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National Research Council Launches Study of Interdisciplinary Science Teams

By Julie Thompson Klein
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January 11 of 2013 was the official launch date of the National Research Council's new Consensus Study on Interdisciplinary Science Teams. The occasion was a planning meeting held at the National Academy of Sciences in Washington, D.C. Sponsored by the Council's Board on Behavioral, Cognitive, and Sensory Sciences, the event was open to the public at the Academy building and via a free webcast that is now available online at <http://tvworldwide.com/events/nas/130111/default.cfm>.



Nancy Cooke of Arizona State University will lead the study. (Photo from webcast, with permission of the National Academy of Sciences)

The link includes videos of each session; downloadable files of all Power Point slides; and Speaker Bios, the Task Statement, and Toolkit handouts.

The event laid the groundwork for a study led by Professor Nancy Cooke of Arizona State University. It will review and synthesize research in this increasingly important area and will recommend opportunities to enhance effectiveness of collaborative research in

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From Utrecht: How To Do and Teach Interdisciplinary Research

By Ria van der Lecq
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At Utrecht University in the Netherlands interdisciplinarity is hot, especially in research programs and honors courses. On closer inspection, however, the research programs are interdisciplinary only in the sense that they bring together researchers under one umbrella term like "Institutions" or "Cultures and Identities." This kind of research, valuable as it may be, is cumulative rather than integrative. The major activities are carried out in a disciplinary fashion, and interaction is limited. One of the reasons that interdisciplinary integration rarely occurs in these programs, is perhaps because the question, "How to do interdisciplinary research" has long been neglect-

A REVIEW



Interdisciplinary Research: Process and Theory. 2nd ed. Allen F. Repko. Thousand Oaks, CA: Sage, 2012. 544 pp. Paperback (ISBN 978-1412988773). \$64.

ed in the literature on interdisciplinarity. The first edition of Allen Repko's *Interdisciplinary Research: Process and Theory* (2008) addressed this neglect and made the interdisciplinary research process transparent. It demonstrated that interdisciplinarity is neither too difficult nor too easy. Repko's model makes the integration

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NRC Science Team Study

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science teams, research centers, and institutes. Projected topics include team dynamics, team management, and institutional structure and policies.

“Science of Team Science” is a new interdisciplinary field that is also advanced by the annual Science of Team Science Conference. The Conference bridges science and praxis of Team Science. The next conference will take place at Northwestern University in Evanston, Illinois, June 24 -27, 2013. A Call for Abstracts and more details are available at <http://www.scienceofteamsconference.org/2013-conference>.

A final report from the new NRC Consensus Study on Interdisciplinary Science will appear in late 2014. AIS will keep its members posted through this newsletter and the INTERDIS listserv that is open to members and non-members. To subscribe, go to the AIS Website’s INTERDIS page: <http://www.units.muohio.edu/aisorg/Resources/interdis.shtml> ■

Do You Want To Be A Consultant on IDS?

The Association for Interdisciplinary Studies (AIS) will offer a training workshop for consultants on interdisciplinary studies at the 35th annual AIS Conference, hosted by Miami University Nov. 7-10, 2013, in Oxford, Ohio.

Interdisciplinary students who wish to be trained as AIS-recognized consultants on interdisciplinary studies, whether or not they are currently AIS members, are encouraged to attend the 2013 AIS conference and sign up for the workshop.

Look for more information on the consultant training program on the AIS Website in mid-March. ■

Alpha Iota Sigma Announces Website

The **Alpha Iota Sigma** International Interdisciplinary Studies Honor Society website is now up and running. Launched in November 2012 with eight founding chapters, the Alpha Iota Sigma Honor Society is now ready to accept new chapter and member applications to recognize the academic scholarship and achievements of interdisciplinary students at the undergraduate level. Student members have an opportunity to get involved with their institution and with the Association for Interdisciplinary Studies, submit research for consideration for the annual conference, and more. You’ll find all the information including current fees, bylaws, and contact information at: <http://www.oakland.edu/aishonorsociety> ■

Introduction to Interdisciplinary Studies Text Will Be Available from Sage Starting in June

A new introductory textbook on interdisciplinary studies is expected to be available from Sage Publications in June.

Introduction to Interdisciplinary Studies is co-authored by Allen F. Repko, Rick Szostak, and Michelle Buchberger. All three are leaders in the Association for Interdisciplinary Studies. Repko is the author of *Interdisciplinary Research: Process and Theory, 2nd Edition*. Szostak is AIS President and the author of 10 books, including *Case Studies in Interdisciplinary Research*, which he co-authored with Repko and William H. Newell, AIS Executive Director. Buchberger is co-facilitator of the Alpha Iota Sigma International Honor Society for Interdisciplinary Studies.

“This comprehensive new

introduction to interdisciplinary studies draws on recent advances in the field’s burgeoning literature on learning and assessment. It is the first book to present these foundational principles in a textbook designed specifically for the introductory course. The book introduces students to the principles of the field, prepares them to produce quality work, and facilitates their working with topics, problems, or themes that span multiple disciplines. Its approach is succinct, conceptual, and practical” (from Sage Publications website).

To arrange for a complimentary review copy, access the Sage website at <http://www.sagepub.com/books/Book239309?siteId=sage-us&prodTypes=any&q=rick+szostak&f s=1#tabview=title> ■

AAC&U Taking Applications for Summer Institutes

The American Association of Colleges & Universities (AAC&U) has announced its schedule of Summer Institutes for 2013.

The Institute on General Education Assessment is scheduled June 1-5 at the University of Vermont. Applications were due Feb. 15. Those received after that date will be reviewed, contingent on available space.

The Institute on High Impact

Practices and Student Success is planned for June 11-15 at the University of Wisconsin-Madison. Applications are due March 4.

The Institute on Integrative Learning and the Departments will be at Portland State University July 10-14. Applications are due March 15.

More information can be found on the AAC&U website, <http://www.aacu.org/> ■

Confronting Wicked Problems

By Danielle Lake
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Melioration of most social problems today—problems like health care and environmental justice—requires we engage students in interdisciplinary research, including not simply economics and science, but also culture, social class and race, politics, and ethics. This is so because many of these problems are not *only* dynamically complex, but inherently *wicked*. Efforts to meliorate such problems which ignore the inherent wickedness of the situation are, in the end, inadequate since they fail to take a comprehensive, long-term view. The burgeoning literature on wicked problems makes fruitful distinctions between itself and complex problems, highlighting more intense disagreement between fragmented stakeholders, multiple and often conflicting objectives, as well as higher levels of uncertainty, variability and risk (Salwasser, 2004, p. 12). Because of its unique and powerful approach to complexity, the literature on wicked problems deserves more attention from interdisciplinary scholars and educators. ID scholars and educators are, in fact, perfectly positioned not only to offer crucial insights into how we should go about addressing wicked problems, but we are also in a position to begin collaboratively tackling these problems.

Defining Wicked Problems

“Wicked” problems were originally identified in contrast to “tame” problems, problems easily defined

EMERGING SCHOLARS FORUM

*Interdisciplinary scholarship has approached the subject of complex problem solving mainly through variations of General Systems Theory, an early example of holism. This theory was originally grounded in the discipline of physics but expanded into other fields, such as ecology and economics. More recent versions like Complex Adaptive Systems theory take into account the agency of semi-autonomous actors within the system, who are able to learn and adjust to changes in the system, thus transforming the operation of the system itself. General Systems Theory is useful as a means of visualizing organizational structures that create cohesion in systems with multiple facets possessing dynamic interrelationships. A basic tenet of this theory is that complex systems are always seeking and never quite finding a state of equilibrium among their constituent parts. In this installment of our column, Danielle Lake presents an alternative approach to complexity by introducing the scholarship on “Wicked Problems.” This approach emphasizes the often irresolvable conflicts inherent in complex problems and the importance of the deliberative process. Thus, the human capacity for debate and resolution takes center stage, demonstrating a fruitful way to instruct interdisciplinary students in the arts of productive exchange, and a new way for interdisciplinary scholars to visualize complexity. Danielle Lake is a full time instructor in the Liberal Studies Department at Grand Valley State University and a PhD candidate at Michigan State University studying issues in Democratic Deliberation and American Philosophy. Most recently she has published *Sustainability as a Core Issue in Diversity and Critical Thinking Education* (2011) and *“Restructuring Science, Re-engaging Society”* (2012)*

—JW

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and solved one-dimensionally. The term was introduced in a 1973 article on city planning by Horst Rittel and Melvin Webber, and has more recently taken root in a wider array of literature on the environment. Wicked problems are dynamically complex and ill-structured, with no straight-forward causal chains to help us gain a clear and simple picture of the issue. Instead, such problems are in some sense obstinate and indefinable, influenced by many dynamic and complex factors (Batie, 2008). Wicked problems confront us with high levels of uncertainty in situations where both action and inaction carry high-stakes. They are thus not amenable to final resolutions but cannot simply be ignored. Especially because such problems

are intertwined with many others, work on them necessitates better communication across disciplines and between stakeholders. Brown (2010) reminds us that supposedly “miracle solutions” to some of our most troubling environmental problems have instead consistently led to unintended consequences. We can, for instance, easily point to the dangerous problems we are now facing from intensive agriculture like soil erosion, desertification, and health problems related to pesticide use. In truth, the long-term outcomes of our short-sighted solutions “indicate the chronic inability of [our] narrow solutions to inform sustainable decisions” (p. 3). Most troublingly, wicked problems “require solutions that challenge the

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current practices of the society that generated them” (p. 6). Effective responses to wicked problems, then, require the mobilization of people in their community, engaging in deep and sustained dialogue which seeks to integrate general scientific information with community values. And integration requires the kind of thinking *and* the kind of participatory virtues instilled by interdisciplinary study.

A Call for Collective Action

As essentially *collective problems*, wicked problems require *collective action*, often including the very restructuring of our social systems. Health care and the controversial need for rationing is a prime example, global warming another. Successful collaboration, indeed, any attempt to co-create ameliorative change requires a serious commitment to deliberate effectively across not only disciplinary and institutional boundaries, but also boundaries of culture, class, race, and gender. This means collaboration also requires the ability to evaluate dispersed and often contradictory information as well as the strengths and blind-spots of each position, a set of skills instilled by work in IDS. Indeed, William H. Newell (2013) points out that ID courses tend to motivate students to go beyond tolerating diversity, to desiring it in order to understand complexity more fully. According to Repko (2012), “the interdisciplinary enterprise is about building bridges that join together rather than erecting walls that divide” (p. 325). In fact, IDS puts forward valuable methods for working towards common ground: methods like redefinition, extension, (re)organization, and transformation (Newell, 2007, pp. 257-260). Adding to the foundation of IDS, various forms of democratic

deliberation are available to facilitate dialogue and evaluate not only the effectiveness of its outcome, but the quality, legitimacy, and fairness of the underlying action as well.

Enhancing Interdisciplinary Education

Because of the need for collective action to bring about changes in complex social systems, interdisciplinary education could benefit from an emphasis on the practice of democratic deliberation and its participatory virtues as well as the development of a keen awareness of the power structures within our society. “*Interdisciplinary*

The literature on wicked problems suggests that interdisciplinary work, collaboration and integration of various stakeholders are essential to truly meliorating these wicked problems.

study is not about who can win the argument,” Repko says, “*but about who can bring together the best ideas of all stakeholders to get the job done*” (2012, p. 332). He goes on to compare the interdisciplinary scholar to a marriage counselor, indicating interdisciplinary scholars and educators are primed to play the role of recruiter, facilitator, or mediator in just such deliberations. While different structural models and deliberative formats can mitigate the chances of failure, lack of honesty, boredom, defensiveness, and possessiveness work against any attempts at collaboration. On the other hand, successful outcomes are more likely when deliberators are prepared to work across such

boundaries, to listen and adjust to each other’s ideas (Ferkany & Whyte, 2011). In fact, the notion that deliberation is about *talking* misconstrues its purpose and its value; instead, deliberation is at its core about *listening*, integrating the conflicting views of others, and considering ameliorative actions. IDS courses are a key component of this work since they initiate and promote essential critical thinking skills and democratic values (Newell, 2013, p. 3). Co-creating ground rules for dialogue with our students is a good first step towards both discussing and employing deliberative virtues; such work has the potential to develop the habits of a truly democratic citizenry.

Many interdisciplinary courses could fruitfully be supported by an experiential learning model where engagement in various policy efforts is accompanied by the practice of deliberation as well as critical reflection on both the processes and one’s own contribution to them. Asking our students to reach out to their surrounding community, to engage its citizenry and its experts towards meliorating a pressing social problem is indispensable preparation for the world they confront ahead. In a globalizing world our lives are heavily affected by the actions of unseen others from across the world. As our ineffective response to wicked problems indicates,¹ our failure to recognize our own interdependency is not simply unfortunate, it is dangerous.

The literature on wicked problems suggests that interdisciplinary work, collaboration and integration of various stakeholders are essential to truly meliorating these wicked problems. Such collaboration is, for instance, more likely to see both the long-term outcomes of our choices and the more immediate, local concerns since it involves a wide array of perspectives (Norton, 2005).

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Interdisciplinarity and Learning Communities, Part 3

By Joan B. Fiscella

The December 2011 and October 2012 editions of *Integrative Pathways* carried Parts 1 and 2 of this series of three essays about the Washington Center for Improving the Quality of Undergraduate Education monographs on learning communities. Part 1 addressed dimensions of learning communities such as interdisciplinarity, assessment, and service learning. Part 2 looked specifically at learning communities in different types of higher education institutions: community colleges, liberal arts colleges, and research universities. Part 3 looks at the final two monographs in this series having to do with the role of the academic library in learning communities and developmental education at the college level:

- Pedersen, S. 2003. *Learning Communities and the Academic Library*. National Learning Communities Project Monograph Series. Olympia, WA: The Evergreen State College, Washington Center for Improving the Quality of Undergraduate Education, in cooperation with the American Association for Higher Education.
- Malnarich, G., with others. *The Pedagogy of Possibilities: Developmental Education, College-Level Studies, and Learning Communities*. National Learning Communities Project Monograph Series. Olympia, WA: The Evergreen State College, Washington Center for Improving the Quality of Undergraduate Education, in cooperation with the American Association for Higher Education.

Learning Communities and the Academic Library continues the theme of the reform of undergraduate education by focusing on the role of librarians and libraries and the potential for collaboration with teaching faculty and student services personnel. The tone is set by Sarah Pedersen who draws on Gloria Anzaldúa's *Borderlands/La Frontera* work to indicate "... that NONE of us can sustain life in a comfortable silo of cultural, class, or disciplinary isolation" (p. 1). Pedersen sets the context in terms of two major developments in higher education: the pace of growth in information and the changing characteristics of college-age students (age, length of time to degree completion, greater numbers of part-time students with corresponding demands on their time). We might also note that since the 2003 publication date, the development of online information resources and burgeoning online social networks have influenced how students find and use information of all sorts.

Over the years library literature and practice have shown developments that converge with trends in reform in

BIBLIOGRAPHIC ESSAY

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undergraduate education and, in particular, learning communities. Specifically, the role of the librarian has shifted emphasis from a service model of providing help to students who ask for assistance in completing assignments to collaborating with faculty to teach students and integrate information literacy into the curriculum, as well as to guide students in their work. These activities include helping to sort through the wide range of information sources (relevant, reputable, appropriate, timely) and to critically use information.

Pedersen makes a specific connection to learning communities for first-year students (p. 19). Often information literacy is incorporated into a course which is an extended orientation to college life: academics as well as the organization and demands of higher education. Alternatively, it may be linked with other courses around a theme. In one model, the library offers a separate but linked course with others in the learning community; for example, as used by California State University, Hayward; University of Hawaii; Bellevue Community College, California State University, Fullerton; LaGuardia Community College; and Washington State University. In another model, librarians are supporting team members for coordinated clusters of classes. The State University of New York, Potsdam is one example. A third model is the residential first-year program in which students share living quarters as well as service and academic experiences. St. Lawrence University and the University of Michigan are examples. Information literacy is part of general education programs in schools such as University of California, Los Angeles. In other places, it becomes one of the "across the curriculum" models, such as Portland State University, Indiana University-Purdue University at Indianapolis, George Mason University's New Century College, and The Evergreen State College. Evergreen's practice of rotating librarians into full-time teaching assignments for a quarter every few years facilitates collaboration and integrates information literacy into the curriculum. It also provides an avenue for professional development.

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Learning Communities

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Pedersen concludes her essay by noting that models that encourage close cooperation and collaboration among teaching faculty and librarians raise questions regarding roles, reward systems, and institutional mission (p. 49).

The monograph's appendix provides the 2000 Association of College and Research Libraries Information Literacy Competence Standards for Higher Education (Standards, Performance Indicators, and Outcomes). The pdf of the full document with an introduction and appendix may be downloaded: <http://www.ala.org/acrl/standards/informationliteracycompetency> (checked Feb. 13, 2013). Specialized literacy standards may also be found at www.ala.org/acrl/standards/ including selected discipline specific and visual literacy standards. A 2012 publication, *Interdisciplinarity and Academic Libraries*, edited by Daniel C. Mack and Craig Gibson (ACRL Publications in Librarianship, No. 66) focuses on updated roles of librarians and the library, although it does not refer to learning communities.

The Pedagogy of Possibilities addresses the role of learning communities in developmental education in higher education. Historically, developmental education has been and continues to be a contentious issue in post-secondary education, with some arguing that not all people “belong” in higher education and others arguing that differently- or under-prepared students need support to bridge the gap between secondary and higher education. The preparation gap may be due to economic, cultural, linguistic, or personal choice issues. This monograph presents programs that address the gaps, and in doing so, according to the authors, improve education for all students. Learning

communities are an important dimension of the approaches. The opening chapter examines what it means to be prepared for college; the second chapter looks at what developmental educators do, and the third considers the role of learning communities as a practice that helps students succeed in higher education. A second section looks at case studies and snapshots of learning communities that

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address developmental education. The monograph ends with a list of resources.

Research studies provide insights into kinds of preparation needed to succeed in higher education. Some students may face a gap between secondary school requirements for graduation and higher education expectations of entering students. (Higher education institutions include community colleges, four-year colleges, research universities, and professional schools.) Disparities in secondary education contribute to the inconsistency. This gap accounts for the continuing need for developmental work in higher education. Other students

may be “at risk,” where risks that are related to a higher rate of failure to acquire a degree or certificate include factors of daily life such as a high percent of time spent in jobs, responsibility for children, or financing college costs. Other risk factors include being the first in one’s family to attend college or lacking a high school diploma. The ongoing work of Martha Maxwell suggests ways to help students overcome the preparation gap, such as coordinating among student services and academic departments, inviting students to participate in planning support services, and using appropriate college-level educational materials regardless of the entering skill level.

Another issue concerns “new students” (p. 8). Forty years ago Patricia Cross asked whether higher education had seriously considered the changes necessary to address what education means to the “nontraditional” student. More recent research has examined perceptions of what learning and intelligence mean to both students and faculty, indicating the need for different approaches to education in order to meet these perceptions.

After characteristics are identified that hinder or prevent students from successful post-secondary achievement, it is necessary to develop programs that help students with the transition. Developmental education practices have evolved in part based on a change in frameworks from a “deficit” model (based on the need for students to catch up separately to skills already acquired by better-prepared students) to research-based models that may include providing a demanding curriculum along with opportunities for using the students’ particular skills and abilities, for collaboration, and for getting help when and as needed (pp. 27-28).

The work of Alverno College, an urban institution in Milwaukee, is

highlighted for its developmental approach to curriculum, designed by interdisciplinary teams. Some of the principles the team developed for an integrated curriculum include: make expectations explicit, build on the current abilities of students, connect learning to functions needed for work or home, identify norms for levels of student performance, teach self-assessment to students, and develop assignments that put into practice what students know (pp. 32-33).

Where do learning communities fit in? As we have seen in other publications about learning communities, there are a variety of administrative structures, student and curricular groupings, and roles of faculty and student services personnel. The authors of this monograph point out some commonalities: the centrality of peer group, of collaborative learning, and of attending to diversity. They also recommend several principles for choosing an appropriate model for developmental education: build on an abilities-based developmental perspective, focus on high-risk courses, integrate skill development with college level courses, and design a holistic program (using academic and student support services as well as peer tutoring). The authors give brief examples of how specific colleges are carrying out the principles.

Of two major assessment studies cited, the more recent (2002) is the Collaborative Learning Project which examined the experience of three programs that used a learning community model: “the Freshman Interest Group (FIG) program at the University of Washington, the Coordinated Studies Program (CSP) at Seattle Central Community College, and the learning community clusters at LaGuardia Community College in New York” (p. 57). Among the three schools were problems common to many post-secondary institutions:

size of the school and the amount of time students spend on work or commuting. The findings of this research study have shown the impact of learning communities and collaborative learning: a community of peers encourages continued attendance and participation, often leading to collaboration outside of class; a collaborative pedagogy provides a rich intellectual diversity; collaborative learning also supports commuters and other students who may get lost in institutions with large student bodies. It is easy to see that such collaboration can lead to ongoing friendship, which in turn supports students continuing their education (p. 57).

The Pedagogy of Possibilities includes an explicit call for action to address the issues surrounding developmental programs in higher education institutions: whether it undermines higher education, whether state student financial aid should be used for it, how to fund such programs, what are appropriate placement policies, and what demographics of students are most affected by policy decisions. Three principles show directions for collaboration among faculty who are involved in learning communities with those working in developmental education.

- “Learning communities need to be situated where students struggle most with their studies.”
- “Faculty and teaching teams need to base expectations for student learning on abilities-based criteria and standards, articulated within a developmental perspective.”
- “Campuses need to provide institutional support for research-based pedagogy and curriculum development.” (p. 66)

The point is to set up learning communities for all students, including those who are well-prepared students and those who are considered developmental. Proposed outcomes must address various levels of preparation and achievement, and research is necessary to provide guidance for best practices in pedagogy for all students.

The call for action includes its own extensive set of references.

Section II is comprised of a series of four case studies and five snapshots in learning communities, each 2-6 pages, demonstrating the issues covered in this monograph. Many examples explicitly integrate work in two or more disciplines. The Fayette Technical Community College (North Carolina) focuses on learning communities for developmental math/developmental chemistry and for English/Sociology. LaGuardia Community College, CUNY, focuses on developmental and ESL students through its New Student House program, which integrates a reading, writing, and speech program for at-risk students. Shoreline Community College (Washington) has constructed a learning community for developmental English, also integrating the curriculum while using college-level readings. Spokane Falls Community College links team-taught content and study skills courses for its developmental learning communities. Among its goals is to help students transfer learning skills to other courses and other learning contexts.

California State University, Hayward, offers a general education first-year cluster program that takes into account various levels of preparation. De Anza College (California) enrolls approximately 80% of new students who are underprepared. Its Learning in Communities (LinC)

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Review: Repko's 2nd Edition

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process explicit and transparent by breaking it down into discrete steps. Moreover, it makes teaching interdisciplinary research processes to undergraduates feasible, if challenging. As in the first edition, the second edition (2012) aims to provide a comprehensive and systematic presentation of the interdisciplinary research process (IRP) for four audiences: undergraduate students, graduate students, individual scholars, and interdisciplinary research teams. This results in a book that consists of various layers and dimensions, each of which deserves a review from the perspective of each audience. I come to this book as a teacher in interdisciplinary core courses in a Liberal Arts and Sciences undergraduate program at Utrecht University. Before discussing the book in more detail, it may be useful to give a short outline of this program.

Liberal Arts and Sciences is a three-year undergraduate program, based on the liberal education concept, as it is known in the United States. A typical student's curriculum consists of a disciplinary major of 1.5 years and a general education requirement. There are also four core courses to stimulate integrative learning, starting with an exploratory writing course in the first semester, in which students integrate insights from various sources using the "shared horizon" of these sources. In the second core course, at the end of the first year, students reflect on disciplinary perspectives, especially phenomena and methods, and conduct a multidisciplinary project. An introduction into interdisciplinary research, the third core course, is scheduled in the second semester of the second year. The fourth and final core course is an interdisciplinary capstone project. Repko's text is used intensively in the third course, the introduction into interdisciplinary

research (three classes of 25 students each). Although students have completed only one semester of disciplinary course work in their majors, they take the role of "expert" in their discipline and collaborate with one or two or three peers to conduct a small-scale interdisciplinary research project. To become more familiar with the perspective of their academic field, they interview a researcher in their disciplinary major about the discipline's assumptions and epistemology. Repko's first edition has been used for three consecutive years; the second edition appeared just in time to use it in last semester's introduction into interdisciplinary research. The following remarks reflect teachers' and students' evaluations of the book in this course. The second edition of *Interdisciplinary Research: Process and Theory* shows some major improvements over the first. Improvements have been made to the overall structure of the book, and the results of recent research have been added. The slightly revised interdisciplinary research process (IRP) is now the organizer of the book's overall structure. The 10 steps include:

1. Define the problem or state the research question.
2. Justify using an interdisciplinary approach.
3. Identify relevant disciplines.
4. Conduct the literature search.
5. Develop adequacy in each relevant discipline
6. Analyze the problem and evaluate each insight or theory.
7. Identify conflicts between insights or theories and their sources.
8. Create common ground between concepts and theories.
9. Construct a more comprehensive understanding.

10. Reflect on, test, and communicate the understanding. (p.74)

The first two introductory chapters focus on interdisciplinary studies as an academic field and the origin of interdisciplinary studies. Chapter 1 introduces interdisciplinary studies as an academic field. It presents a definition and argues that interdisciplinarity complements the disciplines rather than threatens them. It also points to some key differences between the disciplines and interdisciplinary studies. Chapter 2 includes a discussion of drivers of interdisciplinarity, such as the need to solve societal problems. Interestingly, it also refers to Robert Sternberg's notion of "successful intelligence." According to Sternberg (and Repko), the world needs people who know how and when to use three ways of thinking: analytical, creative and practical, the components of successful intelligence. Interdisciplinary education fosters the development of all three components (p.39).

There is a separate chapter for each step, except for steps 1 and 2, which are combined in Chapter 3. Step 8, creating common ground, is divided into two chapters, one for concepts, one for theories. Chapter 3 is the first chapter of Part II ("Drawing on Disciplinary Insights") and introduces the revised research model and Steps 1 and 2. It also explains how interdisciplinary research differs from disciplinary research, which is a very important lesson for students who need to achieve disciplinary as well as interdisciplinary research skills. In Chapter 4 the term "disciplinary perspective" is introduced to refer to the defining elements of a discipline: the phenomena, epistemology, assumptions, concepts, theories, and methods that differentiate it from other disciplines. It contains numerous charts and tables that

students use to become familiar with disciplinary perspectives. They need this knowledge to perform Step 3: identifying relevant disciplines, and students' evaluations indicate the value of this chapter. The Utrecht course pays particular attention to epistemology, because we agree with Repko that "good interdisciplinary work requires a strong degree of epistemological self-reflexivity" (p. 119). Chapter 4 gives much useful information about epistemological issues, but the taxonomy of the various theories and schools of thought is rather confusing. For that reason, but also because students need more philosophical background to evaluate epistemological differences, they are introduced to important topics from the history and philosophy of science, such as paradigm shifts and relativism.

While gathering information relevant to their topic, interdisciplinarians face the challenge of organizing a growing number of insights. Although students in the Utrecht course are not required to undertake a full-scale literature search, we follow Repko's advice to work with data management tables containing sources, insights, theories and concepts. With the information in the tables students can complete the IRP (deciding about common ground and integration) before they start writing the first draft of their essay. Moreover, data management tables inform the teachers about the progress on the projects and the commitment of each individual student.

In their literature search, students often discover that the insights they find do not pertain directly to their topic but to a similar one. In that case, analogical reasoning works well, as Repko points out (p. 183). In our lessons we pay extra attention to the challenges of this kind of reasoning, because students should know how to distinguish a good analogy from a bad one.

Evaluating the insights and

theories on a problem (Step 6 of the IRP) is challenging for junior undergraduates, but it becomes easier using Repko's checklist to evaluate previous research (p. 255). Students quickly learn that each discipline has its own distinctive

Our experience is that creating common ground is rather easy for students when they use their intuition, but that it, quite understandably, becomes complicated as soon as they try to understand the details of the modification techniques: redefinition, extension, transformation, and organization.

strengths and weaknesses. They also learn to be respectful of each disciplinary perspective.

The second part of the interdisciplinary research process concerns the integration of insights. Before discussing the relevant steps (7-9), Repko devotes a whole chapter to the subject of integration. He argues that the broad model of integration used in this book is more complete than other approaches to integration (such as contextualizing, conceptualizing, problem solving), because it accommodates epistemological differences. Some information from chapters 1 and 2 is repeated, but on the whole this is a very good and helpful chapter.

Step 7 of the IRP includes identifying conflicts between insights. The term "conflict" confuses our students. The disciplinary insights that are produced are

very often complementary rather than conflicting, different, but not opposing. Some of the confusion may be cultural because in Dutch the term "conflict" is associated with contradiction, which almost never occurs with insights that arise from different disciplinary perspectives. So, at Utrecht we read "difference," where Repko writes "conflict." The sources of difference, though, may very well be conflicting assumptions or conflicting epistemologies. Identifying these differences and their sources is foundational to the next step of the integrative process: creating common ground among insights and theories.

A major improvement of the second edition is the focus *in two separate chapters* on creating common ground between concepts and between theories. Our experience is that creating common ground is rather easy for students when they use their intuition, but that it, quite understandably, becomes complicated as soon as they try to understand the details of the modification techniques: redefinition, extension, transformation, and organization. The technique of redefinition involves modifying or redefining concepts to bring out a common meaning (p. 336); extension refers to "extending the meaning of concepts beyond the domain of the discipline that originated them into the domain(s) of other relevant discipline(s)" (p. 340) The difference between the two, according to Repko, is that "the focus of extension is conceptual, whereas the focus of redefinition is linguistic." (p. 340) This is a very obscure remark. How can the focus of redefinition be linguistic rather than conceptual? And what is the difference between linguistic and conceptual in this case? There seems to be a very unusual understanding of the relation between language and thought underlying this distinction. In my

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Review: Repko's 2nd Edition

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view, and in the one taken in the Utrecht course, both techniques are on the conceptual level. If a distinction between the two is necessary, redefinition involves finding commonality in the concepts used by different disciplines (e.g., *the individual and the self*), resulting in conceptual blending, whereas extension refers to broadening the scope of an existing concept (e.g., *evolution*) beyond the domain where it originates.

The techniques of transformation and organization also show some overlap and similarity. The technique of transformation is used to modify opposing concepts or assumptions into continuous variables. The technique of organization creates common ground by organizing concepts, assumptions, theoretical approaches, and even entire disciplines to bring out a relationship between them. The relationship between the two techniques can be demonstrated by examining the solutions medieval philosophers found to solve the conflict between faith and reason. Augustine held that faith precedes reason, by which he meant that we know some things with certainty with the help of divine illumination, and that every religious truth can be rationally comprehended. One could very well see this as an example of organization: Faith provides the context within which reason works. Almost a thousand years later, Thomas Aquinas “solved” the problem by declaring (1) that some religious dogma’s, e.g., concerning the Trinity, have to be simply believed, (2) that some other religious truths can also be proved scientifically, e.g., the existence of God, and (3) that there is also a domain where reason (science) rules. This seems to be a good example of transformation. The 14th century

philosopher William of Ockham “solved” the problem by assigning completely separate domains to faith and reason: Whatever can be known is not an object of faith and vice versa. This is another way of organizing opposing concepts. In other words, transformation as well as organization can be used to map relationships between opposing concepts.

When theories dominate the disciplinary discourse, Repko argues in chapter 12, it is necessary to work with them, e.g., by making one theory more comprehensive to include elements of other theories. Junior undergraduates find identifying theories, let alone evaluating them, difficult, but in capstone projects theory extension is common practice. At that point, Repko’s instructions are very helpful, but many students, having seen some good examples, arrive at an extended theory intuitively. Usually, they construct a model or compose a narrative to communicate their more comprehensive understanding.

Repko’s book is a wonderful and indispensable resource for anyone who is interested in interdisciplinary studies, but teaching interdisciplinary research with this book is also challenging, because it is aimed at the four audiences mentioned above. Repko’s advice to use the book as you eat fish—“Take out the meat and leave the bones”—is sensible, but it means that each audience has to skip smaller or larger parts of the material, depending on purpose and interest. At Utrecht a study guide leads students through the book and helps avoid the problem of repetition. In an ideal world the content of this book would be presented via a website with multiple layers, where each audience, from beginning undergraduate to professional researcher, can find its own resources. Until this ideal world becomes reality, this book is the best we have. ■

Learning Communities

(continued from page 7)

program clusters a combination of developmental and general education to meet student needs. A sign of its success is the high rate of students continuing to four-year colleges; a significant feature of its program is the ongoing extensive faculty development program. Grossmont Community College (California) integrates developmental reading and writing at two levels. The reading materials are generally nonfiction stories of people who have had to overcome barriers and challenges, thus engaging the students with similar backgrounds. Northwest Indian College, Lummi Nation, offers a two-year multidisciplinary program of environmental studies to Native American and Alaskan Native studies to prepare them for resource management work. The University of Texas at El Paso has a large bicultural, bi-national student body. Its Circle of Learning for Entering Students program was designed to increase the number of minority students in science, technology, engineering and mathematics. Their academic programs include collaboration with counselors in science and engineering.

The Washington Center for Improving the Quality of Undergraduate Education monographs on learning communities address the role of student culture and support in providing a successful educational experience for students. In the almost 10 years since the publication of many of these monographs, one can ask whether or to what extent learning communities will continue to be essential, and if so, in what forms, as administrators and trustees are contemplating the direction of online education. ■

Emerging Scholars Forum

(continued from page 4)

Given the rampant nature of complex, high-stakes social problems today, university courses would benefit from efforts to work within and among various fields, to not simply *hear from* experts, but to engage and collaborate with numerous others. Public participation because it puts experts and citizens/students on a more equal footing and makes expert testimony available for scrutiny, increases the chances of changing institutional structures which perpetuate and reinforce oppressive conditions. Public participation also tends to create community by nurturing opportunities for mutual understanding, developing relationships and making connections across various boundaries. Through this process, narrow individualist positions tend to expand into more inclusive meta-narratives. However, participation alone, when not supported by citizens practiced in IDS, faces strong barriers. Failure to adequately respond to various wicked problems resides not simply in a failure to come to the table and collaborate, but also in a failure to understand one another when we do (Norton, 2005). In reality, requiring students to acquire specialized knowledge and skills is not enough; we need to show our students how to move beyond specialization towards integration, as IDS courses do; integration can make an enormous difference in preparing them to confront the wicked problems we now face.

In the end, the university offers a perfect setting for the development and practice of collaborative problem-solving. Engaging students in the steps of the interdisciplinary process (Newell, 2007) prepares them for co-creating more comprehensive responses to wicked problems. Democratic deliberation, its skill sets and values, give students an avenue towards effecting social change. An

experiential learning model within a collaborative framework can facilitate work towards tackling truly wicked problems, especially where deep interdisciplinary exploration of case studies are engaged in combination with deliberative problem-solving (Kolb, 2003). This new field is showing itself to be a real force in the kind of interdisciplinary, collaborative work needed in the world today. Thus, as interdisciplinary scholars and educators, it is time to seriously engage ourselves and our students in the literature on wicked problems.

Notes

¹ A long list of ineffective responses to wicked problems can be generated. The literature gives us some concrete examples, but large-scale issues like health-care rationing and global warming serve to illustrate this point as well.

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CONFERENCES

Don't Be Late; Submit Your Proposal for AIS Conference Online by March 30

The deadline for submitting proposals for the 2013 Annual Conference of the Association for Interdisciplinary Studies is March 30, 2013.

The conference is scheduled for Nov. 7-10 in Oxford, Ohio, hosted by Miami University's Western Program. Nik Money, director of the Western Program, is the conference coordinator.

The theme for the conference is "Integrating Arts and Sciences." For more information or to submit a proposal, visit the conference website: www.miamioh.edu/aisconference2013 ■

HERA heads to Houston

Members of Humanities Education and Research Association will gather in Houston, Texas, March 20-23 for the 2013 Conference. The theme is "Sacred Sites, Secular Spaces: Scenes, Sounds, and Signs in Humanistic, Artistic, and Technological Culture." More information is available on the HERA website: <http://www.h-e-r-a.org>

HASTAC 2013 April 25-28

"Storm of Progress: New Horizons, New Narratives, New Codes" is the theme of HASTAC—The Decennial Conference, which will be hosted by York University in Toronto, Canada, April 25-28. HASTAC is the acronym for Humanities, Arts, Science, and Technology Advanced Collaboratory. Registration information is available on the conference website, <http://hastac2013.org/>

SVHE Deadline Is April 15

"Debt: Obligations That Shape Our Live" is the theme for the 2013 Conference of the Society for Values in Higher Education. SVHE is seeking paper and panel proposals for the conference, which is scheduled for July 24-26 at the University of Denver. The deadline for submissions is April 15, 2013. More information is available on the SVHE website, <http://www.svhe.org/>

SLSA Seeking Proposals

The Society for Literature, Science, and the Arts (SLSA) is seeking proposals for its 27th Annual Conference. The conference will be Oct. 3-6, 2013, at the University of Notre Dame, South Bend, Indiana. The theme will be "PostNatural?" The deadline is April 15, 2013. More information is available on the SLSA website: <http://litsciarts.org>

AsiaNetwork Meets April 12-14

AsiaNetwork is accepting registrations for its 21st Annual Conference, which is scheduled for April 12-14 at the Sheraton Downtown Hotel in Nashville, Tennessee. Belmont University is the host for the conference. The theme is "Global Asia." More information is available on the website: <http://www.asianetwork.org/>

I2S Plans Global Conference

I2S (Integration & Implementation Sciences) is planning a Global Conference on Research Integration and Implementation at Australian National University in Canberra in September. The conference will bring together researchers and educators using systems-based, action-oriented, multidisciplinary, interdisciplinary and transdisciplinary approaches. More information is available on the I2S website: <http://i2s.anu.edu.au/2013-conference>

Globalization Is Focus

"Teaching Globalization: Crossing Borders/Crossing Disciplines" is the theme for a one-day interdisciplinary conference hosted by Boston University and its College of General Studies. The conference is scheduled for June 22, 2013, at Boston University. More information can be found on the Center for Interdisciplinary Teaching & Learning conference webpage: <http://www.bu.edu/cgs/citl/interdisciplinary-conferences/>

JOBS IN INTERDISCIPLINARY STUDIES

Miami University is seeking a Lecturer to teach Bachelor of Integrative Studies seminars and/or courses for its Regional Campuses. The program home is based on Miami's Hamilton, Ohio, campus. The other regional campuses are in Middletown and West Chester, Ohio. Screening of applicants began Feb. 25, 2013, and will continue until the position is filled.

New College, The University of Alabama, seeks a candidate with expertise in an area of Media Studies (film, television, or digital media) and with interdisciplinary expertise in Gender Studies, to be appointed Assistant Professor on Aug. 16, 2013.

Massachusetts College of Liberal Arts has an opening for an Assistant Professor in its Department of Interdisciplinary Studies and Philosophy. The full-time tenure-track position would begin in September 2013.

Look for more information on these position openings in the Jobs in Interdisciplinary Studies section on the AIS Website, www.miamioh.edu/ais. ■

Extending Repko's *Interdisciplinary Research* to Legal Profession

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Allen Repko's *Interdisciplinary Research: Process and Theory*, 2nd Edition,¹ is the primary assigned text in the yearlong Senior Seminar Research and Writing Practicum in Jurisprudence at Montclair State University (MSU). The Repko book is used as the chief guide to conceptualizing and conducting interdisciplinary research in this course. This capstone course in the jurisprudence major at MSU requires students to formulate a hypothesis regarding a subject related to law and conduct research from at least two (three at most) disciplinary perspectives in an effort to achieve a better understanding of the topic and possibly provide an integrated proposal for evaluating their hypothesis. One disciplinary perspective must be law or jurisprudence. The remaining discipline(s) can be any other relevant discipline, but the time constraints of an undergraduate course usually compel the students to select disciplinary perspectives with which they have some degree of familiarity. However, Repko's *Interdisciplinary Research* does not include law as a formal discipline. This is not a problem but an opportunity for students to better understand disciplinary and interdisciplinary thought. Students are encouraged to consider how interdisciplinary studies can be extended to include the legal profession and applied to legal questions.

The Field of Law

As set out in Repko's "Integrated Model of the Interdisciplinary Research Process," researchers must develop "adequacy" in a

relevant discipline in order to effectively and usefully apply the discipline to the problem at hand (p. 74). Adequacy requires knowing which "defining elements" of the discipline are directly applicable to the problem (p. 193). Repko notes these defining elements: phenomena, epistemology, assumptions, concepts, theory, and research methods (p. 101). Since all students in the practicum are senior-year jurisprudence majors, they have usually acquired a sufficient degree of knowledge regarding the legal or law perspective. That is, the students have been educated in the law to the extent that they are able to recognize and identify relevant "concepts, assumptions, theories, and methods" used by legal scholars (p. 75). In regard to disciplines other than law, students are greatly aided by reference to the Repko text, especially the tables used to delineate disciplinary perspectives (102-04), disciplinary phenomena (pp. 106-107), disciplinary epistemologies (pp. 114-119), disciplinary assumptions (121-125), and the research methods associated with disciplines (131-137). Yet, the fact that Repko has not included law among the disciplines requires my jurisprudence students to evaluate their disciplinary adequacy in law only after they have determined for themselves its disciplinary elements.

An initial step taken in understanding the disciplinary character of law is the instruction of students on how law developed as a historical field of specialization. As Repko notes in Chapter 2, the disciplines developed in Europe and America through journals and academic programs (pp. 46-48). Students are introduced to the historical development of law as a

profession and field of academic inquiry, which occurred in a fashion similar to (and approximately the same time as) other disciplines such as history and sociology.

Next, students must reflect upon their educational history in the jurisprudence major and mine it to identify the characteristics of law that determine whether law is a discipline. Students are assigned Chapter 4 of Repko, entitled "Introducing the Disciplines," and are tasked with considering whether law has disciplinary elements. The students engage in an in-class Socratic-style discussion. What the students draw from this in-class exercise will be discussed below; but in short, they conclude that law has clear, identifiable disciplinary elements and should be considered a discipline. This assignment leads students to engage in close reading of the Repko text regarding the fundamental characteristics of disciplinarity. These students are seniors and have taken prerequisite courses in legal theory, substantive areas of law, and legal research methods.² In their major course of study students have been exposed to law as a theoretical system for understanding human relationships and as a real institutional system that governs human relations. This educational background in the legal field has proven sufficient for students to formulate their conclusions that law is a discipline.

Students begin their consideration of law as a discipline by determining whether the field possesses a disciplinary perspective. They do so by attempting to identify the legal field's six perspectival elements.

First, the legal phenomena identified by students include the legal status of ethical and unethical

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Repko Text & Jurisprudence

(continued from page 13)

acts, the capacity of a system to peacefully resolve disputes in a disinterested manner, the conceptualization, sources, and character of justice, the institutions that implement legal rules, and the rules (including justifications for rules) that mediate the relations between, and limit the powers of, individuals and governments. As Repko has noted in his discussion of the discipline of political science, the pursuit of power is one of the key phenomena with which political science is concerned (p. 103). Although law, too, is concerned with how power is exercised, legal scholars have traditionally been concerned with the methods of applying formal, positive legal rules through the specific institutions of courts. This procedural concern and the distinct identity of those who inhabit the legal realm—lawyers, judges, litigants, jurors, etc.—suggest a distinctiveness to law as a discipline apart from political science.³

Second, students identify the epistemology of law. They note the various and often conflicting positions on theories of knowledge of rationalists (natural law), positivists, legal realists, adherents of sociological jurisprudence, and adherents of post-modern critical legal studies. Students reference the substantial bodies of scholarship devoted to each of these epistemological theories.

Third, students identify well-known legal concepts such as due process, constitutionality, and equal protection, as well as arcane concepts such as *stare decisis* and “first in time, first in right.” As James Boyd White has noted, the law has its own lexicon to describe human relations and obligations. The “argumentative and discursive practices in which the lawyer

learns to engage” contribute to the law’s character as a discipline.⁴ As White noted in a keynote address at the 1986 AIS Conference, such a “specialized discourse” is fundamental to the creation of a discipline, which he termed a “community of discourse.”⁵

Fourth, regarding legal theories, students identify competing general theories about how constitutions and statutes should be interpreted, the

Familiarizing jurisprudence students with the legal disciplinary perspective can demonstrate the intrinsic limits of the legal discipline when seeking a full or comprehensive understanding of a law-related problem.

proper role of judges, and how rights should be recognized. In regard to individual students’ research topics for the course, they identify theories articulated in scholarly articles they have read.

Fifth, students identify legal assumptions such as the endowment of individuals with rights, whether socially constructed or derived through providence, the assumption that governmental power is limited by a constitution, written or unwritten, and the assumption that courts are institutions that appropriately shape the law.

Finally, students identify the well-defined research methods employed by lawyers and judges in seeking to understand the status of the law. A chief method is the case review method, wherein the meaning of

a legal rule is acquired through reference to precedents, or extant court decisions on a particular subject. This is merely a sampling of the many responses generated by in-class discussions among students. As a result of this exercise, students come to the conclusion that the combination of these elements results in law being included among the disciplines. Although students also see some elements of law as overlapping, or sharing common ground with political science, they conclude that law is sufficiently distinct to warrant disciplinary status.

After students have identified the disciplinary elements of law, they have not only achieved a greater awareness of law as a discipline but also become more aware of the abstract infrastructure of any discipline. This structural awareness aids in the transfer of knowledge regarding their own discipline to an awareness of the disciplinary character of other fields of knowledge and perspectives. As noted above, the students in the capstone course are required to select at least one (two at most) additional disciplinary perspective(s) through which to analyze their law-related topic.

In order to gain adequacy in the required one or two additional disciplinary perspectives, students must consult introductory texts in the other discipline(s). They are encouraged to use the disciplinary awareness they have developed regarding law to generate a disciplinary awareness of their other chosen discipline(s). (It should be noted that the Repko text is helpful in this regard, too, as it deconstructs and charts most of the disciplines they choose.) This is a variation of the procedure-to-procedure transfer of knowledge model, wherein student’s practical experience in understanding the legal discipline aids in recognizing similar structural elements in other

disciplines, which is gained as they read introductory texts and more specialized texts within additional disciplines.⁶

Perhaps most importantly, this investigatory exercise in disciplinarity allows students to better understand the need for interdisciplinary analysis of a law-related problem. Familiarizing jurisprudence students with the legal disciplinary perspective can demonstrate the intrinsic limits of the legal discipline when seeking a full or comprehensive understanding of a law-related problem. Students are encouraged to recognize the complexity of the real-world law-related topics they have selected. As they read more texts concerning their topic, they are encouraged to identify the legal profession's insights regarding the topic or problem and consider whether the legal insights comprehensively address or explain the topic. To take a famous example, Was the problem of Prohibition merely a question of the ability to enforce the law? Law is concerned with effective enforcement and deterrence. Yet, the motives for violating the law and the widespread social acceptance of such violations cannot be explained by reference to only the legal discipline. Students are introduced to the contributions of other disciplines. Economics contributes insights regarding incentives and political science contributes insights regarding the exercise of power in a democratic state. Students can see how the problem of enforcing Prohibition can be understood only by reference to the insights from other disciplines. The Prohibition example demonstrates the need for what Repko calls "connected learning" to more fully understand (and perhaps propose solutions to) problems insufficiently addressed by a single discipline (p. 37).

As with the protagonist in Molière's *The Bourgeois Gentleman*

who in midlife is pleased to learn that he has been speaking prose all his life and did not know it, so too do jurisprudence majors enjoy recognizing the disciplinary character of the legal knowledge they have acquired during their college careers. Yet, their knowledge allows them to speak more than just prose. They are better able to see the limits of disciplinary modes of thought and methods of gathering data, and they earn an understanding of the utility and wisdom of integrating the theories and insights derived from other disciplines into their understanding of what may at first blush appear to be only a legal problem.

Notes

¹ Allen F. Repko, *Interdisciplinary Research: Process and Theory, 2nd Edition* (Thousand Oaks, CA: SAGE, 2012). Specific page references are noted in parentheses in the text.

² The MSU Jurisprudence Major's description and course listing can be viewed at http://www.montclair.edu/catalog/view_requirements.php?CurriculumID=1309 (accessed Oct. 9, 2012).

³ As John Henry Schlegel has demonstrated, Progressive-Era scholars like Walter Wheeler Cook sought to introduce the methods of social scientists to the study of law. Such efforts ultimately failed to be adopted by most academics in the legal academies, much less practitioners. Although the empirical examination of law might have demonstrated its affinity with the concerns of political scientists, the failure of legal academics to adopt such methods of inquiry demonstrates the law's disciplinary independence. John Henry Schlegel, *American Legal Realism and Empirical Social Science* (Chapel Hill: University of North Carolina Press, 1995).

⁴ James Boyd White, *Justice as Translation: An Essay in Cultural and Legal Criticism* (Chicago: University of Chicago Press, 1990), pp. 49, 216.

⁵ James Boyd White, "Intellectual Integration," *Issues in Integrative Studies*, Vol. 5 (1987), p. 8.

⁶ Robert E. Haskell, *Transfer of Learning: Cognition, Instruction, and Reasoning* (San Diego: Academic Press, 2000), p. 31. ■

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INTEGRATIVE PATHWAYS

td-net Online Bibliography Lists 2011 Titles

The Network for Transdisciplinary Research, td-net, has announced publication of its online bibliography, *Tour D'Horizon of Literature 2011*.

Experts of (inter-) and transdisciplinarity were invited to contribute their recommendations for the list of the most important publications in the field of inter- and transdisciplinary research, teaching and practice.

Articles from the 2011 edition of *Issues in Integrative Studies*, the annual peer-reviewed academic journal of the Association for Interdisciplinary Studies, are among the works listed.

Among other titles by AIS members in the bibliography are *Interdisciplinary Research: Process and Theory* (2nd ed.), by Allen F. Repko; *Au Miroir des Disciplines*, co-authored by Frédéric Darbellay with Theres Paulsen; *Case Studies in Interdisciplinary Research*, co-edited by Repko, William H. Newell, and Rick Szostak; and *Interdisciplinary Research Journeys*, which was co-authored by Catherine Lyall, with Ann Bruce, Joyce Tait, and Laura Meagher.

The bibliography was published online in late January and can be accessed at this URL: http://www.transdisciplinarity.ch/documents/TD_Literature2011.pdf ■

About AIS

The Association for Interdisciplinary Studies is the U.S.-based international professional association devoted to interdisciplinary teaching (including service learning), research, program administration, and public policy. Interdisciplinarity integrates the insights of knowledge domains to produce a more comprehensive understanding of complex problems, issues, or questions. AIS serves as an organized professional voice and source of information on interdisciplinary approaches and the integration of insights from diverse communities to address complex problems in education and research. Founded in 1979, it is incorporated as a non-profit 501(c)3 educational association in the state of Ohio.

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