

Early Social Understanding: What Do Children Know about Food, Shelter, and Other Cultural Universals?

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MUCH OF THE CONTENT commonly addressed in elementary social studies is focused on cultural universals, domains of human experience that have existed in all cultures, past and present. These include the basic needs of food, clothing, and shelter, as well as family structures, government, communication, transportation, and several others. Although activities relating to cultural universals can be identified in all societies, their perception and practice vary.

Early social studies teaching tends to focus on cultural universals for two major reasons. First, human activities relating to cultural universals dominate everyday living and are the focus of much of human social organization and communal activity. Therefore, instruction on cultural universals provides many natural starting points for developing initial social understandings. Second, children from all social backgrounds begin accumulating personal experiences with cultural universals right from birth, and they can draw on these experiences as they learn social education concepts and principles.

Educators who approach the subject of cultural universals analytically can help students develop a valuable understanding of how our social system works, how and why it got to be that way, how and why related practices vary across location and culture, and what all of this means for personal, social, and civic decision making.

For educators to build on their students' knowledge and to address misconceptions, however, they need more information about the trajectories in children's development of

basic social understandings. Although some research has been done on the developmental stages of students' economic, political, and social knowledge, very little such information exists for the social studies.

The authors of this article have been studying the progress of children's knowledge for content commonly addressed in elementary social studies, particularly in the primary grades. We have conducted interviews with large samples of children in grades K-3 to elicit their knowledge and thinking about cultural universals. Our findings should be useful for teachers of grades K-3 in planning instruction about cultural universals, as well for teachers

"Research and Practice," established early in 2001, features educational research that is directly relevant to the work of classroom teachers. Here, I invited Dr. Jere Brophy and Dr. Janet Alleman to consider the question, "What do children know about cultural universals such as food and shelter?"

—Walter C. Parker, "Research and Practice" Editor, University of Washington, Seattle.

of grade 4 who need to understand the prior knowledge and misconceptions students are likely to have. Although most surveys of students' social studies knowledge concentrate on isolated facts, with findings that illustrate what percentage of students answered which item correctly, our studies focus on the qualitative aspects of children's thinking, as well as commonly held misconceptions.

Below, we present highlights of our findings on children's ideas about shelter, clothing, and food. We also explore methods that humans have developed for addressing these basic needs. The findings were derived from individual interviews conducted with urban



Rokeby School students check out their work after raising a tipi, September 25, 2001 in Rokeby, Nebraska. The students built a tipi similar to the ones the Omahas inhabited for generations as part of their studies about Native Americans.

and suburban Michigan students in grades K-3, stratified according to socioeconomic status, achievement level, and gender.

Shelter

Our first study focused on shelter.¹ Most students understood that shelter is a basic need, even in warm-climate places like Hawaii. They gave good explanations for why people need shelter (for protection against the elements and to provide a place to keep possessions). Their ideas about prototypical homes from the past, however, emphasized description over explanation and form over function. For example, they usually recognized differences in size, construction material, durability, and general quality of Native American pueblos, longhouses, and tipis depicted in illustrations, but they did not understand much about the historical, geographical, or cultural reasons for these contrasting housing styles.

Students seemed generally unaware that housing types reflected differences in climate and local availability of construction materials; many students thought that the Native Americans who built pueblos could just as easily have built longhouses. Students also did not realize that certain native tribes were nomadic societies that moved with the buffalo, and that for these groups, portability was a crucial quality of tipis. When asked to explain why certain tribes used tipis, students usually suggested reasons such as that tipi dwellers were poor people who could not afford better homes, that tipi dwellers preferred a tipi because they could build a fire in it and the smoke would discharge through the hole in the top, or that those who lived in tipis needed something to do with the leftover animal skins that they didn't want to waste.

The children's ideas about the log cabins of pioneers were more accurate and less fanciful than their ideas about Native American homes, but even so, misconceptions were common (e.g., that the cabins could easily collapse because the logs weren't nailed

together). Most of the students emphasized the deficiencies of these homes rather than appreciating them as inventive adaptations to a time and place.

In thinking about contemporary housing, the students focused on what is visible inside and outside the home but did not show much awareness of what is in between the walls or beneath the building. They usually showed little appreciation of homes as controlled environments for comfortable living or of the mechanisms that bring us instant access to light, heat, or running water. Most under-



Students gather in the tipi Tuesday, September 25, 2001 for the First Grade Days at Glenwood Elementary School Outdoor Learning Center in Kearney, Nebraska and learn about the Indian way of life, including how the the tipi was made and would be moved when needed.

AP Photo/Kearney Hub, Brad Norton

stood that water is piped into homes, but many did not appreciate that this water is drawn from fresh—rather than salt—water sources and purified before being sent to homes; and students did not realize that it arrives under pressure.

Most understood that thermostats are used to adjust heating, but were vague about where the heat comes from or how the system works. Their thinking progressed from believing that a utility company supplies heat directly and the furnace is merely a storage place, to knowing that heat is generated in the furnace but not knowing how, to knowing that the furnace contains a fire that heats air. Most knew that electricity is involved in creating light, because they knew that one must throw a switch to allow electricity to enter the bulb. However, they were unable to explain how the arrival of electricity causes the bulb to light up.

Most of the students believed that most people prefer homes to apartments. However, they had difficulty explaining what is involved in renting apartments and why some people choose to do so; and some of the younger ones confused apartments with hotels or institutions that care for the elderly. Only a few understood that renting is a profit-making business or that people can get mortgage loans to allow them to move into a home before they have accumulated its full purchase price. They thought that people who live in apartments do so only temporarily because they are waiting for a house to be constructed, waiting for a house to become available, or have not yet accumulated enough money to buy a home.

Because we conducted our initial study in a primarily horizontal, low-density Michigan suburb, we later interviewed in primarily vertical, high-density Manhattan.² Despite dramatic contrasts between these built environments, the students' responses to our shelter interview were more similar than different. The New York City students were less likely to say that most people prefer homes to apartments or to confuse apart-

ments with hotels, but they knew less than the Michigan students did about the sources of water, light, and heat in modern living quarters. Many of them had boiler/steam rather than furnace/forced air heating systems, but they were no more likely to understand that

fire is used to heat water in a boiler than the Michigan students were to understand that fire is used to heat the air in a furnace.

The students' ideas about their ideal future homes reflected both their geographic and their socioeconomic circumstances. Most of the Michigan students depicted single-family homes located in suburban or semi-rural areas, near relatives and friends and removed from urban density and crime. New York students were more likely to assume that they would live in the city; but the subset from Harlem tended to depict relatively modest apartments, whereas the more privileged subset from the upper west side tended to depict either sumptuous urban apartments or country estates (or in a few cases, both). The students identified many of the same home features and location considerations that their parents might have mentioned, except that only a few of them talked about locating near the children's schools or the parents' workplaces.

Clothing

Our next study focused on clothing.³ Most students understood that clothing is a basic need; they identified at least one of its functions (e.g., protection, modesty, decoration), and described business, work, and play clothes. Only 25 percent, however, understood that cloth is woven. Many thought that cloth is a solid (like plastic or leather) or is made by taking raw material (like fluffy cotton) and pressing it flat. Furthermore, only 13 percent understood that the thread used in weaving cloth is spun from raw material. Most could not explain how thread is obtained or manufactured; they spoke of obtaining thread for new clothes by unraveling existing cloth, or guessed that thread is a natural material such as hair or animal fur that is somehow gathered and used as is (without being spun).

The students typically understood that modern clothing is improved over clothing in earlier times, but most of their explanations focused on aesthetics (e.g., today's clothes are more colorful, decorated with designs). Few students talked about today's clothes as being more comfortable, better at keeping us warm, lighter or softer, less likely to fall apart, or available in better variety and quantity. When asked where their shirt or dress was made, more students said near the place where it was purchased than near where the raw materials are plentiful. Levels of understanding increased across the K-3 range, but

even among the third graders, fewer than half understood the fundamental nature of cloth and thread.

Food

Our next study focused on food.⁴ The students understood that we need food to maintain our health and vitality and that certain foods are better for us than others, but they had difficulty defining food because they lacked knowledge of how our bodies process food and the functions that it fulfills in providing us with nutrients and energy. Attempts to distinguish food from nonfood often were based on nonessential characteristics (e.g., food has taste, contains juice or seeds) or involved circular reasoning (we eat things because they are food, and food is food because we eat it) or reversed logic (foods are things that we eat with a fork or spoon).

Comparisons between foods from the past and the present showed that students had little awareness of the relatively recent vintage of modern food processing and packaging methods that have created frozen foods and other convenience foods. Some students displayed reversed logic by stating that in the past, certain foods were unavailable because there were no supermarkets, or people didn't eat hamburgers because they didn't have grills. The students also had difficulty comparing foods eaten commonly in the United States versus elsewhere in the world. Interestingly, along with traditional "meat and potatoes" meals, students often identified spaghetti and meatballs, macaroni and cheese, pizza, or tacos as typical American fare.

The students struggled with questions about why Americans eat more beef and bread while Chinese people eat more chicken and rice. Only a few showed awareness of geography's influence on decisions about what crops or animals to raise. The others attributed the contrasts between American and Chinese diets to taste preferences or unexplained differences in access to the foods involved.

The students typically depicted cooking as a method of making foods taste better or improving their sensory qualities (e.g., soften them for easier chewing) and depicted refrigeration as a method of keeping foods fresh and tasting good. Few of them identified cooking as a way to kill bacteria, and even fewer depicted refrigeration or preservation as methods of retarding decomposition. Most showed good practical knowledge (under-

standing that foods spoil and that steps such as refrigeration or careful wrapping and sealing can preserve freshness), based on observable features and events (foods gradually become stale, hard, or "yucky"), but few understood much about the causal mechanisms underlying these transformations. Those with some understandings spoke of protecting foods from insects, and those who were starting to develop more scientific understandings spoke of protecting foods from germs, bacteria, or things in the air.

The students were generally knowledgeable about healthful versus less healthful foods, although less knowledgeable about the reasons for these differences and less aware of fat than of sugar as a potentially problematic component of one's diet. Responses to questions about the land-to-hand progressions in bringing common foods (applesauce, cheese, bread, hamburger meat) to our tables indicated that the children were better informed when these progressions involved minimal physical transformation of the original foods, fewer combinations with other ingredients, and less processing.

For example, most knew that applesauce is basically crushed/mashed apples, but only 20 percent knew that cooking is involved and only 20 percent mentioned ingredients other than apples (e.g., sugar, cinnamon). Only about half of the students knew that cheese is made from milk, and only 10 percent were able to say anything else about the process (often articulating misconceptions such as that cheese is made by freezing the milk). Only 20 percent were able to provide a basic explanation for the manufacture of bread that included both making dough from its ingredients and baking the dough into bread. Many thought that bread is made simply by grinding up grain and then cooking it. Only a few understood that flour is finely ground grain and that it is mixed with other ingredients to form bread dough. Finally, fewer than half of the students understood that hamburger meat comes from cattle; and students' descriptions of what is involved in creating hamburger meat usually omitted the process of grinding.

The suburban students had little direct experience with farming and little awareness of food production and manufacturing as an industry. When asked about food production, they described small family farms on which people raise food in part (or even mostly) for their own consumption and sell the rest to nearby food stores. These chil-

dren had little or no awareness of massive, corporately owned farms and ranches or of networks of food manufacturing companies, food transportation systems, storage facilities, and supermarket chains involved in bringing food to nearby stores. When asked why farmers raise chickens, cows, pigs, and sheep, most were able to say that we get meat and eggs from chickens, milk and meat from cows, meat from pigs, and wool from sheep. Only about a fourth noted that we also get meat from sheep; and there was little or no mention of tanning the hides of cattle or pigs to create leather products or of raising animals as a profit-making business.

The students also showed limited awareness that production and labor costs add to the prices of food items. Most had difficulty explaining why a pound of cereal costs more than a pound of apples, and many had difficulty explaining why the same meal costs more to eat in a restaurant than it would to eat at home. Finally, a majority could not adequately respond to a question about why there are many farmers in Michigan but few in Alaska. Once again, the students displayed limited awareness of how geography and climate affect human activities.

We later administered the same interview to students from farm families.⁵ They provided much more detail when asked about steps in growing corn and about inventions that have helped farmers. Their direct experiences with farming, however, did not enable them to respond any more successfully than the suburban students to questions about land-to-hand relationships involved in bringing common foods to our table, about why there are fewer farms in Alaska, or about why fewer farmers per capita are needed today than in the past.

Implications for Curriculum and Instruction

Our subsequent research involved interviewing K-3 students about communication, transportation, families, and government.⁶ All of our studies document growth in knowledge across the K-3 range, but they also indicate that the knowledge of even the third graders is limited. We typically find that the children's knowledge is spotty, tacit rather than well articulated, composed of sporadic observations rather than well-integrated knowledge networks, and often distorted by inaccurate assumptions or outright misconceptions.

Thinking about the past is tinged with presentism (viewing the people of the past more with hindsight than empathy, and thus pitying or disparaging them because their ideas or technologies compare poorly to those available today), and thinking about other cultures is tinged with chauvinism (the tendency to value what is familiar and disparage what is unfamiliar).

Our findings suggest many potential implications for instruction, both in terms of identifying valid understandings to build on and identifying naïve conceptions or misconceptions to address in the process of educating students. For example, teaching about tipis would emphasize that the plains tribes were nomadic societies that followed the buffalo and therefore needed portable housing; and teaching about stilt houses would emphasize that the houses are built by people who live in flood plains because they are rice farmers. Teaching about the economics of shelter would address the motivations of the parties involved in home mortgages (banks make money from loan operations by requiring people to pay interest; home buyers are willing to do this because it allows them to move into a house now, without having to wait until they accumulate the full price). These basic social understandings can be conveyed without extending the curriculum beyond social studies goals or the students' readiness (e.g., there is no need to try to teach about loan structures, payment schedules, interest rates, and their interactions).

We have developed instructional units designed to build systematic knowledge about cultural universals by structuring understandings around major ideas developed in depth and with emphasis on their connections and their applications to life outside of school.⁷ Each unit begins with a summary of children's knowledge and thinking about the topic, and the unit's lessons and activities reflect our ideas about building on valid prior knowledge and addressing misconceptions.

Given the ubiquity of material on cultural universals in the primary-grades curriculum, elementary social studies supervisors, curriculum directors, and teachers may find our research findings useful as they develop their own curriculum guidelines and instructional plans. These findings represent a beginning knowledge base about developments in students' thinking on topics addressed in the social studies curriculum, which we hope will

grow to comparability with parallel knowledge bases already developed for learning mathematics and science. G

Notes

1. Jere Brophy and Janet Alleman, "Primary-grade Students' Knowledge and Thinking about Shelter as a Cultural Universal" (ERIC Document No. 031 188, 1999); Jere Brophy and Janet Alleman, "Primary-grade Students' Knowledge and Thinking about Native American and Pioneer Homes," *Theory and Research in Social Education* 28 (2000): 96-120; Jere Brophy and Janet Alleman, "What Primary-grade Students Say about Their Ideal Future Homes," *Journal of Social Studies Research* 25, no. 2 (2001): 23-35; Jere Brophy and Janet Alleman, "Primary-grade Students Knowledge and Thinking about the Economics of Meeting Families' Shelter Needs," *American Educational Research Journal* (2002): 423-468; and Jere Brophy and Janet Alleman, "Primary-grade Students' Knowledge and Thinking about the Supply of Utilities (Water, Heat, and Light) to Modern Homes," *Cognition and Instruction*, in press.
2. Jere Brophy, Carolyn O'Mahony, and Janet Alleman, "Ideas about Shelter Expressed by Third Graders from Vertical/Urban Versus Horizontal/Suburban Communities in the United States" (submitted for distribution through the ERIC system, 2002).
3. Jere Brophy and Janet Alleman, "Primary-grade Students' Knowledge and Thinking about Clothing as a Cultural Universal" (ERIC Document No. ED 439 072, 1999).
4. Jere Brophy, Janet Alleman, and Carolyn O'Mahony, "Primary-grade Students' Knowledge and Thinking about Food as a Cultural Universal" (ERIC Document No. ED 451 124, 2001).
5. Jere Brophy, Carolyn O'Mahony, and Janet Alleman, "Ideas about Food Production, Distribution, and Consumption Expressed by Third Graders from New Zealand and from Urban and Rural Communities in the United States" (submitted for distribution through the ERIC system, 2002).
6. Jere Brophy and Janet Alleman, "Primary-grade Students' Knowledge and Thinking about Communication as a Cultural Universal" (ERIC Document No. ED 451 129, 2001); Jere Brophy and Janet Alleman, "Primary-grade Students' Knowledge and Thinking about Transportation as a Cultural Universal" (ERIC Document No. ED 454 151, 2001); Jere Brophy and Janet Alleman, "Primary-grade Students' Knowledge and Thinking about Family Living as a Cultural Universal" (ERIC Document No. ED 454 150, 2001); and Jere Brophy and Janet Alleman, "Primary-grade Students' Knowledge and Thinking about Government as a Cultural Universal" (submitted for distribution through the ERIC system, 2002).
7. Janet Alleman and Jere Brophy, *Social Studies Excursions, K-3: Book One: Powerful Units on Food, Clothing, and Shelter* (Portsmouth, N.H.: Heinemann, 2001); Janet Alleman and Jere Brophy, *Social Studies Excursions, K-3: Book Two: Powerful Units on Communication, Transportation, and Family Living* (Portsmouth, N.H.: Heinemann, 2002); and Janet Alleman and Jere Brophy, *Social Studies Excursions, K-3: Book Three: Powerful Units on Childhood, Money and Government* (Portsmouth, N.H.: Heinemann, in press).

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