

ISSUES IN INTEGRATIVE STUDIES
No. 30, pp. 19-47 (2012)

BUILDING STUDENTS' INTEGRATIVE THINKING CAPACITIES: A Case Study in Economics and History

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Abstract: Having engaged in interdisciplinary team-teaching in both the two-course cluster format and the single course format, we intend to show how we helped students recognize and find their own integrative insights between the disciplines of history and economics. In the process we not only compare the advantages and disadvantages of each format but also illustrate more fully the differences between multidisciplinary and true integration. We show (1) how the weaknesses and strengths of our two disciplines complement each other, (2) how the different goals of each discipline can be reached using the methods of the other, and (3) how appropriately-designed readings, writing assignments, group presentations, and other activities can help students to achieve the goals of integrative interdisciplinary pedagogy.

Keywords: integrative, interdisciplinary, economics, history, team-teaching

Introduction

In recent decades, increasingly alarming statistics on college students' ignorance of what their professors would consider essential knowledge have led many colleges and universities to re-focus on "core" requirements: a body of knowledge and skills from different fields that every college

graduate ought to have (Gaff, 1999; Hart, 2009). Given the limits imposed by major program requirements and the traditional four-year undergraduate time frame, it has often proven difficult to agree on a common curriculum; most breadth requirements are still a menu of disparate courses that students compartmentalize mentally and emotionally. In doing so they forget much of what they have learned in such courses because the material is not used again or built upon in any meaningful context. In our experience, also, many students expect that such courses will or ought to be less rigorous than courses in their major field of study, and resent them if they are difficult or time-consuming. Many also see such courses as unnecessary. This lack of respect for other fields of knowledge is the most pernicious aspect of specialization, because it helps ensure that college graduates will not make use of those other fields later in life.

How does a college or university not just give students a basic background in the mathematical and natural sciences, the social sciences, and the humanities, but also cultivate the habits of mind that will help these students continue to pursue and interconnect all three areas regardless of career choice? How do we encourage students to approach non-major courses saying “In what ways might I apply what I am learning in this course to other courses and to life problems generally?” As Veronica Boix Mansilla puts it, “Contemporary societies’ demands on learners invite a paradigmatic shift in our characterization of learning and teaching for the future . . . Learners of the present and future must be agents in their own learning, critical inquirers, able to collaborate, able to apply higher order thinking skills to real-life problems, to manage cultural complexity and to make meaningful connections across disciplines.” What Boix Mansilla calls well-conceived “integrative learning”

enables students to focus on multidimensional issues in their full complexity. It invites them to weigh, apply, and combine disciplinary insights to move beyond naïve views. Most important, it enables them to bring the very forces changing the planet—from climate change to globalization, from the digitalization of everyday life to the ethics of global health and medical technologies—into the classroom for detailed interdisciplinary exploration. (2008, p. 31)

Two practical means of promoting such integrative learning are to have instructors from two separate disciplines combine their courses into a “cluster” or to have them team-teach the content and methods of the

different disciplines in a single course. In this article we will compare these two interdisciplinary approaches and will also provide practical advice for instructors who want to help students build integrative skills. It is our contention that without early, regular, and explicit exposure to integrative methods, starting with lower-level courses, students will tend not to develop the habits of mind needed to achieve Boix Mansilla’s integrative goals.

In this article we first situate our work within the broader literature on interdisciplinarity. Next we provide some background on our models and describe what we did in our various courses. We then describe our assignments and classroom activities and also the student responses that have helped us to assess our levels of success in getting students to practice integrative thinking.

Situating our Approach within the Literature

Julie Thompson Klein pointed out in 2005 that true interdisciplinarity is not simply “multidisciplinarity” or the aligning of disciplines “in parallel schedules or units”:

Even when [multidisciplinary] team teaching occurs, the teachers present their perspectives separately. Students gain breadth of knowledge, but explicit analysis of disciplinary perspectives and synthesis are often missing. Additive models also unfold on the ground of disciplinary logic, preserving existing compartmentalizations, content, and procedures. In contrast, interdisciplinary models restructure the curriculum with explicitly integrative seminars and experiences that are typically theme-, problem-, or question-based. Team teaching is also genuinely collaborative (2005, p. 9).

Klein’s statements are part of the extensive scholarly effort to create a more specific and detailed definition of “true” interdisciplinarity. Such true interdisciplinarity is seen, by Klein, William Newell, and others, as involving “integration.” According to these authors, a truly integrative experience should be built around the investigation of a single issue or problem. Newell describes such a process, undertaken by undergraduates in 2005, in which the first step is “identifying conflict in [disciplinary] insights, illuminating their source, and evaluating them” (2006, p. 93). The second step is “constructing common ground, by bringing out latent commonalities in the conflicting insights of different disciplines” through the techniques of “redefinition,” “extension,” “organization,” and “transformation” (p. 94). The third step is

“identifying linkages among disciplines”; such linkages involve “concepts, variables, or factors from different disciplines.” The fourth step is the “constructing or modelling a more comprehensive understanding.” The fifth step is “testing the more comprehensive understanding by using it to solve the problem, resolve the issue, or answer the question” (pp. 96-97). Newell demonstrates that undergraduates can achieve all of these steps and so achieve a truly integrative interdisciplinarity. However, Newell’s successful undergraduates had self-selected into a four-year interdisciplinary curriculum and were required to take a capstone senior seminar course (p. 91).

Other university instructors examining Newell’s five-step integrative process might ask “Can it be applied more widely and with students at different developmental levels?” Allen Repko identifies two “broad categories of interdisciplinarity—‘generalist’ and ‘integrationist’—” to help classify the variety of approaches to a topic. The generalist approach regards a wide variety of activities as truly representing interdisciplinary work, while the integrationist approach requires a more rigorous use of integrative techniques to reach a higher threshold of analytical and critical thinking in research pursuits (Repko, 2007, pp. 2-4). Our project attempts to strike a middle ground. Although we find the requirements of Newell’s rubric in its entirety to be beyond the scope of our lower-division courses, we believe that to be truly interdisciplinary, students need to be presented with and show mastery of more than just a blending of two disciplines. Our models introduce some of Newell’s requirements so that students can start to develop integrative habits early in their undergraduate careers.

The broad goals of Newell’s process are the same as those of instructors who define interdisciplinarity more loosely: They too want students to see problems from different perspectives and also have *themselves* practiced combining the methods and content of disciplinary perspectives to solve problems. These broad goals are also shared by instructors who are not working in interdisciplinary programs and who are responsible to their departments for covering specific disciplinary concepts and skills, but who would like to give their students as much interdisciplinary experience and practice as possible.

Between 1990 and 2008 we (an economics professor and a history professor) first taught two-course “clusters” and then team-taught single courses, primarily to lower-division students. Our experience suggests that the processes outlined by Newell and others can be followed, albeit to a lesser degree, within standard lower-division core courses and programs that

are not part of a structured interdisciplinary curriculum. Conflicting insights, common ground, and linkages can exist in varying degrees; the further down one goes in undergraduate course levels, the simpler may be the integrative techniques. Over those 18 years we discovered some methods to be more effective and others less so in achieving our interdisciplinary goals, but we agree with Newell, Repko, and Klein that the most successful methods were those that asked students to employ problem-solving techniques.

Background

In choosing two disciplines to combine, particularly within a core curriculum, instructors should consider the epistemological distance between them. Combining two humanities or two social sciences has the advantage, for each instructor, of greater familiarity with the other’s subject and methods than in a combination of a social science with one of the humanities. For that reason, however, the former combination is less effective than the pairing of more diverse fields in demonstrating to students how any two disciplines can be deeply integrated. Our efforts combine economics, a mathematically-based social science that studies the best policies to use for the creation of long-term profitability and economic growth, with history, a reading-oriented humanities field that seeks, through the interpretation of documents, to “explain and seek answers to problems in the past” (Middendorf et al., 2007, p. 2). Because history must include economics, it can often be difficult to identify “conflicting insights” between these two disciplines if, as Repko does, we define “insights” as “scholarly opinion grounded in research” (Repko, 2007, pp. 4, 5). There are economic historians even as there are political and social historians, and the economic historian utilizes methods from both disciplines. Hence, in what follows, we will try to identify not just conflicts but also coincidences of insights. For example, we show that the work of Karl Marx plays a significant role in understanding historical as well as economic patterns.

It is clear that there are limitations to the discipline of history that economics can address, and vice versa. For decades economics as a discipline has been criticized for being overly modernist and positivist. Isolating economics from more value-oriented areas of learning has, first, restricted its capacity to deal with the social problems that it ostensibly seeks to solve; second, encouraged a narrowness in both economic scholarship and teaching; and third, propagated the erroneous notion that economic axioms are wholly objective and provable rather than springing often from a priori

assumptions (McCloskey, 1983, pp. 493-495). Two decades ago, a report on the undergraduate economics major pointed out a lack of attention given the place of economics within the liberal arts curriculum by economists, and stated that this inattention “produces little guidance for students to connect economics to the information and methods provided by other disciplines” (Siegfried et al., 1991, p. 207).

One result of such isolation is a too-frequent student conviction that, because specific economic problems, conducted within simplified models, can be solved with mathematical certainty, real-life economic problems have a similarly unambiguous answer (Siegfried et al., pp. 210-213). In 2009 David Colander and KimMarie McGoldrick noted that moral reasoning is no longer a focus of the economics major, and neither is “‘living with diversity’” or “‘breadth of interest’” (2009, p. 26). True breadth, they assert, “involves asking questions that are unlikely to have definitive answers – ‘big think’ questions that challenge the foundations of disciplinary analysis.” Because such questions “do not fit the disciplinary research focus of the profession, they tend not to be included in the economics major” (p. 22).

History can help ameliorate these problems by providing complex and ambiguous real-world contexts. One of our goals, therefore, is to get students to think like historians when they are doing economics. For economics students, history can pave the way for an increasingly interdisciplinary approach to complex issues now being treated as purely economic. Economics students should be constantly thinking of the social, political, religious, geographical, and technological contexts within which economic problems exist and have existed in the past.

The other goal, of course, is to get history students to think like economists. One of the great strengths of the economics discipline is its capacity to organize information into logical structures that students can use repeatedly. Economics can visually illustrate those structures with diagrams and models, a capacity that history often lacks. When experienced in a core curriculum by reading-averse American undergraduates, the discipline of history too often comes across as the rote memorization of disparate events and ideas. Granted, a basic purpose of historical study, particularly at the lower-division undergraduate level, is to strengthen students’ capacity to organize these disparate events and ideas into coherent patterns. Unfortunately, too few history instructors actively teach the specific reading-comprehension skills necessary. These include:

- Distinguishing the general from the specific in a mass of prose. What

are the basic points, and what is illustrative detail?

- Organizing written information on causal chronological lines. Can you visualize, in your head, a causal timeline of the events about which you are reading?
- Comparing a new development with what has gone before. What has changed as a result, and what has stayed the same?
- Learning to visualize geographical areas described in texts. Can you develop a “bird’s eye” capacity to envision a map in your head and then use it whenever you encounter a place name?

While the economics discipline is not of much help with the first of these skills, it is of enormous help with the latter three. Diagrammed economic models, such as the circular flow or the production possibilities frontier, show how a numerical change causes other parts of the model to adjust. This is *process*; it gives students a visual picture of change and thus helps them to imagine historical change in a similarly structured, cause-and-effect form. Many history students do not like dates, but dates can help provide structure when they are organized, as all numbers are in economics. One of our students commented in an end-of-semester survey in 2008, “I enjoyed the way time outlines contributed to the class. I felt it helped me to understand the material and learn the process of history.”

Typically with undergraduate students, the economist’s approach is to use diagrams in a partial equilibrium framework to examine the effects of a change in a single economic variable on one market at a time. This allows the instructor and student to examine a specific economic change *ceteris paribus* (“assuming that everything else is held fixed”) and thereby to understand it more clearly, without the confusion created by other simultaneous developments. Habitually thinking in this manner similarly allows the history student to examine, one at a time, each interaction of historical developments, and then, much as economists gradually add more variables to their frameworks to make them “real-world,” to add more interacting developments until he or she understands the interaction within its full historical context.

The economist’s skill with cause-and-effect diagrams and models also strengthens history students’ “bird’s eye” skill in geography by helping them to make causal connections between location and event. A map is a diagram in which distances can be assessed quantitatively: Napoleon’s Russian debacle in 1812 is more easily understood by seeing how far Moscow is from central Europe.

Economics helps the history instructor in several other ways. Many students see history as having little relevance to the modern world. However, the economist's frequent focus on current conditions helps to provide parallels between past and current events, thereby placing students in a more openly problem-solving mode. It is easier to get history students away from a rote-memorization mind-set when they must use facts, as economists do, to find practical solutions to immediate problems. Inasmuch as economists are constantly arguing over the interpretation of their data, a combining of that discipline with history can help show students that history, too, is an interpretative field and that historical interpretations are arguments that change over time (Middendorf et al., 2007, p. 3).

What We Did

At our university nearly half of all the courses taken by our undergraduates satisfy core breadth requirements, including two semesters of history and two of a social science. The great majority of our undergraduates look forward to careers in business or industry; they are focused upon job training, worried about future career prospects, and unlikely to approach basic macroeconomics or European history with a belief that either will be of much help with those prospects.

Four times between 1990 and 1999 we offered a course cluster, scheduling "Introduction to Macroeconomics" and "History of Britain and its Empire since 1800" back-to-back and in the same room. Typically, students who took these courses in our cluster were satisfying core distribution requirements, but there were a few economics or history majors as well who needed the material as a base for upper-level departmental courses. For this cluster we, the two instructors, attended each other's classes, participated in class discussion, and even took each other's exams (Abbott & Nantz, 1994, pp. 22-23, 25; 2001, pp. 448-450.)

Then, three times between 2001 and 2008, we team-taught a course in our university's Honors program, teaching a third-year course on "Progress and Its Critics" in 2001 and then a first-year course on "Ideas that Shaped the West" in 2005 and again in 2008. In "Ideas that Shaped the West" we used an organizing theme of "Globalization and Empire" to make connections across history and economics, bring the past and present together, and engage students in a topic that many of them viewed as relevant to their daily and future lives. In all of these Honors courses we utilized content and methods not simply from our basic macroeconomics and British Empire courses but

also from other courses we teach. Although these Honors offerings were single courses, they required slightly more class time than regular ones, and the students received credit for both history and social science core distribution requirements. The Honors program requires a seminar-type format with ample opportunities for discussion.

In both the 1990s cluster and the 2000s Honors courses we were obligated, by the requirements of our respective departments and by the Honors program, to teach specific disciplinary skills and content. The economics instructor's basic goals are to help students (1) understand the ways that economists pose and answer questions; (2) develop the vocabulary needed to talk about economic issues; (3) use analytical tools to describe decision-making processes employed by individuals, groups, and governments; and (4) apply economic reasoning to real-world situations. The history professor's European civilization and British Empire courses seek to give students (1) a basic knowledge of the Western world and how it came to be; (2) an appreciation of the complexity of historical processes, as political, social, geographic, religious, intellectual, economic, and technological forces interact; (3) the ability to read actively and critically; and (4) the ability to write clear, effective prose. Our interdisciplinary integration needed to be carried out within these content-coverage parameters; even the Honors courses, which were part of an interdisciplinary program, had to cover prescribed, if general, topics. Thus, we could not build any of these courses around a single issue or problem as Newell did in his capstone course. Nevertheless, in our discussion questions, essay assignments, and other course activities, we were able to display the differences between our disciplines' insights, find common ground between the vocabulary and methods of the disciplines, and push the students to reach new and original solutions to problems by using both disciplines. We hope that we did these things often enough to make such interdisciplinary integration habitual, at least to an extent, for our students.

Course Organization

In the 1990s clusters, course preparation required meeting before the semester began, comparing our syllabi, noting the opportunities for topical overlap, and then once the semester began, continuing to note and utilize these connections with greater specificity, week by week (Abbott & Nantz, 2001, pp. 449-450; 1994, p. 23). Freed of departmental-coverage requirements in our 2000s team-taught Honors courses but seeking to cover

much of the same content, we organized these courses around basic themes that involved both disciplines: empire, globalization, progress and its critics, and alternative economic systems. These in turn bound together more specific topics, some of which were more historical in nature (feudalism, slavery, industrialization, war) and others more economic (balance of payments, the household-firm model, mercantilism, capitalism, socialism). Each week, and usually each session, involved some of each discipline's topics, and we returned to our basic themes often.

In both models we believe that the organization helped to show students the differences and similarities between the disciplines' insights, and therefore helped them form integrative habits. Because the 1990s cluster model featured two distinct courses, the connections that students made in them were similar to those that we wanted them to make between other, non-integrated core courses. According to E.L. Cerroni-Long and Roger D. Long, it is essential "that any integrative program highlight the independent value of the disciplines it covers" and that "students come to get some form of disciplinary training before they are exposed to any program of knowledge integration" (1995, p. 47). The cluster is clearly superior to the single team-taught course in this respect. To have the historian lecture with the economist sitting in the audience as a student, and then to have the economist get up and the historian sit down and assume the role of student, showed cross-disciplinary connection-making vividly. It also showed conflict of insights, as the economics professor would often cut in on the history professor's presentation with questions and occasional disagreements; the history professor did the same during the economics professor's presentations. Similarly, this structure made it easy to find common ground. Because the history professor was listening to the economist's lecture he could incorporate points from it immediately in his session, and vice versa. In speaking of classical economics, for example, the economics professor reminded the class of Adam Smith's emphasis upon having the individual make economic decisions, and tied it to what the history professor had said about the emphasis on individual rights inherent in 19th-century political liberalism. Whether the government should distribute welfare payments to the poor (and if so, how much) was a moral and political issue in 19th-century Britain and indeed still is in the 21st-century United States. The economics instructor added macroeconomic analysis to our examination of that issue in pointing out that welfare payments are "automatic stabilizers" (i.e., entitlement programs that grow and shrink as eligibility changes, altering the level of government spending across the business cycle).

While the 2000s single team-taught course organization could not match the serendipity and in-class creativity of the 1990s clusters, there were still numerous occasions on which each instructor would cut in spontaneously on the other's presentation, and this interaction received similar praise from students. In the single course we were also able to plan lengthier and more regular class discussions, partly because we organized the students into groups and partly because the areas of topical overlap were greater in one course than in two.

Furthermore, even though we were unable to orient these Honors courses around a single complex issue, problem, or question, we were able to orient them more intentionally around several specific themes and Colander and McGoldrick's "big think" questions than around a basic macroeconomics model or historical chronology. We therefore had more opportunities in the 2000s single courses to apply both disciplines together in a problem-solving mode (See Finkel, 2000, p. 66). The theme of globalization, for example, helped make British imperial history more relevant to the present day, as we could compare the British opium trade with China in the mid-1800s to the Peruvian, Mexican, and Colombian drug trade with the United States in the late 20th and early 21st centuries. The more thematic approach also enabled us to include many more readings, activities, and writing assignments that dealt with both disciplines, and so made it easier to illustrate conflicts and connections in action.

Readings

In the cluster each course had its own basic texts,¹ but we also gave students material to help them bridge the gap between disciplines. In the 2000s single courses we focused more on modeling for the students, providing them with themes and readings that illustrated connections in action and that displayed conflicts between disciplinary insights.

In the cluster we assigned short handouts that plugged economic problems

¹ For the history course, T.O. Lloyd's *History of the British Empire* (Oxford, 1996), John F. Harrison's *The Birth and Growth of Industrial England 1714-1867* (New York, 1973), François Bédarida's *A Social History of Britain*, (A.S. Forster, Trans.), (2nd ed., 1991), E.J. Hobsbawm's *Industry and Empire* (New York, 1969), *The Oxford Illustrated History of Ireland*, (R.F. Foster, Ed.), (Oxford, 1989), Geoffrey Moorhouse's *India Britannica* (London, 1984), Richard W. Hull's *Southern Africa* (New York, 1981), and James Clavell's *Tai Pan*. The macroeconomics texts were either Byrns and Stone's *Economics* or Samuelson and Nordhaus's *Macroeconomics*.

into the historical chronology. One example was R.A. Radford's 1945 article "The Economic Organization of a P.O.W. Camp," which is an analysis of currency, markets, and exchange within a specific context: Allied prisoners in a German prison camp exchanging goods that came in via the Red Cross, with cigarettes as the medium of exchange. This handout, however, could be described as primarily a lesson in economics; the historical element simply provided background without much connection or conflict of insight between historical and economic methods or between economic developments within the broader historical conditions. We also assigned portions of James Clavell's 1965 novel *Tai-Pan*, which describes the opening of China to the British tea-opium trade and the resultant Anglo-Chinese military conflicts in the early 1840s. In addition to helping the history professor illustrate the growth of the British Empire in Asia, this reading provided the economics professor with historical examples of balance-of-trade issues, bank failures, and mercantilism-versus-*laissez-faire*-capitalism. Equally important for interdisciplinarity, it provided examples of the interaction of political, military, and cultural conditions with economic ones. Like the Radford article, however, it did not combine economic and historical methods. A short editorial from the *Economist* magazine, "Trade Made the Ship to Go," did somewhat better, as it argued that 19th-century traders would have been mystified by the modern U.S. policy of encouraging the Japanese to trade cars for cars. This article combined important concepts from each course—trade theory and the law of comparative advantage in the economics course and in the history course the role of trade in the rise of the 19th-century British Empire—and applied them to current-day trade negotiations between Japan and the United States (p. 11). Students were thus able to see the complementarity, if not the conflicts, between the disciplines.

Such methodological combinations were easier to achieve with the readings we assigned in our more thematically-oriented 2000s team-taught courses. Many of our selected authors—Adam Smith, Karl Marx, David Ricardo, Ayn Rand, John Kenneth Galbraith, Donald Fusfeld, Deepak Lal, Stephen L. Sass—contribute to a range of disciplines, including economics and history. Like the assigned texts in the 1990s clusters, these 2001-2008 sources included both historical and economic subject matter, but unlike most of those texts they utilized historical and economic methods in tandem, thereby giving students more opportunities to see connections. Stephen L. Sass's *The Substance of Civilization* noted that without the rich silver mines of Laurion the Athenians could never have afforded the triremes that saved Greece from the Persians at Salamis, that Rome's later expansion "was

driven by its insatiable appetite for new sources of valuable minerals," and that the collapse of the Roman empire was in part the result of inflation that had been caused by devaluation of the coinage (1998, pp. 72-73, 76, 79-80). John Kenneth Galbraith's *A Journey Through Economic Time* announced by its very title the intent to show how economic developments and conditions affected and were affected by historical ones. "It is not the professional tendency of the economist to minimize the role of economics and economic decision," he wrote. "However, where war is concerned, there is the larger effect of politics and anthropology" (1994, p. 20). "War, not economic wisdom," he writes later on, "brought the [Great] [D]epression to an end." (p. 71). Our assigned readings by Deepak Lal achieved an even more intense integration of economics and history, adding geography, psychology, culture, sociology, and religion to the matrix in which economics operates, using the terminology of economics in historical settings, and using graphs and tables to illustrate comparisons (1998, chaps. 1-2; 2004, chap. 1).

Because Galbraith and Lal are economists *and* historians, it is difficult to find conflicts of disciplinary insight within their writings. However, a course reading by the historian Niall Ferguson does discuss such a conflict: "But economists and economic historians alike prefer to focus their attention on flows of commodities, capital and labour. They say less about flows of knowledge, culture, and institutions. They also tend to pay more attention to the ways that government can facilitate globalization by various kinds of deregulation than to the ways it can actively promote and indeed impose it" (Ferguson, 2002, p. xix).

In both the cluster and the single-course formats we provided students with discussion questions on the readings, and these questions often brought out the ways in which each discipline's insights complemented the other's weaknesses. In the 1990s one such history course question exposed an economics weakness: "To judge simply from the wheat price statistics, one might think that the lower, non-landowning classes were much better off between 1774-1794 compared to the earlier period 1754-1774. What statistics, however, would we need in order to be sure of that?" On the other hand, an economics exam question showed how history can be better understood by using the data and analytical techniques common to economics: "In 1929, economies world-wide were plunged into a depression due to a general decline in real aggregate demand. Using real aggregate demand and real aggregate supply curves, *show and explain* how this affected real output and the price level. What policy, if any, did the British choose during this time period to restore the economy to equilibrium?"

In trying to strengthen interdisciplinary habits of mind, we were unsure how often we should point out interdisciplinary connections as opposed to letting the students discover them for themselves. Like the gap in a spark plug, which fails if the gap is too wide or too narrow, the gap that our students must traverse to develop interdisciplinary habits of mind needs to be wide enough for mental exercise and growth, but not so wide that the students fail to make it across. The size of the ideal gap, of course, varies with the individual student. To assist the Honors students with Clavell's *Tai-Pan*, the history professor may have been doing too much of the students' work for them when he gave them a list of quotations from the novel with detailed explanations of how these passages illustrate the role of economics as an historical force. In drawing up discussion questions, our solution was to vary the size of the above-mentioned gap by using Bloom's traditional range of questions, from "what" to "how and why" to application, analysis, and evaluation, while including both disciplines in the higher-order questions. The difference between two of our 2001 reading/discussion questions is an example:

- It is said that an educated populace is essential for a democratic state and basic human rights. Bearing in mind, however, that Germany had one of the most educated populations in the world during the 1930s, it is clear that an educated populace is not a guarantee that democracy and human rights will survive. What other things are essential to such survival? What happened in Germany during the 1930s to eliminate these things?
- Was the Second World War avoidable? Why or why not?

While the first question does connect history and economics, answering it is largely a matter of reading the text on the political effects of the Great Depression. The second question requires not only the selection and application of various economic policies within an historical matrix, but the use of historical imagination to predict their outcome: altogether a more challenging task.

As Colander and McGoldrick advise, we sought to introduce students to debates within the specific disciplines (2009, p. 22). In our third-year Honors course, "Progress and its Critics," we asked reading questions that contrasted the approaches taken by different schools of economics: "Compare Hobsbawm's approach to Thatcherism with Galbraith's critique of Reaganism." We also asked for contrasts between economists and historians:

"Galbraith and Arnstein each approach the Cold War from different perspectives, and therefore emphasize different facts in their approach to it. Explain." In the first-year Honors courses, too, we were able to combine economic problem-solving with historical criticism; in 2008 the economics instructor presented a variety of simple-to-complex history questions on a primary-source reading from Adam Smith's *Wealth of Nations*:

- Was Adam Smith "right": Will individual efforts in pursuit of their own self-interest bring about the maximum benefits for individuals and society?
- Can you think of times when self-interest hurts the greater good?
- How was economics after Adam Smith influenced by the scientific method?
- What was the difference between Smith's and Bentham's notion of the goal of an economic system? What about their attitudes toward the role of government?

Care was needed in selecting our readings; even our Honors students found some of them difficult and complained that there was an excess of reading assignments, that not all of them were discussed in class, or that not all were "relevant to the main ideas." Here we came up against methodological differences between the teaching of history and of economics, as the latter traditionally assigns short, intense readings that build logical structures, every part of which is gone over in class, whereas the former assigns much longer and broader narratives filled with miscellaneous detail, with the expectation that students will develop – simply by doing the reading – the ability to sort out basic themes from illustrative detail and organize that mass of detail into a coherent analysis. It is here, however, that what we have called the "diagrammatic rigor" of economics addresses weakness of historical study and teaching. In both the 1990s course cluster and in the 2000s Honors interdisciplinary courses, the history professor utilized chronological flow charts, cause-and-effect matrices, Venn diagrams, and other diagrammatic techniques, many of which he had learned in the economics class, to help organize the mass of detail that students find in the readings (Abbott & Nantz, 2001, pp. 454-456).

In 2005 we tried a technique called the "double-entry draft" in which students composed questions on difficult readings, posed answers to their own questions, and then solicited additional answers and clarifications from a peer who read the two entries and responded. In one case of such mental

“unpacking” of a difficult set of readings on ancient empires, a student asked, “Which approach to maintaining an empire is more successful, focusing the empire on foreign affairs (imperialism) or focusing on local affairs?” She then pointed out to herself a quotation from the text: “China—‘neither power nor order can be found abroad.’” Her partner added, “focusing on imperialism is expensive because extending territory increases costs of maintaining and running the state.” Through such an exercise students were encouraged to think about the variety of factors that might come into play in making a complete argument. (Completeness of content and argument were regular items in our writing rubrics.) Economic methods also helped connect the past with present-day conditions and events, as when students could use Lal’s differentiation between “Smithian” and “Promethean” economic growth (Lal, 1998, pp. 19-21) to understand the unprecedented rate of change brought about by Web technology.

We have found that it is important to vary the above-mentioned interdisciplinary gap by choosing some readings that are relatively simple and others that are more complex, some that bear more on one discipline and some more on the other, and some, such as Lal and Fusfeld in our case, that are close to the middle. We also suggest that providing models of activities that help students unpack difficult readings (such as our “double-entry draft”) is critically important. Instructors should also select more readings, such as Ferguson, that show conflict between the disciplines.

While we do not have hard data on the extent to which our reading selections helped students identify conflicts of insight, construct common ground, and identify linkages between our two disciplines, some anecdotal student comments from our two most recent Honors courses suggest that students have a wide range of such integrative abilities. When asked “What aspects of the course contributed most to your learning?” a 2008 student commented, “Readings from such a wide variety of sources contributed to an overall bigger picture and allowed me to form my own opinions on controversial issues brought up in the class.” In 2005, however, a student commented, “It would be better if there were more pinpointed readings,” suggesting that we might provide students with more guidance regarding the reading assignments.

Writing Assignments

As many authors have pointed out, students take away more from readings when they are using them to solve problems as opposed to memorizing the

text. While we could not, for practical reasons, build our courses around a single problem or issue, we did utilize a variety of writing projects that required students to use both disciplines in a problem-solving mode.

In the interest of forming integrative habits of mind, another advantage to our 2000s team-taught courses over the 1990s clusters was the greater amount of formally-graded written interdisciplinary work. The only integration that occurred in the clustered courses’ graded work was provided by two history term paper assignments and a few questions on the exams of each course. However, the 2000s team-taught course featured numerous short-essay “brainstormers” and two longer essays, all of which combined historical with economic problems.

The 1990s cluster papers, assigned in the history course but graded with assistance from the economics professor, asked students to apply economic principles in different historical contexts. One assignment asked students to compare the mid-19th-century British Empire with the 1990s USA regarding the use of fiscal policy, and explain the advantages and disadvantages of each (Abbott & Nantz, 1994, p. 24). Such questions were effective in helping students understand Keynesian economics, and the students came to appreciate, better than in the standard macroeconomics course, the interaction between economic policy and political, social, and technological conditions. The students found common ground, used vocabulary terms from each discipline in doing so, and may have found “a more comprehensive understanding” (Newell, 2006, p. 97), but because this assignment did not ask students to make policy decisions, they cannot be said to have advanced to Newell’s fifth integrative step: “testing the more comprehensive understanding by using it to solve the problem, resolve the issue, or answer the question” (Newell, 2006, p. 97; see above, p. 4). A second assignment was better in this respect: “What monetary policies would you, as Lord Smythe, head of the British banking system, implement at various stages between 1925 and 1955?” (Abbott & Nantz, 2001, p. 452) The goal, of course, was the maintenance of Britain’s prosperity as political and economic circumstances changed. The decisions reached, while not the original syntheses that can result from a semester-long project, nevertheless found common ground between the two disciplines, and did, we believe, help produce a more comprehensive understanding. Students had to know the history of the two decades, know the monetary tools available and how they worked, and then make policy decisions and explain how those decisions would lead to prosperity. Good decisions combined the historian’s ability to see cause-and-effect chains over time with the macroeconomist’s knowledge

of how monetary and fiscal policies work. In one of the better papers, the student author described, thoroughly if a bit clumsily, her projected response to the Great Depression:

I would encourage the government to increase spending which would then raise the level of total economic output, national equilibrium, and aggregate demand. As aggregate demand rose, the level of demand for money would also rise and increase interest rates and thus the cost of investment. I would add to the net effect of government policy in increasing national income and would counter the decrease in investment that it causes by implementing a monetary system that would increase the supply of money, through the sale of government bonds, to the Bank of England. I would attempt to pursue these policies by persuading the Conservatives to abandon their fear of inflation [and] to recognize that the threat posed to the stability of the Conservative government by increasing unemployment and unrest outweighed the threat of inflation. (Horne, 1992, pp. 2-3)

Not all of the students were able to integrate insights from the two disciplines so thoroughly, and some of them made major historical errors of fact and misapplied the economic principles. Our general impressions of both assignments were that students were better able to state historical facts than apply them to an economic problem.

For the 2000s Honors writing assignments, we similarly used problem-solving exercises that required the methods and knowledge of both disciplines. Metacognitive distinction between the disciplines was not as pronounced because the courses were single and team-taught rather than two-course clusters. Nevertheless, the opportunities to find common ground and to solve problems that went beyond the boundaries of each discipline occurred more frequently as we were able to assign a series of short and long essays. In our single third-year Honors course in 2001 and then the first-year course in 2005, we continued to assign two large term papers with interdisciplinary themes, but we abandoned in-class exams entirely. Instead we assigned short brainstormer essays every one or two weeks to give students more frequent practice in integrative skills. Partly to focus on those skills we decided, in the 2005 and 2008 courses, not to grade these brainstormers for grammar or spelling. Our goal was to encourage students to take risks in their thinking, to push themselves to try to articulate difficult ideas. As John Bean argues, “Worrying about spelling and grammar when

you are trying to discover and clarify ideas can shut down any writer’s creative energy. Exploratory writing is messy because thought is messy” (2001, p. 101). Once ideas were clarified, we asked students to polish their writing in lengthier, more summative assignments.

Attention to their own thinking processes became important if our lower-level students were to productively practice building interdisciplinary bridges for themselves. In their 2010 book, *How Learning Works*, Susan Ambrose et al. describe a cycle of basic metacognitive processes that help students develop as “self-directed” learners. These include assessing the task at hand, evaluating their own strengths and weaknesses, planning an approach to a task, applying and monitoring the effectiveness of alternative strategies, and reflecting upon those strategies’ outcomes (p. 193). An example of our attention to guiding the development of these metacognitive processes can be found in a brainstormer question from our 2005 course:

- Lenin (Kishlansky [p.] 514) backed by Hobson (Ferguson [p.] 203 and handout) asserted that capitalism was inherently imperialistic, while Lal (*Unintended Consequences* [pp.] 101-102) blames the “virus of nationalism” for the imperial expansion of the later 19th century, and praises the individualism of an earlier age. Can we have, in the 21st century, a capitalist world economic system without endless war and continued pressure to carve out empires? From your reading in Fusfeld, Ferguson, and Kishlansky, tell us which man, Lenin or Lal, is the more correct, and why. If you cannot make a decision, OK, but tell us why they are in a dead heat.

This rather complex question is framed in such a way as to provide students with tools to assess the task at hand – take a position (or not) and back up your position with targeted ideas from the text. In the rubric distributed with the assignment, one of the items asked students to consider the “factual information” they used – did you make the distinctions between these two positions clear? Was it evident through your writing that you understood them? Another referred to the “breadth of argument” – did you find a wide variety of factors to help explain motives for imperial expansion? The rubric thus provided students with explicit strategies for constructing a clear argument. Students were also coached to “remember that Lenin and Lal are both historians and both economists.” This scaffolding and modeling helped teach students the components of good integrative thinking, and was used less often as the course proceeded towards the final paper. Our hope was that students

would internalize these successful strategies, practiced in the brainstormers, and then implement them when writing larger, more comprehensive papers. As reported by Ambrose et al., early performance-based assessments, clearly articulated criteria for evaluation, and the presentation of multiple solution strategies are all examples of research-based best practices in developing successful metacognitive processes for students (pp. 203-215).

As we had during the 1990s clusters, we designed the brainstormer questions to make students draw connections between past and present and between economics and history. We also sought as often as possible to put students in an interdisciplinary problem-solving mode. One assignment did this in a hypothetical context:

- Build your own empire! Yes, you have been given absolute control over an empire, and therefore the unique opportunity to create and describe your own imperial legacy. What would your empire look like after you had imposed your policies upon it? What would characterize it *politically, economically, socially, technologically, geographically, and religiously*? Defend your decision and explain why and how *your* kind of empire would lead to the *greatest good*. What would give it *sustainability*?

Another had students compare interdisciplinary connections in a past-versus-present format:

- From this week's reading we can see the tremendous influence that religion had upon economics, politics, intellectual life, and other areas of human endeavor during the years between 600 and 1600. Compare and contrast the ways (both direct and indirect) in which religion had such influences during the Middle Ages and Reformation periods with its influence today. What is different and what is similar about these various influences, with regard to both their extent and their variety?

A third asked students to use economic theories to solve a real-world historical problem:

- According to Fusfeld, we see two great modifications to Smith and Marx in the 20th century. "Market Socialism" attempted to make socialism more efficient, while Keynesian economics attempted to make capitalism more equitable. Which modification was the best solution in 1932?

As we had not done in our 1990s clusters, we gave out specific grading rubrics for each assignment in 2005 and 2008, and each of these rubrics included one or more integrative requirements. For #1 above, we asked (among other things), "Did you clearly explain HOW each of the aspects of your empire will lead to the 'greatest good'?" What makes you believe that this empire is sustainable, and why?" For #2 we asked "Did you effectively show how each of these religious elements either [is] not present today or [is] still present?" For #3 we asked, "Did you find a wide variety of factors that help to explain your choice?" Key purposes were to help students constantly imagine as wide a range of perspectives as possible and to provide them with models that would allow them to practice making the kinds of connections that we find valuable to economists and to historians.

The last brainstormer assignments in 2005 and 2008 were to write a haiku poem on the most important ideas that our students believed had shaped "the West." Neither of us had read Stephen T. Ziliak's "Haiku Economics," but we agree with him that "teaching haiku can contribute to the critical, emotional and observational side of our science [economics]" and that it can bridge the humanities and the sciences (Ziliak, 2009, p. 116). We were pleased with the originality and creativity of the results in both years, and the students clearly enjoyed the assignment.

The longer polished-paper problems were broader in scope, but like the brainstormers they required vocabulary, methods, information, and perspectives from both disciplines:

- Which economic model, that of Adam Smith or John Maynard Keynes, generated the greatest progress? Defend your position using both intellectual arguments from your reading of economic theory this semester AND the 20th-century history presented in this class. (2001)
- The year is 1790. How would you convince the British House of Commons to pass a bill abolishing the slave trade and slavery itself? Marshal a convincing set of arguments. (2008)

Again, we increasingly saw the economist's problem-solving format as the best way to approach history. In 2005 we had written the second, slavery-abolition assignment as simply a "why" question: "What were all of the reasons why the slave trade took place?" In the above-quoted 2008 version we had the students take on an historical role, and then use those reasons to argue a position. As with the brainstormers, we handed out rubrics that

required students to bring various ideas, concerns, and conditions together and explain how they interacted. We hope that, by helping students see history from the economist's perspective and economics from the historian's, such frequent written work helped to take students through the integrative steps described by Newell and others.

As they had in the 1990s clusters, however, the students' longer polished papers varied widely in achieving these goals. The best anti-slavery paper in the 2005 class used the history text (Kishlansky) to make economic points and the economist Fusfeld to make non-economic ones, brilliantly showing the effect of historical context on economic policy. Another 2005 paper, though less thorough in utilizing the sources, presented the law of comparative advantage as a motive behind the transatlantic slave trade. This level of economic analysis had seldom if ever happened in the history professor's regular European civilization classes. The following student sample, from the above-quoted 2001 Smith-Keynes assignment, shows, albeit to a limited degree, the more comprehensive understanding described by Newell:

Keynesian economic policy also generated great political progress in what Galbraith terms "one of the more spectacular political developments of the twentieth century"—the shedding of colonial possessions by the European states and by the United States (158). Despite various factors that might have helped the advanced industrial nations reach this conclusion, the primary cause for this action was that the colonies no longer rendered any economic advantages. At one point in history the colonies had provided a source of raw materials as well as a market beyond the mother country. Now, however, domestic economic growth was considered far more important than colonial trade. Indeed, this was largely due to the utilization of Keynesian economic policy, which allowed the government to properly manage its own domestic economic growth without relying on colonial markets. The emphasis on domestic economic growth and the apparent success of Keynesian economics in controlling that growth allowed the advanced industrialized countries to realize that the colonies were no longer economically useful. Indeed, the economic effects of granting the colonies independence were unnoticeable. Despite the motivations behind granting the colonies independence—and whether those motivations were economic, or as most like to believe, due to good will—the elimination of colonialism in Asia and Africa was undoubtedly one of the 20th century's most prominent

examples of progress. It was evidence of perhaps the most important type of progress—one that leads to greater freedoms for people in the truest sense of the word. (Ferrante, 2001, p. 4)

In this passage, the student is able to correctly describe the economic reasons for having empires in the 20th century, and then also link the economic conditions of the later part of the century to well-defined aspects of progress. This synthesizing of basic disciplinary knowledge with historical fact, leading to a new idea (at least for this student) about the nature of progress, seems to fulfill the ultimate goal of interdisciplinary integration.

Asked in surveys to list aspects of the course that contributed to their learning, 4 out of 19 students in 2001 mentioned the writing assignments, 5 of 19 did so in 2005, and 4 of 29 did so in 2008. With regard more specifically to interdisciplinary skills, some student survey comments were positive. From the 2008 class:

- I was pushed to perfect my analytical skills, as well as my writing skills . . . Even though the brainstormers were often annoying (whether it was because of the page maximum or the complexity of the question) I often felt a tremendous sense of accomplishment after I was done.
- Polished paper made me think differently.

From the 2005 class:

- Thought-provoking papers.
- Brainstormers a pain sometimes, but they made me think.
- Assignments forced us to think differently on topics.
- Assignments were relevant and interesting.
- The brainstormers really helped to organize my thoughts on the readings and discussions.

Not all of the written work showed the level of interdisciplinary ability displayed in the above-quoted paper, which again brings up the metacognitive question: To what extent should we point out the connections to students, as opposed to letting them make the connections on their own? The answer again varies with the student. In our 2001 survey a student stated that the paper assignments "were awful, but only because it seemed that I could never do them right. The switching back and forth from history to economics made the material very disjointed." Another 2001 student called

the paper topics “awkward and obscure.” In 2005 one student said that the writing assignments were “too vague and not specific enough” and another said that they “could be clearer.” While simple laziness might have been part of the problem, these students were probably less skilled at seeing interdisciplinary connections than the writers of the positive comments quoted above, and they experienced frustration because the mental gap they were expected to traverse was too wide.

Given the range of integrative abilities, the key with the writing assignments, as with the readings, is to assign a variety of questions so that the gaps vary in size, providing all students with the amount of scaffolding they need to improve their ability to bridge gaps. Research shows that encouraging students to think more regularly and intentionally about their own thinking is particularly important for first-year students as they “adjust to the expectations of college-level work and learn to evaluate and monitor their own understanding relative to those expectations” (Ottenhoff, 2011, p. 30). Ambrose et al., describe several scaffolding strategies that can be helpful, including having students “practice working on discrete phases of the metacognitive process in isolation before asking students to integrate them” or progressing from “tasks with considerable instructor-provided structure to tasks that require greater or even complete student autonomy” (2010, p. 215). We tried to use some of these strategies in our courses.

Group Presentations

Student engagement via class discussion was a major goal in all three of our Honors courses, more than it had been in the 1990s two-course clusters. In our 2001 third-year course, “Progress and its Critics,” we required that class discussions be led by a pair of students, who would make a brief oral presentation and come up with discussion questions based upon the weekly readings. The assignment was to “get other students to talk meaningfully about the readings.” “This means,” we told them, “finding connections among the authors or events, or introducing broad topics that integrate the readings.” We also had these third-year students engage in debates, which were fairly popular. When we taught the first-year Honors course in 2005 and 2008 we also required student-led discussion, but this time we formed permanent teams of four or five. In 2008 we assigned permanent teams but also made sure to include a mix of gender, class-year, and major field on each team.

In these 2005 and 2008 courses there were two rounds of group presentations. To evaluate each round we used a rubric which, in addition

to giving points for originality and creativity (“You might use lectures, activities, film clips, images and other formats so that we all think about ideas in new and different ways”), required the drawing of connections: “Your panel should connect class material with your own life experiences in some meaningful way. You will need to think about how you can make this course relevant to your own life and to the world in which you live.” These are some of the evaluation comments that we gave individual groups after round one.

- The discussion questions you came up with engaged the groups and then the class in good conversation. Notice that the questions that asked students to evaluate, assess, apply, etc. were more interesting than the ones that just asked who or what. (2008)
- The narrative style, which involved each presenter in primarily reading their material, would have been more interesting if it had included more examples, or if you had summarized the material more concisely in your own words. (2008)
- We loved the way you organized the presentation around the categories we’ve been using in class. This helped to make your remarks clear and on point. However, there were some disconnects between what was on the slides and what was being said in some cases; that is, some of the information on the slides was read but not expanded upon or clarified. (2005)

Our tip-sheet for the entire class in 2008 included the following:

- Try to avoid presenting material as an endless string of events – “This happened, then this happened, then this, then that,” etc. Instead, try to organize information so that you are making connections or analyzing events or drawing parallels to current situations. You want to do less narrative recitation and more integrating of material that you want your audience to understand better.
- Finally, there was not a lot of teamwork in the first round of presentations. It seemed as though teams divided up the “turf” and then each of you worked on your own parts separately from all others. Then you pasted the presentations into one package. Think about how you can more explicitly draw connections between the pieces that each group member contributes . . . you should try to explicitly reference one another’s work as you make your own points.

In both 2005 and 2008 the second rounds were noticeably more creative and

more analytical. For example, one group used art from the Depression Era to illustrate the impact of economic hard times on people's lives. Another group used a Dr. Seuss story, *The Butter Battle Book*, to initiate a conversation about the Cold War and its impact on life in the 1950s. Both these examples show how students were bringing in knowledge from domains outside the class to make sense of difficult historical and economic events. In addition, our experience in coaching students through these presentations helped us to reach another goal that Klein associates with integrative interdisciplinarity: the reconceptualization of our roles from what Klein calls the "sage on the stage" to "mentor, mediator, facilitator, coach, and guide" (2005, p. 10).

As with the readings and writing assignments, these oral presentation assignments focused on relationships (differences, similarities, cause-and-effect) between disparate pieces of information. The connections were not necessarily economics-to-history or past-to-present; they could also be one group member's work to another's, the course material to the students' own lives, or even spoken words to the PowerPoint slides. In these respects we might have done better to assign single broad problems to the groups rather than having them analyze the week's readings for the class. Newell insists that true collaborative learning "begins with and is driven by a question or problem" to which different perspectives are brought (Newell 2001, pp. 203-204). Our above-quoted second tip for the entire class suggests that single broader problems might have increased our students' integrative capacities. Nevertheless, our surveys suggest that the collaborative presentation assignments did perform this integrative role, albeit imperfectly:

- Discussions/seminars, and the debates! [We] got to see everyone's viewpoint on our readings.
- I found the classes that included panel presentations engaged every member of the class and hearing different interpretations of my classmates and comparing them to my opinions derived from the readings was the most effective way of learning in this course.
- Class discussion! The discussions were fantastic and I learned so much—history, economics, life lessons—and really enjoyed the diversity of opinions.
- Having two instructors really gave me 2 different perspectives on material. The class discussions were very interesting and meaningful.
- The frequent class discussions. They helped me get a real grasp of the class, especially during confusing econ. discussions.

Other Activities

In addition to the reading, written, and oral work in these Honors courses, we used role-playing exercises and "show and tell" sessions, in which each student was required to bring in an object from another culture and explain what it was, where it came from, its value and what generated that value, its significance or meaning for the culture, and how it represented its culture or its economy. As our groups become more creative in their oral presentations they began to have the rest of the class play games that illustrated historical and economic concepts kinesthetically; this may have made the connections between the concepts more real. Neither of us is an expert in art or literature, but we found that our attempts to bridge economics and history were facilitated by using other disciplines; we not only assigned the haiku brainstormer but also took field trips to the Yale Center for British Art in New Haven. Past and present were connected by field trips to the Federal Reserve Bank in New York City and to Ellis Island in New York harbor.

Conclusions

This article has explored the pedagogical techniques and student learning outcomes for two alternative team-teaching formats—a "cluster" of two separate courses versus a single team-taught seminar. If our students see that integrative thinking and learning across the disciplines can make their work more interesting, we will have taken a major step towards a more unified core curriculum by helping students to see each breadth requirement as more than just an isolated hurdle. We may not have achieved all of the elements of interdisciplinary integration outlined by Newell, but we did achieve some of them, and in so doing we strengthened lower-division undergraduates' propensity to think beyond disciplinary boundaries and make integrative connections after they have left our classes.

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