ultiple Intelligences, Multiple eans of Composing: An Alternative ay of Thinking About Learning

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Why do schools value one type of product (writing) over other types of products (drawings, dances, musical scores)? This value is primarily based on tradition; schools have historically valued linguistic performances and non-linguistic interpretations do not have the same privileged status among students, teachers, or administrators.

Q: What does it mean to be an intelligent student in this class?

A: [Laughs] Well, it's just common sense. Here in Home Ec we call ourselves the Basket Weaving department.

This excerpt comes from an interview I conducted with a home economics teacher in a high school where I have observed roughly 20 percent of the faculty across the curriculum. I find it a very revealing statement, one that suggests much about what is questionable in the ways we think about intelligence in U.S. schools. In this article I explore the conventional ways in which intelligence is defined in schools, and present some alternatives that emerge from Howard Gardner's idea that human intelligence is exhibited much more broadly than is usually assessed in our classrooms.

The home economics department in this school offers courses in such areas as sewing, interior design, and family planning. In the sewing class I observed, every student in the class was on task for virtually the entire period. The students (almost all girls) were making clothing that they would wear, and therefore were greatly concerned about getting the final product right. They were using what Gardner would call "spatial" intelligence as they measured their own bodies and then cut sections of material

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that would fit them properly. In addition, they needed to make decisions about the colors and patterns that suited their complexion, hair color, body shape, and the mood they hoped to convey through their appearance. They were as sensitive as all teenagers about the way they looked and were deeply concerned about the choices they made and the craft behind their work. When they would make a section of clothing, try it on, and find it didn't fit properly, they would immediately undo their work and redo it until they got it right.

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Their process of production was highly social, with students asking one another's opinions, helping one another with problems, and providing feedback and support for one another's efforts. The teacher played a similar role, providing hands-on help for students who were having difficulties with their work. When students would finish a garment, they would display it with pride to their classmates, who would admire it and praise their work.

When I observed these same students in other classes, I rarely saw the same level of interest, involvement, commitment, or energy in their schoolwork. A student who would readily tear out a stitch and re-do it would complain when asked to revise an essay for an English class. A student who was concerned with the most minute details of her stitchwork would wonder why she needed to write history papers with impeccable citations.

In other words, students who would "compose" meaningful "texts" in their home ec classes with great concern for precision and appearance could not see the point of composing written academic texts with similar attention to the requirements of propriety of form. In spite of these students' remarkable personal investment in their productions, in the eyes of the school the home ec classes are marginal, not central to the "core" of academic knowledge, physically located on the periphery of the school building, and generally regarded as appropriate primarily for non-college bound students.

I would like to return at this point to the interview excerpt reported at the beginning of this article. Several points are worth making. First of all, even in the opinion of the teacher, sewing does not require intelligence but "common sense," something roughly equal in cognitive complexity to knowing not to play in the traffic. Yet, if common sense were all that were necessary to sew, we could all do it.

Gardner's theory of multiple intelligences proposes instead that tailoring clothes requires spatial intelligence, the knowledge of how to con-

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figure space to make things work. Those of us who lack spatial intelligence would never wear the clothes we make in public; and some of us might not even be able to recognize our creations as clothing. Yet, the students in the sewing class I observed produced meticulously detailed work, took great pride in their final products, and developed skills that undoubtedly served them well years after their graduation.

The second observation I would make about this brief excerpt is the correlation of home economics with "basket weaving," a suggestion on the teacher's part that home economics requires little intellect. When I shared this story with my University of Oklahoma students, most laughed knowingly. One Native American student, however, responded with a look that was somewhere between puzzlement and anger.

"Why," he asked, "does everybody think that basket weaving is so easy? In my community only the greatest artists are basket weavers. Have you ever tried to weave a basket?"

His question humbled me, because I had initially taken the teacher's comment at face value and understood her analogy to mean that home economics was a simple, unchallenging endeavor for students of low-level brainpower.

Just as I had always underestimated the intellectual work involved in sewing, I had depreciated the intelligence required to engage in basket weaving. In both cases, there is a strong cultural bias that undervalues such work, placing it in the realm of "handedness" instead of the supposedly loftier "headedness." Gardner helps us see that the two do not stand in opposition, but that our handiwork is an intellectual process.

My observations in this high school have taken me to other parts of the building typically regarded as being populated by those of lesser intellectual endowment. Among the most fascinating parts of the school is the agriculture department, again located on the margins of the school facility in a distant, detached building adjacent to the athletic department's weight training room.

One class I observed focused on equine management and production, and required students to design a functional, profitable horse ranch. To do so, students needed to understand all the living and breeding needs of a specific type of horse and design an appropriate environment for them. They needed to know the proper size of the stalls for their breed, the design of the breeding area, the layout of the paddocks, the amount of exercise area, and other aspects of spatial layout.

They also needed to understand the climate of the area in which they were building the ranch and adjust the roof pitch for snow runoff and the building height to best avoid tornado damage; place the barn on the

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ranch so that rainfall would run downhill and not flood the facility; design the interior road system for maximum efficiency in manure disposal and other mundane chores; calculate the mix of the feeds to provide proper nutrition for the specific breed and functions of their horses; design the barn so that the office where business would be conducted would not be affected by veterinary lab odors or other distractions; design living quarters for farmhands that allowed living comfort at minimal cost; and otherwise synthesize a tremendous amount of working knowledge of horses, meteorology, mathematics, human nature, nutrition, breeding, veterinary science, and other aspects of horse ranch management in their production of a drawing of the layout of their ranch.

One class I observed focused on equine management and production, and required students to design a functional, profitable horse ranch.

As in the sewing class, the students produced these drawings in a dynamic, purposeful environment. Students produced several drafts of their ranches, which they would show to their teacher and other students throughout the process of production. They relied on one another's expertise to assist them in their compositions. They frequently revised their ideas as they worked toward a final conception of their ranch. Like the students in the sewing class, they took this work very seriously, much more so than the "academic" work in their core courses that involved many of the same processes. And, like the students in the sewing class, they were not taken very seriously by the other students, faculty, or administrators in the school.

Why Schools Downplay Practical Classes

I would like to discuss the reasons why classes in home economics, agriculture, and other "non-academic" areas are not taken seriously in schools; why they are thought to rely on common sense rather than intelligence; why, even though they involve geometry and algebra, they are not regarded with the same esteem as mathematics department courses that require similar though more abstract computations. One has to do with the practicality of the work the students do. U.S. schools have traditionally valued abstraction, as Bloom's sacred taxonomy clearly reveals.

Something that has immediate and concrete application, such as the construction of a blouse, the tuning of a car engine, the production of a lamp, or the sustenance of a horse is viewed as less important than something that exists primarily on the symbolic level. Solving math problems through the computation of symbolic formulas is seen as more important than computing a feed mix that animals will eat; bisecting angles on paper

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is seen as more important than cutting patterns that actually fit together on a person's body. As long as this set of values holds up, students in "practical" courses will always produce work that is undervalued.

Interestingly enough, the ability to perform on the symbolic level often bears little relation to a person's ability to function in the real world. Academic scholars, for instance, are infamous for developing theories that do not work when applied to real people. On a more immediate level, people who can perform mathematical operations in real, concrete situations often cannot perform the same calculations on paper: In a study by Lave, Murtaugh, and de la Rocha (1984), shoppers who were infallible in their ability to calculate the best bargains from an array of choices in the grocery store solved fewer than half an identical set of problems presented to them in mathematical formulas. With schools so greatly emphasizing abstraction rather than performance, it is little wonder that so many students find school irrelevant to their life.

Studies of Composing Processes

In a series of studies on high school students' composing processes (Smagorinsky, 1991, 1995a, 1995b; Smagorinsky and Coppock, 1994, 1995a, 1995b) I have argued that educators need to consider the potential for unconventional composing processes to enrich students' experiences in school. Through the process of composing—whether the composition of an essay, an article of clothing, a set of architectural plans, or other type of text—students have the potential to construct meaning in two ways. One is through the changes they experience *during the process of composing*.

Through the act of translating their thoughts into a material product, learners often develop new ideas about the object of their thinking. For instance, I have studied students who have interpreted literature by drawing, dancing, and acting out the relationships between characters. Typically, their process of interpretation produces new insights for them; the process of composing their interpretive text actually changes the way they think about the literature they are reading.

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The second way in which students construct meaning is through their deliberation on the material text they produce. A student who writes or draws an interpretation leaves a product behind, and this product becomes a symbol that the student can use to promote further reflection (and often reconsideration) of the ideas that produced it. The

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question I have asked through my research is: Why do schools value one type of product (writing) over other types of products (drawings, dances, musical scores, etc.)? The answer is that this value is primarily based on tradition; schools have historically valued linguistic performances, as Gardner has pointed out, and non-linguistic interpretations do not have the same privileged status among students, teachers, and administrators. From my studies, however, I have argued that there is no psychological foundation for valuing writing over drawing or dancing; schools value writing primarily because that is what they have always done.

Unfortunately, once the assessment deck gets stacked, it is very difficult to unstack it. With historical values institutionalized in standardized assessment practices, it's hard to persuade educators and their constituencies that alternative ways of learning are equally valuable. In research I am currently conducting on artistic interpretation of literature in a mainstream high school English class, I'm finding that even though most students enjoy artistic interpretations and know they learn from them, they worry they are falling behind students in other classes who follow a more conventional path. They worry that when they work in a group to produce a "body biography" of a literary character—that is, an outline of the character's body with illustrations of significant aspects of their personality, actions, and influences—they are not preparing sufficiently for assessment in their next English class, or for college essay writing. In other words, they are not able to evaluate their learning experiences in and of themselves, but instead view them with a worried eye toward the conventional genre of school performance that are being practiced elsewhere.

What To Do?

And so, what's a school administrator to do? School values are difficult to change. Although Gardner has begun to break into the mainstream of educational thinking, it is still hard to persuade the conservative, middle class teaching profession to do things radically differently from the ways in which they themselves were taught in school, or from the ways they believe best prepare students for a conventional college experience. I think the greatest obstacle to the broader recognition of multiple ways of learning is the mindset that, as Gardner has argued, values linguistic and logical/mathematical intelligence over all other ways of knowing.

One solution, I think, is to encourage teachers to observe the classrooms of teachers from other disciplines. I think some of my greatest growth as an educator has come through my observation of classes in history, mathematics, agriculture, home economics, drivers education, art, acting, special education, architecture, business, and other disciplines. These

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observations helped me to see the ways in which students legitimately construct meaning across the curriculum, and helped me to consider the narrow ways in which I assessed my own students.

Unless teachers engage in this same type of critical reflection, I doubt whether schools will ever adapt their ways to meet the psychological needs of students. ***~B***

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