What do students want? Feb 2005 version. To appear in *Ideas That Matter*

What Do Students Want?

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"I was fed up with school."–Jane Jacobs, explaining why she did not go to college right after high school (May 2004) "Every city should have a candy factory."–Jane Jacobs, commenting on a child's drawing at the

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I teach at a university. After a recent school year I took Spanish lessons in Guatemala. "Who is your best student?" my teacher asked (in Spanish). I was surprised to realize the question had no answer: So many of my twenty-odd students had done outstanding work, and what they had done was so diverse, that to call one student the best made no sense. But I couldn't say that in Spanish, so I said a name. "[Student X] is very smart?" my teacher asked. I was surprised again. The best work had many impressive qualities – resourcefulness, creativity, persistence, practical value, even courage – but sheer intelligence was not prominent among them.

I had taught two seminars on depression. Most of my students were juniors and seniors; almost all were psychology majors. The work that had impressed me came from the term-project assignment, which in both classes was the same: Do anything related to depression, *anything*, so long as it is off campus (e.g., no library papers) and involves 20-30 hours of work. I mentioned some possibilities – give a talk about depression to a high school class, volunteer for a suicide hotline, make a poster – but I stressed that almost anything would be acceptable. I met with a few students to help them figure out what to do, but beyond that gave them little assistance.

Their final reports about these projects were diverse, unpredictable, and full of emotion. I was stunned how good they were. The most memorable was from a student who had given a high-school talk. She had severe stage fright. Every step was hard for her, but finally it was done. "I walked out of the class [where she had spoken] with a huge sigh of relief," she wrote. "I was so glad that it was over . . . This was a very difficult, but rewarding experience. I was able to overcome my many fears, and talk! . . . Have I changed as a result of this class project? In a way, I have. I learned that if I really wanted to, I could conquer my fear, and do what I have to do." Judged by her classroom participation and her previous written work (summaries of readings), she was in the lower half of the class. But what she had done here was extraordinary. She did it without any help from me.

Two other students, working together, gave a high-school talk that included a quiz, music, pictures of famous people who suffered from depression, and PowerPoint slides. Unfortunately, their audience seemed bored. "Teaching students is definitely not an easy job, and trying to keep students interested is a constant struggle," they concluded.

Two students volunteered at a care facility for the elderly, one hour/week for two months. Their original plan was to give a talk about depression to the residents, but on the first day they found that most of them were "incapable of having a coherent conversation." A woman in a wheelchair, asked what games she liked, "responded by repeatedly asking me if she was going to die, and if she was going to drown." The student was wearing a red coat. As the woman in a wheelchair was wheeled away, she yelled, "Lady in red, am I going to die?" Something learned in a class led one of the students to try making "more physical contact with the residents, such as holding their hands or putting a hand on their shoulder when talking to them. This small change

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in our behavior made a huge difference in their behaviors. . . . By simply holding a resident's hand, they smiled more, answered questions, they seemed more aware of our presence and seemed glad to see us." Many of the residents were depressed. The students made a brochure about depression in the elderly and left copies on the front desk. "To see how people with no power, independence, or resources live their lives is an eye-opening and valuable experience," one student wrote. If these conditions were better known, "we wouldn't let people live like this."

Three students attended support groups for persons with depression. One went just once. She suffered from depression and had had great difficulty admitting this to anyone, including her parents. At the student health center, a counselor had said, "If you can't tell me your problem, I can't help you." She had signed up for my course not knowing the topic. At the support group meeting, she was "kind of shocked to hear [herself] saying, 'diagnosed.' " The discussion led her to realize she had probably been *mis*diagnosed – that the correct diagnosis was bipolar disorder. Another student found striking differences between the Berkeley support group (thriving) and the San Francisco support group (half-dead) and drew conclusions about how to run support groups. The third student who attended support groups interviewed some of the participants to learn why depression and addiction go together. Depression causes addiction, she concluded. First, all her interviewees said that "the depression was more difficult to overcome than the addiction." Second, "depressive symptoms were present in one form or another during childhood or young adulthood, before the addictions had developed." Third, in cases where the person interviewed had managed to avoid the addictive substance (e.g., stay sober), "all had reported depressive episodes after having been sober for a significant amount of time." Should the hundred-billiondollar War on Drugs have been a War on Depression as well? She took the class pass/fail.

Three students worked at a suicide hotline, a commitment of more than 30 hours. "Each Wednesday before my shift I'm nervous that I'll screw up at something with so little allowance for error," one of them wrote, "but every night at midnight I feel like I've accomplished something that will matter." Another student constructed a small enclosure with an accompanying tape of words and music. Being inside the enclosure while listening to the tape was supposed to evoke the experience of being depressed. Another student made drawings. Other reports involved interviewing religious leaders and leading a discussion group of high-school boys. Not a dud among them.

It would be embarrassing to say how much better this was than what my students did with more conventional assignments. Why was it better? Well, I was the same. My students were the same. Only the assignment was different. The anything-off-campus assignment also produced excellent work with a seminar on weight control.

The idea for the assignment had come from Joanne Ikeda, who teaches a nutrition education course at my school. As part of that course, each student gives a series of talks to a third-grade class. That's a nice assignment, I thought when she told me this. My students could give a talk about depression to a high-school class. At first, I offered this option for extra credit. I liked the results. One student wanted credit for his suicide hotline work. So I expanded the possibilities beyond a high-school talk. More good results. Then I made it an alternative to a term paper. More good results. Finally it replaced the term-paper assignment.

To see if the basic idea could be expanded, I devised a class called *Psychology and the Real World* in which the off-campus work was almost the whole course. Students did off-campus

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volunteer work or internships related to psychology – at least 60 hours during the 15-week semester. The class also included weekly discussions and three short papers. I have taught this class twice. Students have worked at a television show (about happiness), a rape crisis hotline, a shelter for battered women, a nursing home, a hospital, a hospice, a mental hospital for the criminally insane, a home, a high school, an elementary school, a homeless shelter, a community health clinic, and an HIV testing clinic.

Their time has been well-spent. During a class discussion, one said that she had learned how much she liked doing volunteer work and that she would continue to do it after the course was over. In her final paper, another wrote, "I have found that I really enjoy working with and helping people." More surprising were these comments: "Another wonderful strength of learning outside the classroom is meeting other people with similar interests in a real world setting" and "there does not exist any type of [formal] learning like the contact between two human beings" – how true. After the class ended, one student sent me an unsolicited email. "I learned more useful personal and professional information in your class this semester," it said, "than any other here at [the University of California at] Berkeley." Another student wrote that "the training at Bay Area Women Against Rape [her volunteer work] has finally shown me how to heal and overcome my past [of childhood sexual abuse]. . . Professor Roberts, thank you, thank you, thank you!" My traditional classes never elicited such comments.

The term projects and *Psychology and the Real World*, I saw, drew on a little-noticed, rarely-used force: a student's desire to learn what he or she chooses to learn. I came to believe that what I had seen had broad implications because of a theory of human evolution that I thought of around the same time. The theory is heavily based on the work of Jane Jacobs – or, at least, on the economic truths that she has articulated more clearly than anyone else.

Were two hedgehogs, or two grasshoppers, or two salmon to meet at a party, one would *not* ask the other, "what do you do?" Because they would already know. All hedgehogs, grasshoppers, and salmon make a living the same way. Humans, unlike any other animals, make a living many different ways. Many prominent features of human nature make sense as adaptations (brain changes) that made this possible.

A woman enjoys baking. She bakes more than she and her family can eat. At first, she gives the excess to friends. Running out of friends, she discovers that a local store will sell what she makes on consignment. She bakes more – in effect, she has a part-time job. She buys better equipment. She tests recipes. She places her work in stores farther and farther away. If successful enough, her part-time job turns into a full-time one. I believe that this sequence – (1) hobby; (2) hobby with small surplus given to friends; (3) small surplus traded to strangers (part-time job); (4) large surplus, traded to strangers (full-time job) – is how human economies began.

To make this progression our brains changed in several ways. We can see these changes in various features of human nature not found in our primate relatives:

1. *Hobbies*. The first difference between humans and our ancestors, the difference that led to all the other differences, was manual dexterity. Humans could make tools, use tools, and, especially, through long trial and error, make better tools. We were a successful species *before* tool making – in a day we could gather at least a day's worth of food. Tools made food-gathering more efficient and thus provided free time. To make good use of that time, our brains changed: We came to enjoy hobby-like activities. Hobbies are done intensively, year after year, for their

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own sake. In most cases they have no economic payoff (the model airplane hobbyist does not sell his output); they are simply enjoyable. They usually involve a gradual growth of knowledge and skill. Often they involve making things. During prehistory, the "hobby instinct" slowly generated better tools, perhaps over hundreds of thousands of years.

2. Friendship and reciprocity. With most tools, one is enough. Two instances of the same tool are usually no more useful than one. Considering the cost of protection and storage, the second instance may have zero or negative value. The hobbyist who has become very good at making knives is better off already – he has a better knife – but his situation would improve further if he could make extra knives and trade them, even if what he got in return had only a little value. To promote this sort of trade, friendship evolved. Many animals work together (e.g., hunt) in pairs or small groups, but human friendships exist outside of work. Part of most friendships is a vague reciprocity: You give a friend a gift or do a favor and eventually you expect some sort of payback. The reciprocity is vague because the value of the payback need not be close to the value of your gift or favor; nor is there is a clear time limit for repayment. Once friendship and reciprocity developed, hobby time paid off not only with things for one's own use but also with gifts for friends – gifts that were an investment of sorts, because they would eventually be repaid with other well-made things, your friends' specialties, that you yourself could not make. Thus friendship supported economic development.

3. *Procrastination*. Many tools, such as knives, made by prehistoric man had an infinite learning curve. With more practice, more trial and error, you could always do better. A knife could be sharper or have a better handle, for example. Once the products of expertise were spread by friendship, it was better for a community if different people specialized in different tools. Diversity of hobbies (i.e., expertise) was needed. One solution was a mechanism that today causes procrastination. This mechanism makes it more pleasant (and therefore easier) to do what you have recently done and less pleasant (and thus harder) to do what you have not recently done, *recently* meaning over the last few days. On Tuesday it will be easier to do what you did on Monday, and harder to do what you did not do on Monday. The effect of this mechanism is to push everyone, even identical twins living in the same environment, in different directions. On Monday, purely by chance, Joe does X and Bob does Y. On Tuesday, this mechanism causes Joe to be more likely to do X than Bob and Bob more likely to do Y than Joe. Thus random differences in activity are magnified. As the activity differences become larger and persist, Joe and Bob will eventually become experts at different things.

4. *Spoken language*. Tools begat other tools – the number of useful tools grew. Production rates increased. Durability increased. All three trends exposed the limitations of friendship as a medium of trade. The more tools available, the less likely your 10 or 20 friends can provide all of them. The more of your specialty you make each year and the longer each one lasts, the less likely your friends can use your entire output.

Thus trading with strangers became worthwhile. Trade with strangers, unlike "trade" with friends, required reciprocity that was immediate and precise. The reciprocity needed to be immediate because you might not see your trading partner again; it needed to be precise (you needed to know exactly what you were going to get) because one cannot trust strangers as much as friends. Before language, trading with strangers was very difficult. It was very hard to tell who (a) wanted what you wished to trade and (b) had a surplus of something you wanted. Spoken

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language solved this problem. Just one word – say, *knife* – made it much easier for persons who wanted a knife and persons who had extra knives to find each other. You could tell strangers that you had knives to trade by saying the word "knife" – just as the sellers in a Guatemalan market repeatedly shouted one word, the name of what they were selling. A different intonation ("knife?") tells strangers you want a knife. At one point in Guatemala, I wanted to buy contact lens solution. Learning the Spanish name made this *much* easier. Nouns promoted trade in goods. Verbs promoted trade in services. Spoken language promoted trade between strangers not only because it helped make the necessary connections but also because a common language implied other commonalities. With languages go customs. An American I met in Guatemala who had started a business there found that Guatemalans had all sorts of "weird business practices."

Modern languages support this explanation of how language began in two ways. First, almost all the nouns in every dictionary I have seen describe man-made things that are traded (*cup*, *bowl*, *hat*, etc.). Only a tiny fraction (e.g., *sun*, *tree*, *smile*, *mother*) describe things or activities that predate technology. Second, common adjectives in English and other languages make it easy to distinguish thousands of chairs (*tall chair*, *blue chair*, etc.), which facilitates trade, but not thousands of different emotions, weather conditions, or trees, which would not facilitate trade. Communities that share only a pidgin (simplified) language–imported workers, for instance–use it for trading and little else.

5. *Decoration.* Trade with strangers made expertise more profitable. Strangers could supply a much wider range of goods and services than friends; among 1000 strangers, there was probably someone with more desire for your output than any of your 20 friends; and, in contrast to friendship, what you got in return was immediate and known in advance. As profits increased, so did free time. How should the new free time be used? As a source of economic growth, trading has a major limitation: It only can only increase the production and quality of *useful* goods and services, things worth trading for. It does not encourage the invention or development of anything useless. Yet many seemingly-useless lines of work – activities that at the beginning produce nothing useful – turn out to be useful. Suppose Tool Y (new) is better than Tool X (old) but that the research required to make Tool Y requires many years; and perhaps Tool Y cannot be foreseen when the work begins. In a simple trading-for-tools economy, no one would do such work. The time would be better spent making things that other people wanted.

Long-term economic health would benefit if people were paid for making and improving seemingly-useless things, things that might eventually lead to useful things. A kind of prehistoric grants program was needed. The persons doing research that would eventually generate these new tools needed to be paid for their work *before* it paid off, even when no one knew how or if it would eventually pay off. New tools would arise from new materials and new ways of shaping them (advances in material science, in other words) so not *all* research needed support. Astronomy and psychology would not help, for instance. The necessary grants program in material science was provided in several ways. One was by the evolution of *love of decoration*. Our aesthetic standards are low and high at the same time. It is not too hard to make something attractive. It is much easier to make something new and attractive (attractive enough to be desirable) than something new and useful. Yet there is always room for improvement. Animals have a primitive aesthetic sense: They prefer symmetric mates, for instance. Presumably our aesthetic sense grew from that, becoming sensitive to other qualities (not just symmetry) and

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activated by more things (not just potential mates). People began to spend their spare time making decorations, including cave art. As decorative skills and knowledge slowly grew, some of it turned out to be "practical"–good for tool-making. Cyril Smith, a professor of material science at the Massachusetts Institute of Technology, noted that for his history of metallurgy "many of the primary sources . . . were objects in art museums" because many important metallurgical techniques were first used by artists.

6. *Fashion*. To increase diversity of decoration research, another addition to our brains was whatever causes fashion – changing preferences for decoration. Fashion pushed artist-researchers to find new tricks, because new tricks would fetch a higher price than old ones.

7. *Music*. More support for material science came from the evolution of *enjoyment of music*, which created a demand for musical instruments. This demand, and the higher price one could get for better instruments, supported research on how to make better instruments. As with decoration, our musical standards are both low and high: Many things can be a drum, yet improvement is always possible. The materials and skills needed to make things sound better were surely quite different than those used to make things look better.

8. *Collections*. Yet another bit of human nature that supported material science was the *urge to collect* – form collections of such things as erasers, man-made frogs, Disney pins, and so on. Collectors will pay more for this or that rare object than the rest of us. Rarity can arise by accident (a misprinted stamp) but usually it means that something is hard to make. Thus collectors support artisans who are pushing the envelope of their craft. Collections often consist of intricate, visually-similar items. Once a person has started a collection, gathered a few items, two other aspects of human nature come into play. First, we enjoy seeing similar things side by side. Repetition is a very common decorative motif; we enjoy synchronized dance, synchronized swimming, parades (synchronized walking) and air shows (synchronized flying). This tendency pushes the collector to display the items in his collection side by side. Second, side-by-side comparisons create connoisseurs - persons who notice, and are willing to pay for, small differences. I discovered this effect when I sampled five different lemon liqueurs. Sip of one, sip of another, and so on. Within moments, I noticed differences that I had not noticed before: Some of the liqueurs had a complexity of taste that others did not. This realization changed me: I derived more pleasure from the better ones and less pleasure from the rest. In other words, I became pickier. That I got more pleasure from a better lemon liqueur meant I would pay more for it. Before the sampling, I had drunk plenty of lemon liqueur, but I had not made side-by-side comparisons and had not become picky. I have since had the same experience with several other foods, including orange marmalade, nonfat yogurt, chocolate, cheese, and salmon: Side-by-side comparisons quickly revealed differences I had not previously noticed and increased how much I would pay for the better versions. Connoisseurs reward skilled craftsmanship.

9. *Rituals and ceremonies*. Every culture has rituals and ceremonies, implying a genetic basis. They too reward high-end artisans because they increase usage of things that are difficult to make. Christmas is a good example. Eggnog, a complex and expensive drink, is sold only around Christmas, at least where I live. Christmas trees *need* ornaments, greatly increasing the market for fragile but beautiful things. Christmas cards often involve very fancy (and expensive) printing. Indeed, *fancy* is an excellent description of the rare, expensive, hard-to-make products that "special occasions" somehow require. Moreover, rituals and ceremonies often involve gift-

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giving (e.g., birthday parties). When Person X buys a gift for Person Y, the gift is often something that neither X nor Y would buy otherwise. Thus gift-giving, by increasing the diversity of what is bought, increases the diversity of what is made. But the whole economy is not affected equally. Gift shops are not random assortments. The type of goods in a gift shop – fancy – indicate that ceremonial gift-giving supports the most skilled craftsmen, the ones who define the state of the art. The most skilled artisans, it is safe to say, were the most innovative.

If the diversity of interests and skills shown by my students had a name and was found everywhere (like hobbies, procrastination, language, decoration, etc.), it could be Number 10 on this list. A healthy economy is a diverse economy, and a diverse economy requires that young people end up in a wide range of jobs. Diversity of jobs is obviously increased by diversity of interests and skills. My observations were very restricted, of course: Only one school, only one major, only two types of classes, to mention just some of the limitations. But because the diversity of interests and skills among my students fits so well theoretically with these other features of human nature (hobbies, etc.), I believe it will turn out to be equally universal and powerful.

My students had passed through several filters, each making them more similar. It was hard to get into the university. Only a small fraction of admitted students chose to be psychology majors. Only a small fraction of psychology majors chose my course. Nevertheless, great diversity of interests and skills remained, suggesting how pervasive it is. Imagine the diversity in a high school class!

Limited information-gathering supports the conclusion that what I saw is widely true. I told another psychology professor about my term-project experience. She was not surprised. "The more freedom you give students the better they do?" I asked. Yes, she said, that was her experience. A friend of mine said that the assignments in his schooling that he remembered with real enthusiasm, where he had learned the most, were ones where the assignment was his own idea. John Taylor Gatto, a former high school teacher who writes about education, had experiences similar to mine. A student who had done badly in the classroom thrived when given an internship with a cartoonist, something that interested him. Gatto helped many students do internships.

Formal education resembles agriculture. Agriculture greatly reduced the diversity of the human diet. Before agriculture, a person might have eaten 80 different foods each week; after agriculture began, far fewer. Agriculture caused a big decline in health because its fundamental assumption – it is okay to eat a small number of foods – is false or at least very hard to reconcile with nutritional requirements. Likewise, formal education (classrooms, lectures, textbooks, etc.) surely reduced the diversity of what was learned, how it was taught, and how learning was measured. With few exceptions, at least at my school, every student in a class is taught the same material (e.g., given the same reading assignments) and tested the same way. This is contrary to human nature, I believe. The students do not all have the same interests (so a large fraction of the material will not interest many of them) and do not have the same skills (so any one test of learning, no matter what it is, will serve some of them poorly). Just as bad diets stunt growth and cause disease, treating all students the same, a core feature of formal education, stunts learning and causes many other problems (boredom, anguish, lack of self-respect . . .). A better educational system would take care to treat every student differently – or allow every student to find his or her own path.

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The Tomoe School, a primary school in Tokyo, existed only from 1937 to 1945, when it burnt down. Its founder, Sosaku Kobayashi, was heavily influenced by an earlier educator who had "advocated a sufficiently free curriculum to bring out the child's individuality and promote self-respect," according to a 1981 memoir about it (*Totto-chan* by Tetsuko Kuroyanagi) that was a huge best-seller. At the beginning of the school day, the teacher would put a list on the blackboard of the subjects and questions to be covered that day. The students could work on them in any order. A student's choices helped the teacher learn about him or her and tailor the curriculum appropriately. For whatever reason, the students – who had often had trouble at other schools – loved it. "Nobody wanted to go home when school was over," wrote Kuroyanagi. "In the morning we could hardly wait to get there."