . . . My greatest concern is that our scientific institutions are not well positioned to promote the interdisciplinarity that characterizes so much of science at the leading edge. " (p. 729)

This view echoed that of Dr. Elias Zerhouni, the Algerian-born director of the National Institutes of Health, who believes that we need a new roadmap to understand society's complex problems and, in particular, that we need to re-engineer the future clinical research enterprise toward interdisciplinary integration and public/private partnerships (<http://nihroadmap.nih.gov/overview.asp>).

Other disciplines have not been slow to see the interdisciplinary light of this "paradigm shifting strategy." For example, in a recent editorial in the March 2004 newsletter, *Footnotes*, Sally Hillsman, the executive officer of the American Sociological Association, ponders the obstacles to interdisciplinarity in the silos of the academy's disciplinary roots: "How to create more flexible scientific environments, infrastructures, and cultures to accommodate the changes that are coming is an important challenge that will affect academic institutions, departments, reward structures, training programs, funding streams, peer review, scientific life cycles, and even professional associations" (p. 2).

For those who have long struggled with these challenges on the margins of academic institutions, it might come as some comfort to see the mainstream of departmentalized disciplinarity being challenged to address our fundamental concerns. Yet, still there are echoes of the familiar: “‘interdisciplinary’ (is it a word? If not it soon will be)” (Hillsman 2004, p. 2). Even more problematic might be the domination of these newfound funding possibilities in interdisciplinarity by the senior research scholars in prestigious institutions. They are likely not only to embrace its dollars, but also to reinvent what interdisciplinarity means in the belief that they discovered it. We are reminded of Jack Geiger’s insight, that “when the counter-culture develops something of value, the mainstream rips it off and sells it back.” It is for that reason that we might look to our own 25 years as an association and to a field of study that claims the undeniable foundation for interdisciplinary integration, not so much to “promote a sense of discipline among those who are interdisciplinary” but to offer a cluster of loosely defined cores of human knowledge, “each cluster representing disciplines that can learn from each other and need each other” (Boulding 1986, p. i).

Although the research end of the interdisciplinary enterprise has much to offer, it is the pedagogical and, for some of us, the andragogical facet of knowledge integration that has born much fruit. As a colleague, new to the Association for Integrative Studies, observed at our 25th anniversary conference in Detroit, “This conference is so different from most I attend. They are all about discussing the results of their research. Here you seem to care much more about teaching, about how to improve the learning experience of students through applying interdisciplinary practices.” Well, of course, both research and teaching are important, but the undergraduate experience has certainly been central to us since the AIS’s foundation and certainly since this journal’s first issue in 1982.

Indeed, that first issue captured the dilemma posed for undergraduate interdisciplinary education by Thomas Benson’s (1982) now classic and provocative article, “Five Arguments Against Interdisciplinary Studies.” These were, and unfortunately remain, in the arsenal of detractors some 23 years later: (1) interdisciplinary studies rests on conceptual confusion; (2) pedagogically, interdisciplinary should follow disciplinary competence, not precede it; (3) integration before disciplinary competence will impede the latter’s development; (4) interdisciplinary courses are shallow, trading rigor for excitement; and (5) these courses are high cost because of team-teaching and small class sizes. Although these criticisms have been addressed, not least by Bill Newell in the second volume of *Issues*, the echoes of Jerry Petr’s ob-

servation (1983) in that same volume have renewed resonance, especially at a time of state budget crises: “Nationwide, interdisciplinary programs appear to many as expendable frills in higher education, in part at least, due to the predominance of the Benson arguments in the court of (academic) public opinion” (p. 21). And this in the face of the reality that many such programs have long survived on a minimal budget with no more than a few dedicated faculty and advisors and have often relied on classes from sympathetic faculty in disciplinary departments and willing part-timers. Now, the bastion of resistance is facing a dual assault both from its own academic leadership and student choice.

Since the late 1990s, leading voices in academe, such as the 1998 Boyer Report on *Educating Undergraduates in the Research University*, and Harvard’s 2004 revision of its undergraduate curriculum, have advocated interdisciplinarity for undergraduate education and emphasized the value of broad rather than disciplinary-based inquiry, of the integration and unity of knowledge rather than its fragmentation. Illustrative is the Carnegie Corporation President Vartan Gregorian’s assessment that college education has become consumer-driven, fragmented, and meaningless:

The fundamental problem underlying the disjointed curriculum is the fragmentation of knowledge itself. Higher education has atomized knowledge by dividing it into disciplines, subdisciplines, and subsubdisciplines—breaking it up into smaller and smaller unconnected fragments of academic specialization, even as the world looks to colleges for help in integrating and synthesizing the exponential increases in information brought about by technological advances. . . . We must reform higher education to reconstruct the unity of knowledge. . . . [T]he complexity of the world requires us to have a better understanding of the relations and connections between all the fields that intersect and overlap. . . . [T]he skills of synthesis and systemic thinking are not just luxuries, they are invaluable . . . Higher education must raise the important issues and guide students in synthesizing responses, if not answers . . . Colleges must develop strategies to enable their faculty members who are steeped in different disciplines, to have opportunities for multi-disciplinary work as they continue their own life-long learning . . . We must also help students gain knowledge of multiple disciplines and their interconnections. Team teaching is the obvious way to do that . . . A reform agenda must also include a balance between specialists and generalists . . . trained in the humanities, sci-

ences and social sciences, who can help create a common discourse. The challenge for higher education, then, is . . . the integration and synthesis of compartmentalized knowledge. On our campuses, we must create an intellectual climate that encourages faculty members and students to make connections among seemingly disparate disciplines, discovering events and trends—and to build bridges among them that benefit the understanding of us all. (Gregorian 2004, pp. 12-14)

Indeed, in spite of the departmental disciplinary claims that students elect interdisciplinary degrees because they are “degree lite,” it is often honors programs that are interdisciplinary; and students elect these programs, not because they “can’t choose a major,” but because they want to escape being boxed in by one and desire the unity of meaning available from many.

And choose they do. Multi- and interdisciplinary studies degrees are the 13th most popular undergraduate field of 33 listed by the National Center for Educational Statistics (NCES). In the years from 1992 to 2001, the annual average number of students graduating in the United States with a bachelor’s degree in multi/interdisciplinary studies is 26,000 per year, according to data from the NCES, up 48 percent from 1990-91 (2003, p. 159). This compares to a mere 6,200 in the early 1970s when the current longstanding interdisciplinary programs began. Moreover, these students now graduate from around 652 programs nationwide and have the possibility of going into 215 interdisciplinary master’s and 65 doctoral programs. The value of such degrees speaks volumes for the enterprise that we embrace.

So we look to the 2004 AIS Conference with a potential polarization of the field, between funded research of disciplinarily trained scholars who will swarm to the warm funding light of collaborate interdisciplinarity on complex projects, and to under-funded interdisciplinary studies programs whose *raison d’etre* is celebrated by the academe’s leaders and students alike, while being stymied by their institution’s politics rooted in the loose federations of “departments owing their primary allegiance to the discipline rather than to the university as a whole” (Boulding 1986, p. i).

This volume of *Issues* in many ways reflects this potential fissioning of the field. We have selected seven articles from the 25 submitted that were presented at the 25th anniversary conference held in Detroit in October 2003. These were selected to represent a range of aspects of the field: the value of integrative learning for liberal education as seen by Carol Geary Schneider, the president of the American Association of Colleges and Universities; a historical reflection by Bill Newell and colleagues on the development of

longstanding interdisciplinary programs in the context of departmentalized universities; Paul Burger and Rainer Kamber's theoretical ideas of transdisciplinarity and cognitive integration that provide a framework for research funding to study complex social and environmental issues; pedagogical studies of plagiarism as a learning tool by Lisa Maruca, and student portfolios as an organizing tool for undergraduate students to move from knowledge to careers by Tanya Augsburg; and an article/instrument for assessing the quality of student papers (and more broadly whole programs) based on students' ability to demonstrate integration skills by Christopher Wolfe and Carolyn Haynes. The volume concludes with a look at the future directions for undergraduate and graduate interdisciplinary studies, based on an empirical study by James Welch IV of the ideas of some of its leading practitioners. We invite you into the pages of this anniversary issue, grateful for the opportunity to host the 25th Annual AIS Conference and to edit this special volume of *Issues in Integrative Studies*.

Roslyn Abt Schindler and Stuart Henry, Wayne State University

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