Promoting Critical Thinking in Economics Education

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Abstract

Some economist educators are lecturing less, and making use of teaching techniques that engage students more actively. Here we discuss a number of pedagogical strategies that do just that, with the aim of encouraging critical thinking on controversial economic issues. The three specific examples discussed in the paper are 1) a simulation to model the different social locations of various economic agents in the Bolivian debt crisis, 2) service learning to confront stereotyping of the poor, and 3) an active learning exercise incorporating several alternative teaching tools, to examine hypotheses and statistical data on the changing structure of the American family.

Introduction

Although increasing numbers of educators are recommending greater use of active learning methods, economists seem reluctant to join in. In 1996, Becker and Watts surveyed a sample of undergraduate economics teachers in the U.S. Their results were clear and striking – very few economists have taken the time or trouble to teach using any method other than traditional lectures presented at the front of the room, or any technology other than the chalkboard” (1998 4). According to their findings, 83 percent of the median respondent’s class time was spent lecturing (4).

Economists’ continued reliance on old-time “chalk and talk” is particularly surprising given the nationwide decline in the number of economics majors relative to other alternative undergraduate majors (Siegfried 1999). Economic theory suggests that economic educators would undertake differentiation and innovation in order to maintain their market share. Additionally, economics courses and instructors consistently receive among the lowest student evaluation ratings of all disciplines (Cashin 1990). Such evaluation scores surely do not necessarily mean that students are learning less in their economics courses. They could be due to any number of factors, including the fact that grades tend to be relatively low in economics classes. Nonetheless, one might think this information would motivate instructors to experiment with different methods. For a profession traditionally concerned about effective teaching (Becker and Watts 1998), it seems surprising that so few teachers are testing alternative teaching tools. Becker and Watts conclude that “…the equilibrium may be one established by convenience, custom, and inertia rather than efficiency or, especially, by what represents effective teaching practices in today’s undergraduate curriculum” (1998 4).

In many other disciplines, however, nonlecture methods are the dominant mode of instruction. To some, such prevalence is a sign of an actual paradigm shift in education. Barr and Tagg describe this change as a movement from the “Instruction Paradigm,” intended to provide instruction, to a “Learning Paradigm,” with the goal to “produce learning for every student by whatever means works best” (1995 13). According to these authors, “in the Instruction Paradigm, a college aims to transfer or deliver knowledge from faculty to students; it offers courses and degree programs and seeks to maintain a high quality of instruction...mostly by assuring that faculty stay current in

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1 Additionally, educators in other disciplines have been using these alternative strategies for some time. See, for example, Chickering and Gamson, 1987 and Cross, 1987.

2 See, for instance, Sax et al.,1996.
their fields. If new knowledge or clients appear, so will new course work. The very purpose of the Instruction Paradigm is to offer courses” (15). In contrast, the purpose of the educational institution in the Learning Paradigm is “to create environments and experiences that bring students to discover and construct knowledge for themselves, to make students members of communities of learners that make discoveries and solve problems” (15). The new paradigm does not exclude the lecture; lecturing becomes, however, just one of many approaches to enhance student learning.

This paper argues for the importance of alternative strategies to promote critical thinking and explores some of these nonlecture approaches to learning. Our teaching philosophy, and this paper, is based upon the assumption that students will be more engaged in the learning process - and learn more - if they are active participants in the learning process. We begin here with an overview of the importance of active learning in promoting critical thinking. We then present three practical examples: 1) a simulation to model the different social locations of various economic agents in the Bolivian debt crisis, 2) service learning to confront stereotyping of the poor, and 3) an active learning exercise, incorporating several nonlecture techniques, to examine hypotheses and statistical data on the changing structure of the American family.

Active Learning to Promote Critical Thinking

Our thinking and practice reflects the mounting evidence that students learn best when they are actively engaged in the course content. Their educations are enhanced when they are exposed not only to lecture as a method of instruction, but to any number of additional pedagogical strategies such as small group work, case studies, the use of writing to learn, and service learning.

One of the reasons for this pertains to learning styles. According to Kolb (1981), for instance, some individuals learn well through processes of abstract conceptualization, while others benefit most by experimentation and problem solving. The lecture approach generally tends to reward those whose learning styles are most conducive to an abstract form of thinking.

The learning of women and members of certain ethnic groups appears to be fostered especially well by active learning methods (Losee et.al., 1995; Sandler et.al. 1996). Referring to work by Bartlett (1996), Lage and Treglia explain that “Women and people of color tend to…process [information] through active experiments” while “Euro-American males and Asians show tendencies to take in information through abstract conceptualization” (1998 36). According to Madison, “…women are more comfortable working in collaborative environments than competitive environments, and they are more successful and persistent when they are comfortable” (1995 158).

As the title of this paper suggests, the aim of the active learning methods discussed below is the development of students’ critical thinking skills. Although a substantive body of literature exists on critical thinking, there is no definitive definition of critical thinking, nor uniform criteria for assessing the extent to which it is occurring (Ruminski and Hanks 1995; Sormunen and Chalupa 1994). Those thinking about the topic tend to agree, however, that critical thinking involves “identifying and challenging assumptions and exploring alternative ways of thinking and acting” (Brookfield 1987 71). Critically thinking students should be able to separate fact from opinion; they should be able to step into alternative positions, understand their underlying premises, and evaluate each with informed and reasoned justification. Critical thinking is generally stimulated by the posing of a problem or the asking of a question, neither of which would have a single right answer.

Typical lecture courses are unlikely to teach such skills, as they tend to be interested primarily in transmission of information. In the words of Haas and Keeley (1998), many teachers “want their students to be familiar with the content and methods of their course and they view a critical thinking emphasis as inconsistent with content coverage” (63). They add that “Textbooks present further obstacles. Most…are organized to cover content

3 Further evidence includes, for example, that provided by Johnson, Johnson, and Smith, 1991; Sharan, 1990; and Slavin, 1990, that nonlecture strategies are associated with higher grades and test scores.

4 See Kurfiss, 1988, for an extensive review of the literature on critical thinking.
rather than to stimulate critical thinking; they encourage an encyclopedic, factual approach to course content. If the language of critical thinking is considered, the level of thinking is often only that of analysis...students are asked to replicate the model or school of thought rather than to evaluate and compare different schools, using their own thinking” (63). As noted earlier, the survey results of Becker and Watts revealed that economic educators lecture predominantly; they also found a high usage of textbooks, with very little incorporation of other types of readings. Our classrooms, in contrast, while not without their problems, have increasingly shifted from the chalk and talk typically found by Becker and Watts. We use a variety of active learning strategies to promote critical thinking, a sample of which are discussed below.

**Example One**

The first approach to critical thinking to be discussed here is simulation, which can take a variety of forms. Professional economists use computer simulations to model and forecast economic events. In conjunction with course work, however, “Simulations seek to mirror real-world situations” such that “Students can...experience many of the same constraints and motivations for action (or inaction) experienced by real players” (Smith and Boyer 1996). Computers can be used with human input to do this. Simulations can also take the form of games. Some economists are conducting in-class “experiments” to give students an experience of the working of a market. Simulations can also consist of role-playing. The different forms need not be mutually exclusive.

The example to follow is of the role-play variety. It has been used with minor variations in two courses, both upper level electives – “Economic Development and “Economics in Latin America” -- in an economics and business department of a small liberal arts college. These courses are composed primarily of economics and business students, but anywhere from 25% to 40% could be international affairs majors. All students are supposed to have background through the intermediate theory courses, though sometimes the international affairs students are less well prepared. In any case, for both classes, the requisite material is reviewed thoroughly, particularly macroeconomics. Class size ranges from 15 to 30 students.

The simulation itself probably should not be attempted in less than one 75 minute class period; it could easily fill another full class or more. It follows several weeks of class reading and discussion on neoliberalism: what it is, why neoliberal policies have been enacted, and general effects of those policies. In considering the effects, prior to the simulation, students have been asked to think about who wins and who loses from neoliberal policies and its pros and cons, both in class discussion and on written assignments. Thus, they have already begun critical thinking on neoliberalism and, as a result, laid some foundation for the simulation itself.

Additionally, prior to the simulation, students are assigned several readings on neoliberalism’s effects specifically on certain segments of Bolivian society. For each reading, they are asked to respond to a series of questions which prepare them for the simulation in general. They are asked to select a group they would like to role-play during the simulation and pay special attention to those questions pertaining to that group. The groups are: government policy makers, IMF representatives, domestic private small business owners, representatives from large domestic private companies, representatives from foreign owned companies, agricultural workers, indigenous people, and informal sector workers. The articles provide little specificity about the IMF and present few concrete policies, so students who have chosen the IMF or government must draw from knowledge gained in prior class discussion and apply that during their turns in the simulation.

Though no one is forced to be in a particular group, each group should have a workable number of members (i.e., no group should have fewer than two). It is possible to collapse a few of the groups into one; for example, IMF representatives are often added to the government group. It is also possible to add groups, depending on class size and student interest. For example, a group named “critics” has occasionally been offered; these students must prepare

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5 See also Bonwell and Eison, 1991; Davison 1984; and Cloke, 1987.
6 Duncan Green, 1995, provides a good discussion of the World Debt Crisis and the subsequent institution of neoliberal policies.
7 For these simulations, students were assigned Farthing, 1991; Farthing with Villegas, 1991; and Rance, 1991.
to criticize neoliberal policies and their effects in general, or they might be asked to critique the simulation as a whole for the class, after the fact. Students are urged to choose a group about which they are least familiar or with whose behaviors they might find themselves in disagreement. In other words, for example, students who have been particularly pro-foreign investment are encouraged to join the groups representing the informal sector or agricultural workers.

On the day of the simulation, students meet in their respective groups for about 15 minutes, having been instructed in a worksheet to appoint a recorder and someone to begin their part in the simulation. They are told that, during the simulation, they will be asked to explain the ways they believe neoliberal policies have affected them, and be given the opportunity to offer suggestions to the government regarding how their interests might be better served. Government and IMF members’ tasks are slightly different, as noted below. Everyone is told they will be able to ask questions of and respond to points raised by other groups. They are encouraged to specify their roles as much as they like; for example, someone from the informal sector could pose as a woman and speak to the issues facing women in particular within that group.

The simulation is begun by the professor, who takes on some form of a facilitating role, such as a government member or a United Nations representative. The stage is set as the facilitator explains the government’s, or UN’s, interest in promoting dialogue among the various Bolivian constituencies. The simulation provides the forum for such a dialogue. Occasionally, students - in the government group - have been asked to play the facilitating role. Generally, however, this places a substantial burden on these students, who then must contribute their part and respond to comments (frequently critical) from other groups, in addition to facilitating the simulation. Thus, it is suggested that the professor play the facilitating role.

The government group then outlines its policies and the rationales for them. Next, IMF staff members can explain their role in policy determination. After these groups have finished, the facilitator invites each group to express its concerns, after which other groups may ask questions if they like.

Typically, at this stage, some groups begin to articulate suggestions and policies to those in the government role who then formulates and offers a response. If this dynamic does not occur spontaneously during the simulation, the facilitator encourages it.

These interactions can be quite lively, and often confrontational. Experiences have included, at the one extreme, overthrows of the government by the lower class groups, and at the other, reversion on the part of the government to populism, reflected in reorientation of policy away from the free market orientation of neoliberalism to a more heterodox program.

Approximately ten minutes before the end of class, the professor will need to end the simulation. These last ten minutes may be for immediate response to the simulation, prompted by the professor asking a general question such as “What is your first reaction?” Then, students are given another work sheet to take home, asking them to write briefly and informally on one or more of several questions. The following questions have been used. “What information or perspectives were not included in this simulation that you think should have been?” “To what extent/in what ways did our simulation mirror reality?” “How did it feel for you to take on your role?” “Were your views about any particular group altered because of the discussion?” “What did you learn from this simulation?” “What were the flaws in this activity; how could it have been done better?” Students may also be asked to do some new assessment of policies, in light of the simulation.

Students have a variety of responses to the question regarding how closely the simulation mirrors reality. Some say it is unrealistic because the government would never listen to a number of the groups as in the simulation. Others say the simulation is realistic and cite such evidence as the detachment with which private investors view the tribulations of various segments of the population, or the hands-tied quality of government. Students are asked to explain why and how they have formulated such conclusions.

When asked how it felt to be a particular group’s member, those who modeled the agricultural or informal
sector workers or indigenous people are generally markedly affected; students often comment that they never considered how constrained the choices of these people must be. Government members are generally most frustrated; they express the feeling that they were in a no-win situation. Usually most students are emotionally affected by their participation in the simulation, in such a way that they understand a perspective much more deeply than previously.

A regular response to the question about what they have learned is that they gained a sense of the complicated process of policy-making. Related, they conclude that there will always be losers. This is, from the professor’s perspective, a very important insight; once it is acknowledged that someone will lose, a meaningful discussion about who the losers should be or about how to minimize loss can be conducted. It is also worthy of note that during the simulation itself, students often come up with policy suggestions that make sense and reflect “out of the box” thinking. For example, an agricultural worker, noting that both foreign business and agricultural workers were complaining about the lack of infrastructure, suggested that, in place of the tax breaks and grants to private entrepreneurs, it would be more efficient and equitable for the government to allocate resources to building roads. Not only would this further the government’s interest in encouraging foreign investment, but it would assist a troubled cohort as well.

When asked about the flaws in the process, students often say that they had not been given enough information about the Bolivian situation. It is explained to students that their acquisition of new information is not most important (although the professor-as-facilitator can ensure that during the simulation informational inaccuracies are addressed), but rather the degree and quality of their engagement with facts that were provided. Most are satisfied with this response.

Students are given a special participation grade for this class. It generally takes the form of a check if they make some contribution, a check plus if their involvement is in some way special, and a check minus if they add nothing to class discussion. Accepting the assignment of recorder gives them a plus for participation; it is hoped that students who are least comfortable speaking out in class will choose to contribute in this way. Similar grades are assigned to the worksheets students prepared at home. Grading is done to encourage student accountability and to reflect the seriousness with which this exercise is taken by the professor.

No objective measure has been used to evaluate advances in students’ critical thinking because of this exercise, but student responses to the questions above and discussion during the next class session, suggest these simulations are worthwhile for meeting the intended critical thinking aim. Finally, it should be mentioned that at least a few students comment on their evaluations at the end of the semester that the simulation was a particularly meaningful aspect of the course. Though such satisfaction doesn’t necessarily imply learning, it does reinforce the professor’s conclusion that the students were engaged in the discussion.

Example Two

This example demonstrates the use of service learning, which has become a catch-all term for essentially any learning opportunity that includes some sort of community service and academic reflection on that service. While there are many reasons a professor might want to include service learning in his or her repertoire of offerings, what will be emphasized here is the way such a course can be used to promote critical thinking. This exercise entails much more student – and professorial – time and energy than the one-class simulation discussed above.

This service learning exercise is utilized in a First-Year Seminar (FYS) titled “Why are People Poor? U.S. and Global Perspectives.” While students are offered a menu of seminars to choose from, all incoming students are

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8 In this sense, the simulation helps make the concept of opportunity cost meaningful.
9 There is much literature on service learning. For some background, see Galura, 1995; Hatcher, 1998; Jackson, 1994; Jacoby and associates, 1996; Sigmon and colleagues, 1996; and Zlotkowski, 1997.
10 See Beckman, 1997.
required to enroll in one of them, and one of the explicit aims of the FYS is to foster critical thinking.

To enroll in the class, students must commit to volunteering a minimum of two hours a week over a ten-week period with someone from a low-income background. Early in the semester, course participants are given a tour of the various volunteer sites by older students who organize activities at those locations through the college’s Community Outreach Center (COC). The tour and an information session are planned by the COC Director and the professor. Most students choose to volunteer with children, either living in a homeless shelter for women and children or in a local housing project. Some students opt to tutor prisoners at a county jail or to work with homeless adults.

Students are required to keep a journal, which is turned in five or six times during the semester. For each assignment, they are given questions to reflect on in their journals, which are then graded with a check for adequacy, check plus for exceptional work, and check minus for deficient efforts. Criteria for grading is primarily the thoughtfulness students exhibit in their entries, which can be less than a page in length each.

A monthly class session is devoted to discussions of students’ volunteer experiences, in light of directed journal assignments and readings. The first session, which occurs before students begin volunteering, focuses on stereotyping. After defining stereotypes and identifying some of their functions as described in two assigned readings,11 students are asked to list stereotypes they believe tend to be associated with the people with whom they will be volunteering. Primarily, these are stereotypes about the poor – poor children, poor parents, the education of the poor, their motivation, their attitudes toward violence and childrearing, etc. The purpose is to get students to identify assumptions they, as well as others, might have about the people with whom they will be working, so that they can test those assumptions against reality. They are asked to comment in their journals, as the semester unfolds, on any evidence they discover regarding those stereotypes. At the end of the semester, they must discuss, again in their journals, the extent to which original stereotypes were substantiated.

The scrutiny of stereotypes through volunteering, related readings, and reflection on both, suggests critical thinking in practice, as defined earlier in this paper. Critical thinking involves identification of assumptions and stereotypes rely on assumptions. It requires a rethinking of those assumptions; students do this as they note any evidence they find throughout the semester regarding the stereotypes. The volunteering gives students an opportunity to step into the situations of others, and from that place to learn more about the validity of the assumptions they have identified. Without the community service, this might be accomplished through readings or film. Volunteer work adds one more location to inform students’ conclusions.

At one point in the semester, we read about and discuss welfare, including the most recent reforms. Students are asked to consider how what they have learned about the poor through their first-hand experience volunteering (as well as from readings) would affect their design of policy. Here another dimension of critical thinking is nurtured: evaluation. The exercise involves identifying what they view as the pros and cons of existing policy, and then to articulate improvements. They are required to justify their decisions.

By the end of the course, students tend to arrive at the general conclusion that poor people are indeed individuals; not all poor people are the same. Prior to their service learning, most have not considered this possibility. In some cases, stereotypes are reinforced by their experience. But when this occurs, students are able to provide reasons for the behaviors that are deeper than they not engaged in critical thinking throughout the course. For example, most students start the semester with the assumption that poor parents are not interested in their children’s educations. While some evidence of distracted or uncaring mothers or fathers is generally observed, students likewise meet parents more involved in and committed to their children’s schooling than their own were. And where this is not the case, students discover some of the reasons parents are not more involved, generally pertaining to a precarious economic situation which requires that both parents work, often at more than one job. Thus, what started out as a very simple situation becomes complex.

11 Readings used are Andre, 1988 and Snyder, 1992.
Students sometimes come to some fairly sweeping new perspectives after these experiences. Two students in last semester’s class, for example, started the semester believing that no welfare program was justified. After getting to know homeless people suffering from mental illness, and despite reading Charles Murray’s work which supported their initial views, they revised their simplistic initial conclusion and allowed for the possibility that some type of public intervention should be undertaken for such people who can not help themselves. The course also prompted them to begin considering what types of intervention might be acceptable to them, and what types would still be insupportable.

Though the emphasis of service learning is not on information acquisition, knowledge is nonetheless obtained. Students come away from the course understanding and remembering at least certain aspects of welfare reform, for example, not because they had to memorize its elements but because they had to evaluate it. An assumption here is by making that evaluation more real, volunteering not only encouraged critical thinking, but also helped students to remember facts.

Students are generally pleased with the volunteer-related aspects of the course. The positive comment recorded on student evaluations most frequently pertains to the value of the community service. The only criticism heard regularly is that not enough class time is devoted to discussing their experiences.

**Example Three**

This exercise incorporates many of the active learning techniques cited in the literature. Specifically, the exercise is student-centered, with no dominant role played by the instructor, as in a lecture; it employs brainstorming as a way to illustrate that students come to the learning enterprise with some prior knowledge; it uses quick, in-class writing as a tool for generating thinking (as contrasted to the use of writing for presenting one’s thinking); it utilizes a popular press reading to engage students with a real-world topic, rather than reliance on a textbook. Additionally, the exercise integrates cooperative learning groups which have been found to “enhance student achievement and … benefit all students, particularly the poorer students, without disadvantaging the better students” (Cameron 1998 249).

The primary purpose of the exercise is to encourage the critical examination of social science data, hypotheses, and their connection to public policy. This exercise takes one class session and may be used in any introductory level social science course. Two instructional materials, with sufficient copies for each student, are needed: 1) A reading from the popular press discussing a controversial social issue, in particular one that implies or specifically articulates the cause(s) and/or consequences of the social problem, and 2) a statistical table (of reasonable complexity) with at least some data related to the topic of the reading. For the example described below, the specific topic chosen was the changing structure of the American family and the accompanying table provided data on household composition, from the Census Bureau.

Prior to any reading or examination of the table, the instructor facilitates a brainstorming session on the question, “What are some of the changes in the structure (or composition) of the American Family?” As various students respond to the question, the instructor lists their responses on the board; this list should remain on the board through the next step of the exercise. Examples of items that students will typically suggest are as follows.

- More divorced families
- More children living with just one parent
- More unmarried people living together
- Fewer Beaver Cleaver families

The purpose of the brainstorming session is to clarify the preconceived notions and assumptions that students hold about how the American family has changed. Further, the brainstorming list will be used – in conjunction with the statistical table - to illustrate our vague and imprecise thinking regarding the American family, despite the fact that this issue and its associated consequences are often seen as critical social problems and in need of a remedying social policy.
The instructor then distributes the statistical table to each student. For this particular exercise, the table contained data on American households from 1960, 1970, 1980, 1990, and 1993. Further, it was broken down into the two subgroups identified by the Census Bureau: family and nonfamily households. Within the former, data were given for all families, married-couple families, male household families, and female household families, and for each of these, the data were provided for those with and those without children. Among the nonfamilies, totals were given and, again, broken down by male and female householder. For all categories described above, both raw data and percents were included. (Census Bureau definitions of household, family, and nonfamily were included in a note at the bottom of the table.)

For introductory students, this table then presents a reasonably complex challenge to unpack. The students are asked to spend a few minutes individually familiarizing themselves with it, gaining a sense of the table’s contents and terminology. This preview step can help reduce the problem, once the students are assembled in small groups in the next step, of those students who are less comfortable with statistical data being overwhelmed by others in their group who offer hasty interpretations. Another strategy to address this problem is for the instructor to ask each student - before moving into the small groups - to identify, by marking on her or his graph, important or interesting trends s/he observes in the table.

Next, the instructor assembles the class in small groups, with approximately 4-6 students in each group, and asks each one to appoint a recorder. Using the brainstorming list as a starting point, each group discusses what the data suggest about the changes in the structure of the American family. Relying on the table to provide supporting statistics and dates, each group constructs a specific statement that highlights an important change in the structure of American households. The statement, comprised of one or two sentences, should be written down by the recorder. The class reconvene as a whole and each group is asked to read its statements aloud to the rest of the class, including exactly where in the table the statistics may be found. For example, given the table used in this exercise, one of the statements might be “Between 1970 and 1993, the proportion of married-couple families in the United States steadily decreased, from 70.5 percent of all households to 55.2 percent. This can be found on Line 5.”

The purpose here is two-fold. Given the profusion of statistics in the media and their frequent manipulation, careful examination of the table gives the student practical experience with the complexity of real-world data and thus ideally an appreciation for it. More importantly, writing a precise, carefully-worded statement that incorporates statistics illustrates to the students in a direct fashion how rarely they encounter such precision and carefulness in the media. Thus, the experience is meant to heighten their ability to be savvy consumers of statistics in the media.

Before moving onto the reading in the next step, the instructor will want to focus the class’s attention on the data in the table that specifically relates to the reading. Alternatively, if one of the groups cover these data, the instructor will want to spend some extra time with them being certain all students understand their interpretation and meaning. Given the reading used in this particular example examines the issue of single-mother families, the the instructor directs the class to the data referring to those families. The students should observe that between 1970 and 1993, the percentage of single-mother families (with children under 18) increased from 4.5% of all households to 7.5%. The instructor will want to point out that reasonable people can disagree whether this represents a substantial increase or not, and individuals may emphasize (or omit) certain statistics to support their point of view. The point of this step, however, is to emphasize the importance of clearly understanding what the data represent and, as indicated above, accuracy in their presentation. For example, the data above represent an increase of 3 percentage points (4.5 to 7.5), but a 67 percent increase. Additionally, the number of these families rose from 2.9 million to 7.2 million (an increase of 148%). The table doesn’t show what percentage of all families these single-mother families represent, but the numbers are given such that it could be calculated. For example, in 1993, 7.226 million divided by 68.144 million is 10.6 percent. Such a discussion will reveal to the students how, depending on how one presents the data, very different conclusions may be drawn about the increase in and prevalence of single-mother families.

In the next step, the students will be asked to read a short article on the changing structure of the American family. Depending on the amount of class time and the length of the reading, you may wish to assign only certain

12 The reading used in this example was Skolnick and Rosencrantz, 1994.
portions of it. This reading is not assigned in advance, for outside of class reading, in order to have the students approach the data and topic with only their preexisting knowledge and perceptions.

To provide a transition to the reading, the instructor explains to the class that whether or not the increasing proportion of single-mother families represents a social problem depends on the consequences associated with this change and whether some of the perceived problems surrounding these families can be directly traced to those family types or some other underlying factor. Thus, the next logical step for students in critically examining this social issue and in beginning to construct their own thoughtfully-considered opinion is to familiarize themselves with some of the debate on single-mother families. The class then reads the article. Additionally, given some students have a propensity for oral learning, the instructor may wish to have those paragraphs that warrant highlighting read aloud, either within the small groups or when the class reconvenes as a whole.

Once the students have finished the reading, the instructor explains that part of their job as critical learners is to understand the many facets of different arguments; in the social sciences this involves understanding the various hypotheses asserted in their reading and how the “solutions” to the perceived social “problems” stem from these hypotheses. First, the instructor explains that hypotheses in the social sciences articulate cause and effect relationships, or that certain conditions will affect human behavior in particular ways. It is typically helpful if the instructor points out that the statistic above (the increase from 4.5% to 7.5%) is not a hypothesis; instead, a hypothesis would suggest what caused that increase or the consequence of that increase.

The instructor asks each student to identify as many hypotheses as s/he can locate in the reading and to state them, in writing, as specifically as possible: “X” is the cause of “Y” or “A” is a consequence of “B.” Depending on the reading used, the instructor may wish to direct the students’ attention to particular paragraphs where hypotheses are either specifically stated or implied. When they are finished, the instructor lists many of their hypotheses on the blackboard, drawing from as many students as possible.

We suggest, in general (that is, not for the purposes of this exercise alone), drawing in more than those students who raise their hand; this can be done in a supportive manner and, given you have asked them to write down these hypotheses, they can simply turn to written lists which for most students is less threatening than being required to think off the top of their heads. This is one of the reasons we frequently ask students to write down an answer before we call on anyone to provide one: it also generates more thoughtful responses and engages a much larger portion of the class in the dialogue.

Some instructors may prefer to guide the students’ reading in advance by asking them to look for the hypotheses as they read, rather than wait until the students have finished the reading to assign that task. This depends somewhat on time and the exact purposes the instructor has in mind.

Examples of the kinds of hypotheses found are: 1) The cause of many social problems (poverty, drug abuse, crime, urban decay, etc.) is the growing number of children raised by single mothers, and 2) Poverty and other kinds of economic hardship are associated with child abuse and neglect, alcoholism, and drug use.

Once the hypotheses are listed on the board, the instructor resumes the small groups. The groups then review the hypotheses on the board and choose those which imply a social problem. Next, they identify a social policy, which may or may not be included in the reading, to address each problem. This step can be difficult for the students, so the instructor may wish to spend some time with each group to help them get started. Also, the instructor may point out that a single policy can address more than one problem.

Each group is then asked to choose one or two of their best examples, where “best” means logically and coherently linked hypothesis, problem, and policy. The students go to the board and reproduce these, using the framework below:

Hypothesis:
Problem:
Policy:
A couple examples from the reading used in this exercise are:

**Hypothesis:** The increase in crime is a consequence of the increase in the number of single-mother families.
**Problem:** The increase in the number of single-mother families.
**Policy:** Make divorce more difficult to obtain; make welfare more difficult to acquire.

**Hypothesis:** Some of the increase in the number of single-mother families is the result of increased child-bearing by unmarried teenagers.
**Problem:** Increased child-bearing by unmarried teens.
**Policy:** Sex education and greater availability of contraceptives.

Choosing one or two examples from the board, the instructor points out that a perceived social problem is dependent upon a hypothesized cause-and-effect relationship, which may in turn be addressed by an appropriately-linked policy.

In the final step, the instructor asks the students to do some in-class writing of approximately one page in length, on the difficult, but important task of carefully and thoughtfully formulating one’s opinion of vexing social issues. When they are finished the instructor asks for volunteers to read their responses to the rest of the class and facilitates a discussion. Questions to guide the students’ writing and the ensuing discussion, for this particular exercise on the changing structure of the American family, are as follows. “How do we arrive at our opinions on social issues?” “What is your opinion about single-mother families; how did you arrive at that opinion?” “What has influenced your opinion about single-mother families; why do you think those factors influenced you?” “What could/would cause you to change your opinion?” “What, if any, public policy do you think is appropriate regarding single-mother families; what hypotheses would support that policy?” “What are alternative hypotheses; what policy would the alternative hypotheses support?”

**Conclusion**

In this paper we have argued that active learning is a means to critical thinking, and have provided some practical examples of active learning techniques we have used successfully in our classrooms. Ultimately, however, critical thinking is itself a means to an end: intellectual autonomy. As Browne and Keely point out in their student guide to critical thinking, “given the prevalence of sound bites, popularity of simplistic arguments, and the deluge of information,” “…there is a great tendency to become passive absorbers of information, uncritically accepting what is seen and heard” (ix). Like Browne and Keely, we are “concerned that too many of us are not actively making personal choices about what to accept and what to reject” (ix). For us, the development of our students’ critical thinking skills moves them away from an unexamined acceptance of others’ opinions and values, and provides them with the means to discover who they are, what they believe, and how they shall live in this world.


REFERENCES


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