SCHOOLING AS CULTURAL PROCESS: WORKING TOGETHER AND GUIDANCE BY CHILDREN FROM SCHOOLS DIFFERING IN COLLABORATIVE PRACTICES

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1. Introduction
collaboration as well as traditional instructional discourse formats as institutional cultural practices (consistent with the work of other scholars, such as Erickson, 1982; Mehan, 1979; Tharp & Gallimore, 1988).

Studies of classroom structure indicate that U.S. public school discourse is commonly organized with (1) a prohibition against students informally helping or even speaking with each other without teacher permission (often considered "cheating"); (2) the format of "quizzing" in which the teacher asks a known-answer question, a student responds with a simple answer, and the teacher evaluates the correctness of the answer; and (3) the use of directive guidance in which teachers ask children to produce actions without explaining their meaning or providing a rationale for the requests. (See Cuban, 1984; Heath, 1983; Lemke, 1990; Mehan, 1979; Mercer, Edwards, & Maybin, 1988; Minick, 1993; Newman, Griffin, & Cele, 1989; Wells, 1992; Wertsch & Minick, 1990; Woods, 1980.)

Several authors have suggested that children’s facility in collaboration may relate to the social structure of particular classrooms that do or do not support collaborative interaction (Cazden, Cox, Dickinson, Steinberg, & Stone, 1979; Cooper, Marquis, & Edward, 1986; Damon, 1984; Sharan & Sharan, 1992). For example, Forman and McPhee (1993) speculated that fourth-graders’ difficulty in collaboration on mathematical problems may have been because their traditional classrooms provide little support for engagement in the sort of dialogue involved in collaboratively solving problems.

There is suggestive evidence that schooled people use communication patterns of the school outside immediate classroom contexts and constraints (Chavajay & Rogoff, 2001). For example, children who have been asked to teach others in a lab context occasionally use schoolteacher intonations and “quiz” their partner or withhold information, as if their idea of teaching was based on the notion that schoolteachers regard open provision of information as out-of-bounds (Ellis & Rogoff, 1986; McLane, 1987).

C. SCHOOLS WITH COLLABORATIVE TRADITIONS

The idea that schooling can be examined as cultural practice is supported by observations that schools in some communities are structured differently than the traditional U.S. pattern. In some Mexican classrooms serving indigenous communities, a collaborative approach prevails, in which children work together with the teacher’s support (Paradise, 1991). Some schools explicitly include instruction in how to collaborate. For example, in some Japanese elementary school classrooms, teachers provide explicit discourse forms for children to build on each other’s ideas, providing suggested wordings for offering opinions by first noting agreement or disagreement with a prior student’s idea (Toma, 1991).

Similarly, the collaborative school that was one of the settings of the present research includes learning to collaborate with and assist others as an explicit goal of the curriculum, with guidance often taking place in the process of working together with others of varying expertise (Rogoff, Goodman Turkanis, & Bartlett, 2001). In this school, designed as an alternative to traditional schools, collaboration is central throughout the day in children’s learning and projects as well as adults’ decision making and guidance. Child and adult participants treat each other as sources of assistance, as they work together in small and large groups.

II. A Cultural Comparison Focusing on Schooling Traditions

In our study, we asked children from the collaborative school and from a more traditionally organized school to work together in pairs to solve several academic problems posed outside of the constraints of their classrooms. We made efforts to organize conditions of the study to be similar and comfortable for the children from both schools. We were interested in how they coordinated their decision making and in how the fourth-grade partner, who was asked to assist the third-grader in learning to handle the problems, provided guidance.

Consistent with sociocultural methods, we examined patterns of differences and similarities rather than attempting to isolate variables (such as school affiliation or a particular practice within the schools) responsible for the observed patterns. We treated the children’s school affiliation as a sort of cultural participation; cultural differences generally involve a constellation of connected practices (see Rogoff et al., 1993, for research strategies for examining cultural patterns). We aimed to shed light on patterns that may function differently in communities that vary in numerous and structured ways; there are many differences in the two schools’ philosophies and classroom structure besides the prevalence of collaboration or traditional instructional discourse patterns.

We did not isolate classroom practices from the practices of the families that form the communities involved in the schools. Attending particular schools is never random, and it was not for the children in the two schools we studied. Although the families in the two schools are of similar social class and the children perform similarly on the school district’s standardized tests, there are probably differences between the families that choose one school or another. A primary difference between families selecting the collaborative instead of traditional schools may be in the collaborative school parents’ commitment to being involved in the classrooms (they are required to work in the classrooms 3 h per week per child enrolled). Other differences, for many, include interest in innovative pedagogic practices, collaborative forms of instruction, and greater religious diversity than is common in Salt Lake City schools (Rogoff, Matusov, & White, 1996).

However, the differences in the children’s approaches appear not to be simply due to preexisting emphasis and use of collaborative modes by the children’s parents. Many parents from the collaborative school, although they may be
European American views.

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The traditional school was selected for comparison on the basis of being similar to the collaborative school in family socioeconomic status, from a neighborhood like that of many of the children in the collaborative school, and having a traditional classroom structure with learning based mainly on whole class and individual instruction. The selection was based on the advice of school district personnel familiar with the schools, as well as informal classroom observations and interviews with teachers and principals that indicated that this school could be characterized as an excellent school following the usual U.S. instructional format of teacher-run whole-class and individual instruction, with little shared academic discourse between students. This school, like the collaborative school, had been honored with awards in recent years by the state governor.

Our interviews with children, discussions with teachers and the principal, and informal classroom observations indicated that cooperative learning in schoolwork was seldom employed in the traditional school at this time. Our study was carried out in 1991, a year before the Salt Lake City School District launched "cooperative learning" programs in elementary schools throughout the district. Most of the day in the traditional school involved either teacher/whole-class or teacher/individual-student interactions or individual work. Joint projects and freedom to collaborate were rare in the traditional school, as was assistance in learning to work together. Some of the children mentioned in postinterviews that in their classrooms, helping was treated as "cheating." This arrangement is consistent with observations of U.S. elementary schools, in which students' initiation of communication is controlled by the teacher, with teachers relying on known-answer questions in which they set students questions or tasks, students respond, and teachers evaluate the students and their responses (Cuban, 1984; Mehan, 1979).

Like the families at the collaborative school, families at the traditional school had the option of sending their children to other schools in the district because the district provided flexibility in attending out-of-neighborhood schools. Most children at the traditional school were from the surrounding neighborhood; middle-class families in Salt Lake City often choose housing on the basis of being close to particular schools. Parent involvement in the traditional school was mainly in PTA meetings, fundraising, and helping with children's homework.

Many characteristics of the children were similar across the two schools, including standardized achievement test scores of the children. Ethnicity of the families at both schools was similar—predominantly European-American, consistent with the Salt Lake City population at the time. The traditional school draws from a middle- to upper middle-class population, whereas the collaborative school attracts a more heterogeneous but basically middle-class population. The proportions of students from low-income families (qualifying for free or reduced-price lunches) were 12% from the collaborative school and 6% from the traditional school in 1994, according to figures provided by the Salt Lake City School District.

2. Observing Pairs of Children Working on Out-of-Class Academic Tasks

Each pair consisted of one third-grader (9- to 10-year-old) and one fourth-grader (10- to 11-year-old) who worked together on four assigned problems, with the fourth-grader asked to help the third-grader learn how to do each problem. The sessions of about 30-40 min were videotaped in a quiet room in the school outside the regular classroom.

Because the collaborative school regularly blended age groups in the same classroom and the traditional school did not, we avoided differences in familiarity by not pairing children from the same classroom. In addition, we did not pair children who reported having close bonds outside the classroom. The researcher was not familiar to the children of these grade levels in either school.

The researcher requested the fourth-grader to sit next to him (to help distinguish the fourth-grader's instructional role) and explained that he was interested in finding out how children help each other learn. He asked the fourth-grader to help the third-grader learn how to solve the problems, "since you're in fourth grade."

The first problem was an open-ended card sorting problem that involved sorting 18 photographs of household items into any number of groups using the photographs but not the procedure from Ellis and Rogoff, 1982, 1986; hair blower, typewriter, toaster, scissors (2), knives (2), bowl, cup, bucket, room, washing glove, mixer, wooden spoon, measuring cup, cups, towel, toothbrush, and razor. The researcher gave the 18 cards to the fourth-grader, saying, "Your job is to help the third-grader learn how to figure out which pictures go together so she could do it alone later on. Make sure she learns how to do it." The children were asked to group items that they thought "went together" and were not told how many or what sort of groups to make. When the children said they had finished, the researcher asked the third-grader to give a name to each group and to explain the rationale for the groups.

The remaining three problems were math story problems, taken and slightly modified from fourth-grade math textbooks that were in use in Salt Lake City schools (including these two schools). The teachers reported and our postsession interviews with the children showed that all fourth-graders in the study had already done these problems during their classroom math activities and all third-graders had not previously engaged in solving these problems. Each math problem was presented on a piece of paper given to the fourth-grader as follows:

- "Debbie is going to make sandwiches with either cheese, jam, or roast beef. She is going to use white or brown bread. How many different kinds of sandwiches can she make?"
- "Fifteen students in the fourth grade class sold tickets to their play. The graph shows the number of tickets sold each day for a week. Use the graph to solve the following problems. 1) How many tickets were sold on Tuesday? 2) How many tickets were sold on Thursday? 3) How many more tickets were sold on Thursday than on Wednesday?"
- "Use the data from the map (showing routes connecting 13 imaginary towns) to solve this problem: A family drove from Centerville to visit their grandparents. They traveled 52 miles to get there. Which town do their grandparents live in?" (The solution required adding several distances.)
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ii. **Unilateral Decisions.** One child worked on the problem with no regard for the other, who observed—problem solving was minimally shared. Unilateral decisions could include taking long turns to work on a problem, with one child working for a while and then the other, without sharing of ideas across time but with both partners engaged with the problem. It was not considered unilateral decision making if the children built on each other’s ideas in turn or if one lectured or supervised the other.

iii. **Specialized Working Together.** Children coordinated different contributions to the work by dividing the labor. The job was divided in parts to regulate each partner’s active participation in problem solving. The partners coordinated their activity with tacit or explicit role specialization (e.g., one pointed to the route in the map problem and directed the other to calculate the distances, one asked questions for the other to answer, and or one took responsibility for reading the problem or lecturing or supervising the partner).

iv. **Working Together with Flexible Coordinated Action.** Partners played interchangeable roles without specialization, but also without building on each other’s ideas to seek consensus. Both children worked on the same aspect of the problem (perhaps exploring different ideas) at roughly the same time, attending to the immediate outcome of each other’s efforts and adjusting actions to each other.

For example, in the card-sorting problem, children classified cards using a common framework and were aware of and adjusted to each other’s decisions; in the sandwich combination problem, the children used a joint list on which they each wrote down new combinations of sandwiches. Flexible coordinated action did not involve explicitly checking with each other for evaluation of ideas and did not need to involve fine-tuned adjustment to each other or evidence of shared thinking.

v. **Transactional Dialogue.** Children together examined the problem and possible solutions, building a new understanding collectively. Each child concentrated on the other’s ideas as they were offered and the solution came directly from the process of dialogue, with the partners directly addressing ideas to each other, as in Bearson’s (1991) “transactional discussion.” (The dialogic turns could be accomplished by words or by actions directed to the partner for consideration.)

Both partners checked with each other for evaluation of their own ideas and for feedback. This often led to extensions and development of ideas and a new joint understanding of the problem and, finally, its solution. For example, on the map problem, when one child examined distances to Centerville (by connecting each neighboring city to Centerville with his finger) and noted, “Look, there isn’t any city that’s 52 miles away from Centerville,” his partner agreed, “No,” and suggested, “I think we should add two or three distances to get 52 miles.” The second child’s contribution of new possibilities for a solution of the problem built on the first child’s observation. Transactional dialogue did not need to involve equal contribution of ideas from the partners or equal leadership, nor agreement on intermediate steps of shared problem solving; rather, it involved children presenting, testing, and building on each other’s ideas and finalizing the solution together.

b. **Guidance Approaches.** Only communication by fourth-graders that appeared to be aimed at assisting the third-grader’s learning or performance was rated as guidance—it involved explaining, offering guiding questions, talking aloud strategies for the partner’s benefit, or demonstrating. Guidance did not need to be effective or accepted by the third-grader.

i. **Quizzing.** The fourth-grader verbally tested the third-grader with known-answer questions (e.g., “which of these (displayed cards) belong together?”) to focus attention on specific information and/or evaluate the third-grader’s answer (e.g., “Good job, those cards match!”). Quizzing often involved the fourth-grader withholding information from the third-grader such as by providing a challenge (e.g., “Think again, there should be another combination (of sandwiches)” or by giving accuracy feedback that avoided giving further information (e.g., “No, that’s not it”). However, quizzing could involve some presentation of information for assistance, such as when a fourth-grader structured the problem for the third-grader’s benefit by selecting the right answer and asking the third-grader to explain this solution or leading the third-grader by means of prompts to see the correctness of the solution.

ii. **Directing Actions, without Rationale.** The fourth-grader controlled and directed the third-grader to carry out the actions of solving the problem without explaining or prompting the learner to seek a rationale (e.g., the card sorting problem, “Now put the cup and bowl together”). Directing actions did not involve provision of rationale or ideas that represent the whole solution—it was as if learning comes from actions directed by the teacher, even without understanding.

iii. **Pure Instruction.** The fourth-grader provided explicit demonstration and/or explanation and justification of actions to the third-grader, who was treated as an audience/observer (e.g., “I’ll tell you how” or “See how I do it”). With demonstration, even if there was little or no justification, interaction was still rated as pure instruction if it was clear that the fourth-grader’s purpose in demonstrating was instructional. An example of pure instruction in the sandwich combination problem involved a fourth-grader explaining the solution for making all possible combinations of two types of bread and three types of toppings to his third-grade partner: “OK, brown bread and white bread—it’s two... And three toppings make it six. OK? Because two times three is six... And, let’s say, if you had eight things that had to go with... four things; eight times four is... what? thirty-two.” Then the fourth-grader drew a graph putting all possible connecting lines between an upper row of 8 dots and a bottom row of 4 dots. After counting the 32 connecting lines together with the third-grader, he asked, “Get it?” The third-grader replied, “Yeah.”

iv. **Instruction Embedded in Collaboration.** Here, guidance was offered during the process of collaborative solution. The partners worked together with the fourth-grader providing explanation, demonstration, or justification in the context of joint action. Instruction embedded in collaboration differs from quizzing and pure instruction because the fourth-grader did not need to know the solution
Combining quantitative and qualitative analyses of the video data helped
in discovering the children from the collaborative school used transnational
learning.

THE TWO SCHOOLS

C. Two Case Illustrating The Patterns From

"Cremona Falls of Education Inquiry, 1991."

"In our research we used a survey method involving the collection of
data on teaching practices and student performance across two
schools. The survey included questions on teaching strategies,
student engagement, and school environment.

The data was analyzed using both qualitative and quantitative
methods. The qualitative data was analyzed using content
analysis, while the quantitative data was analyzed using
statistical methods.

The results of the survey revealed that the school with
more "inclusive" teaching practices had higher student
engagement and higher academic performance.

In conclusion, the "inclusive" teaching practices used in
the school with higher student engagement and higher
academic performance suggest that these practices
are effective in improving educational outcomes.

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4G examined the cards to determine the next pair for herself in advance of asking 3G to find the pair. "And then, let's see..." After 4G found the pair, her quizzing continued. She gave 3G the hair blowdryer card, "What goes with this?" While 3G was thinking of what goes with a blowdryer, 4G turned the razor card to look at it. 3G seemed to take this as a prompt, picked the razor card, and replied, "This! Because they're both used in the bathroom." 4G approved, "OK," but with some reservation in her voice as she looked at the rest of the cards carefully, saying, "Um, let's see." 3G picked up 4G's uncertainty and said, "No, wait," and put the razor card back down. Now 4G deviated from her quizzing with uncertainty about the grouping; she paused to solve the grouping for herself and then gave the answer to 3G by taking the towel card, showing it to 3G, and saying, "I think it's this one because you use towels when you use the hairdryer." 3G enthusiastically agreed with 4G, "Uh huh!" and took the card, putting it with the blowdryer in the growing collection of pairs of cards beside her.

4G continued the cycle of quizzing the third-grader for the fifth and sixth pairs, giving 3G a hint when she had difficulty on the sixth pair and continuing to evaluate 3G's answers.

The quizzing routine continued until all cards were paired. However, the criteria for grouping slipped with the last three pairs, as not all cards could easily be paired according to their functions. Nonetheless, this dyad chose to overlook problems in their categorization scheme to maintain the question-response-evaluation rhythm of the roles they had been using for six pairs ("Which?" "This." "Good."). Thus, when 4G asked for the card to go with the brown card, she accepted 3G's choice of typewriter with no discussion of rationale and no checking of prior pairs to see if there was a better functional pair. (There was no better option among the remaining four cards.) The two children hardly skipped a beat in their rhythm, though brief strange facial expressions marked some dissatisfaction with this pair. The last two pairs were formed by being in the same category rather than having a functional relation (two types of scissors and two types of knives). In making this shift, 4G successively transformed her usual question-asking about the first scissors card, "How do you use this?... What goes with this?... What matches this?" As soon as the last pair was formed, the children turned to the researcher, who asked 3G to explain the groups.

2. Case 2: Dyad from the Collaborative School

This dyad's approach to working together was rated as transactional dialogue because the children built solutions together through constant consulting and giving each other feedback; they also used some specialized working together as the fourth-grader assumed a specialized role in setting the activity—providing the frames of problem solving, explicating important aspects of the activity, and adjusting the third-grader's participation. All contributions of the fourth-grader were open for the third-grader to observe and participate in. The dyad's approach to guidance was rated as instruction embedded in collaboration because all of the fourth-grader's guidance occurred as part of the joint activity. This dynamic is reported as follows:

After 4G placed the 18 cards one by one on the table and asked the researcher several clarification questions about the goal of the task (to which the researcher replied, "Do what you think best"), 4G turned to 3G, who was watching closely. 4G said "So, we can put them into different categories... OK, so... like we would have... (picking up cards) scissors, scissors, and maybe razor, because they're all "sharp" or something... and maybe the knife." 3G nodded enthusiastically and said collegially, "Okay. That's good." So 4G put those four cards aside, "OK... This is the 'sharp' category," specifying the category rationale 3G and modeling the process of sorting of this first group.

Meanwhile, 3G pitched in and began the second group, following the same process. With 4G watching closely, 3G picked up cards and put them into a pile, "Hairdryer... Hmmmm... Toothbrush... And what else goes into bathrooms?" 4G was looking for an appropriate card when 3G answered herself with enthusiasm, "Towels go into the bathroom!" She put the towel card into the pile and turned to 4G, who replied, "Yeah."

4G provided leadership on the next group, saying, "Kitchen stuff..." and the girls worked closely together, consulting on the items for this group. 3G was very attentive as 4G looked for an appropriate "kitchen" card, "We can have knife..." (handing it to 3G), and then 3G chimed in, saying "yeah, butter knife... bowl," as she put those cards in a pile. 4G said "bowl" along with 3G, and then both girls said "cup" as they placed that card together. 3G picked up the wooden spoon card and then hesitated, "You'd find this in a kitchen, wouldn't you?" 4G assured, "Yeah!" and 3G nodded and echoed 4G's "yeah." The two girls each picked up several other cards for the kitchen pile, briefly discussing their appropriateness; at one point 3G checked the cards in the kitchen pile. 4G then checked the cards in the prior "bathroom" pile, affirming, "Those go together," while 3G pushed the "kitchen" pile to the middle of the table, indicating nonverbally that the "kitchen" pile was done. The girls then consulted together to construct a "cleaning" category.

When the girls noticed that the one remaining card (the typewriter) would not fit their categories, 4G suggested reluctantly that they reconsider their groups, "Maybe we should do some other ones?" and 3G said "Hmmm." 4G provided leadership in suggesting a new scheme. She took the hair blowdryer card from the "bathroom" pile and gave it to 3G, with the typewriter card, announcing, "Electric things." 3G grabbed the "kitchen" pile to check whether there were other "electric" items there. 4G supported her, "Yeah, the mixer and toaster from there," and the two moved those items to the new "electric" category. Then the two girls looked through the remaining piles.

4G then suggested exploring further possible ways of sorting the cards, "We can do it by... kinds [they are made of]. Like, here's glass... Here's metal... (putting cards into the new piles), metal, metal, metal,..." 3G joined in, making a "plastic" group, grouping three items "Plastic, plastic, and plastic.

The dyad handled several ambiguous items by sharing problems and discussing possible solutions. Often the girls appropriated each other's solutions in solving ambiguous cases (where an object had both metal and plastic). Sometimes it was 3G who provided the solution accepted by the dyad. At times, 4G appropriated and transformed 3G's reasoning and applied it to another ambiguous case. 4G had a special guiding role in explicating and justifying solutions to these emergent problems.

The children reviewed the new new groups together, with the fourth-grader leading in naming the groups and 3G contributing. 4G proposed making another sorting by color, and 3G agreed enthusiastically. They continued the pattern of their work, sorting the cards into eight groups by color, watching and checking each other's placements. Then 4G offered the lead to 3G to suggest another way of sorting, "Now what do you want to do?" But 3G replied, fidgeting a bit, "I don't know." 4G suggested, "Hmmm... [We could do] which ones have wires?" 3G said, "Okay," and counted the objects with wires. 4G suggested several other criteria for sorting (shapes and whether the objects had handles) and the two sorted together by each criterion in turn. Finally, the researcher asked 3G to explain the last sorting.
The use of collaborative problem-solving in the classroom can be evident in many different ways. First, the teacher can facilitate group discussions on problems, encouraging students to share their ideas and work together to find solutions. This approach fosters a sense of community and teamwork, which can enhance learning outcomes.

Second, the teacher can model collaborative problem-solving by working through problems with the class. This allows students to see how problems can be approached and solved in a group setting, rather than individually.

Third, the use of collaborative problem-solving can be integrated into the curriculum by assigning group projects that require students to work together to complete. This approach can help students develop critical thinking and problem-solving skills, as well as providing opportunities for students to learn from each other.

Finally, the use of collaborative problem-solving can be encouraged through peer tutoring or mentoring programs, where students can help each other understand concepts and solve problems. This approach can be particularly effective in promoting learning and engagement among students from diverse backgrounds.

Table I: Approaches to Working Together

<table>
<thead>
<tr>
<th>Approach</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working in Groups</td>
<td>Students work together in groups to solve problems.</td>
</tr>
<tr>
<td>Working in Pairs</td>
<td>Students work in pairs to solve problems.</td>
</tr>
<tr>
<td>Individually</td>
<td>Students work independently to solve problems.</td>
</tr>
</tbody>
</table>

Table II: Number of Students (standard deviation) Employing Each Category

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of Students (standard deviation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working in Groups</td>
<td>30 (10)</td>
</tr>
<tr>
<td>Working in Pairs</td>
<td>25 (8)</td>
</tr>
<tr>
<td>Individually</td>
<td>15 (6)</td>
</tr>
</tbody>
</table>
without providing a rationale. It was surprising that neither group engaged in
direction of the third-grader’s actions because previous studies (Ellis & Rogoff,
1986; McLane, 1987) have found that peer instruction may involve a focus on
task completion rather than on increasing the learner’s overall understanding of
the problem and its rationale.

3. Dyads That Used Transactional Dialogue Often Embedded
Instruction in Collaboration

It is informative, but not surprising, that dyads that used instruction embedded
in collaboration also often used transactional dialogue in working together. Con-
sidering all 24 dyads from both schools, 11 of the 14 dyads employing instruction
embedded in collaboration (including those who did so to only a minimum extent)
also used transactional dialogue (Cramer’s $V = .50$, $p < .05$). Both instruction
embedded in collaboration and transactional dialogue were predominant in the
collaborative school. These findings are consistent with the collaborative type of
discourse encouraged in the collaborative school that could be expressed both
as collaboration through transactional dialogue and as instruction embedded in

III. Discussion of the Findings: Culture of Schooling in Shaping How
Children Work Together and Guide Each Other

Consistent with the idea that participation in schools with varying practices may
contribute to shaping the formats of interaction, the children with a collaborative
schooling background more commonly built on each other’s ideas through trans-
actional dialogue and more commonly embedded their instruction in collaboration
than did the children with traditional schooling experience. In contrast, the children
with a traditional schooling background predominantly used a “quizzing” form of
guidance based on asking known-answer questions and withholding information
to test learners’ understanding, consistent with guidance often used by teachers in
traditional schools. These results, supporting the idea that children learn more than
curriculum content in their involvement in the teaching and learning practices of
their school, are consistent with the view of schooling as a cultural process.

In this section, we discuss educational practices relating to the differences that
we observed and argue that schooling is a central cultural contributor to children’s
learning how to collaborate and to assist each other in learning. We also examine
similarities in the approaches of the children from the two schooling backgrounds.
Then we discuss questions of whether one approach is better than another—which
requires consideration of what they might be better for. Finally, we argue that
children’s learning and collaboration needs to be considered in the ecological
niches in which they both learn to participate and in which judgments of value are

A. EDUCATIONAL PRACTICES PRODUCING CULTURAL DIFFERENCES

Differences in children’s approaches to working together and to guidance, outside
their classrooms in our experiments, resembled differences in their every-
day classroom practices. This finding supports the view that participation in
schooling amounts to a form of enculturation, extending beyond the classroom
situation. Children with experience in a school organized around collaboration
more often built on each other’s ideas in problem solving and provided guidance
in ongoing collaboration, whereas children with experience in a traditional
classroom structure used the traditional teaching format of known-answer ques-
tion/response/evaluation sequences.

The contrast is clear in two brief examples from the card-sorting problem. In
the first example, a dyad from the collaborative school used transactional dialogue
and instruction embedded in collaboration as follows:

4G picked up two cards—knife and bowl—and suggested combining cards as “kitchen
stuff,” while 3G picked up the yellow hairdryer and yellow washing gloves and suggested
organizing the cards by color. Then 4G noticed the different potential strategies and said,
“We can do it by kitchen, by color…” 3G interrupted him, “. . . by size, by material . . .”
4G ended (with excitement), “Yeah, we can do it in many ways. Let’s . . . let’s try to find
all of them!”

These children built on each other’s ideas through transactional dialogue as they
broadened the definition of the task by deciding to find all possible systems of
classification, and the fourth-grader provided commentary that helped to guide the
problem definition as the children developed it together.

The second example illustrates how children with a traditional schooling back-
ground often used guidance involving quizzesing, temporarily withholding informa-
tion to test the third-graders’ knowledge or asking questions not to get information
but to lead the third-graders to a correct answer as follows:

4G from the traditional school pointed at the toothbrush card and asked 3G, “Where
in your house do you keep a toothbrush?” 3G answered, “In the bathroom.” 4G kept
quizzing, “So where’s you gonna put this card?” 3G pointed at a group of cards and
responded, “With the bathroom stuff.” 4G evaluated 3G’s answer, “That’s correct. Put
it with the bathroom stuff.”
I. THE ROLE OF LEARNING TO PARTICIPATE IN DIFFERENT DISCIPLINES

II. DIVERSE VIEWS

III. ONE EDUCATIONAL APPROACH BETTER THAN THE OTHER?

In some ways, the two schools—bilingual promotes the potential of both schools to co-exist smoothly. In order to improve communication and cooperation prompted by bilingualism could be incorporated in the use of multimedia teaching, interactive classes, and collaborative learning. There are many potential sources of interaction including the children, their parents, and other communities. For example, when parents bring their children to the school, they can meet teachers and children from both schools. The collaborative school experience is in itself an example of how children from different communities learn and interact. The emphasis is on the development of skills and competencies rather than on the acquisition of specific content. This type of school is designed to foster a sense of community and to promote understanding and respect for diversity. It is an approach that recognizes the importance of the local community and the need to involve parents in the education process. The collaborative school experience is a way of providing children with opportunities to learn in a diverse and inclusive environment. This approach encourages children to explore their own cultures and to gain an appreciation of the cultures of others. It also provides a framework for children to develop the skills they need to succeed in a globalized world. By working together, children from different backgrounds can learn from each other and develop a shared sense of identity. This type of school is designed to foster a sense of community and to promote understanding and respect for diversity. It is an approach that recognizes the importance of the local community and the need to involve parents in the education process. The collaborative school experience is a way of providing children with opportunities to learn in a diverse and inclusive environment. This approach encourages children to explore their own cultures and to gain an appreciation of the cultures of others. It also provides a framework for children to develop the skills they need to succeed in a globalized world. By working together, children from different backgrounds can learn from each other and develop a shared sense of identity. This type of school is designed to foster a sense of community and to promote understanding and respect for diversity. It is an approach that recognizes the importance of the local community and the need to involve parents in the education process. The collaborative school experience is a way of providing children with opportunities to learn in a diverse and inclusive environment. This approach encourages children to explore their own cultures and to gain an appreciation of the cultures of others. It also provides a framework for children to develop the skills they need to succeed in a globalized world. By working together, children from different backgrounds can learn from each other and develop a shared sense of identity.
as well as to engage in quizzing forms of discourse and solo activities such as in standardized tests. However, the future itself is a dynamic and uncertain process defined by its past, current, and upcoming participants (Griffin & Cole, 1984) embedded in the life of the whole society.

Questions of the value of collaboration and of testing are clearly connected with political and economic struggles that will contribute to defining the future. The cultures and communities prioritizing collaboration and testing are different and to some degree antagonistic to each other. (They also have different power in U.S. society—one of the cultures is mainstream.) What can be viewed as collaboration in one culture may be viewed as cheating in another. What can be viewed as guidance through quizzing in one culture may be viewed as rejection of collaboration in another culture. Determining whether one approach is better than the other, or even whether learning to participate in both is preferable, requires value judgments regarding the roles of both collaborative and solo formats in the communities and institutions of the future.

Our study itself both reflects and contributes to a struggle among different communities, social institutions, economic interests and cultural values for defining the future. We, like the adults in the collaborative school and many other educators and researchers, would argue for the importance of children learning how to collaborate with others for success in other settings of their lives—a skill that until recently was not seen as important in traditional U.S. schooling. Learning how to engage in the quizzing discourse format promoted in a traditional school (without necessarily believing it is a desired form of guidance outside of the setting imposed by the mainstream institutions; see Wertsch, 1999) may also contribute to success in some key U.S. institutions, as they are currently structured. However, judgments of which practices are valuable must take into account the changing nature of institutions and the cultural, political, and economic values reflected in arguing for one approach, the other, or both together.

2. The Value of Different Discourse Formats for Learning School Subjects

Beyond the question of learning to participate in differently organized communicative formats, some readers may ask, “Which form of instruction best teaches school subjects like math?”

Answering this question is not merely an empirical issue but one that involves cultural values regarding quality of learning and goals of development (both cognitive and communicative), as well as the definition of doing mathematics itself. For example, doing mathematics can be defined as an individual demonstrating well-defined math skills on demand of a more authoritative person. In this case, traditional schooling may have an advantage over collaborative schooling. However, if the definition of math practice includes collaborative efforts to solve open-ended math problems, then collaborative schooling may have an advantage. As seen in the examples we presented, children in the collaborative school commonly explored the card-sorting problem in greater depth, considering alternatives in an open-ended fashion that would be a disadvantage in a timed test but which provided greater engagement with the process of classification.

Similarly, Butler and Ruzany (1993) pointed to differences in the norms of schools and broader communities to account for differences in kibbutz and urban middle-class Israeli children's approaches to learning. Kibbutz children explained their own (and other children's) glances at peers' work in terms of wanting to learn from another child's efforts (e.g., “I wasn't sure what we were meant to do, so I wanted to check” and “If you see what other kids do you can get new ideas,” p. 536). In contrast, urban Israeli children explained that they (and other children) looked at other children's work to be able to compare and assess their own ability (“to see whose design was best, whether mine was as good as his, and so on,” p. 539). Butler and Ruzany suggested that the cooperative emphasis in the kibbutz environment may encourage children's motivation to learn and to offer and seek help in the face of learning difficulty, whereas the urban school's competitive environment, individual work, and normative evaluations may discourage intrinsic motivation, encourage children not to seek help from each other (with worry that trying to learn from others will be regarded as cheating), and “convey the message that performance does not count if it is not achieved alone” (p. 540).

Each schooling approach seems to be valued within its local community, serving different ends. However, most means of assessment of children's learning are based on the form of adult-child interaction that prevails in traditional U.S. schooling, and quizzing of children on an individual basis by adults who do not otherwise enter into the problem-solving process. Assessment of learning is often based on speedy solo responses to large numbers of items on demand, rather than exploration and understanding of ideas in depth, building understanding together with other people.

The testing situation—where a tester or experimenter giving a problem does not participate in solving it—is less close to the relationships of the collaborative school, where adults (teachers as well as experienced parent volunteers) often participate collaboratively in activities with children (Matusov & Rogoff, 2001). This was evident in the collaboratively schooled children's more frequent attempts to involve the researcher in their thinking, compared with the traditionally schooled children, although the researcher attempted to avoid involvement with the children's problem-solving in order to serve as a tester. In addition, teachers in the collaborative school often report that in standardized tests, children find it difficult to stop helping each other figure out problems.

The usual psychological methods for measuring learning fit traditional schooling's definition of learning, which attempt to isolate students from others to examine knowledge and skills (Matusov, 1998; Rogoff, 1998). However, substituting an assessment of cognitive development designed for the collaborative school would not be appropriate in the traditional school, and using separate criteria for the two
EVALUATION OF CHILDREN: DEVELOPMENT OF CONCEPTUAL, VOCATIONAL AND PROFESSIONAL PROFILES OF CHILDREN

To evaluate children's development, it is important to consider their overall growth and progress. This can be done through observation, assessment, and consultation with other professionals. Early childhood education programs are designed to support children's development in various areas, including cognitive, social, and emotional skills. Teachers and caregivers play a crucial role in monitoring children's progress and adjusting their teaching strategies accordingly.

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DEVELOPMENT OF CHILDREN AND INSTRUCTION

Collaboration with and support from others is essential in promoting children's development. Educators, parents, and caregivers should work together to create a supportive learning environment that encourages children's growth and exploration. Through ongoing assessment and feedback, children can be guided toward achieving their full potential.

REFLECTIONS ON CHILDREN'S PROGRESS

Children's progress can be assessed through various methods, such as observations, portfolios, and assessments. Teachers should consider children's individual needs and abilities when designing learning activities. This approach allows for personalized instruction that meets the unique requirements of each child. By fostering a positive learning environment, educators can help children develop the skills and knowledge necessary for success in school and beyond.
techniques. Our findings are consistent with the notion that people develop by participating in diverse and overlapping complex cultural systems with associated practices and philosophies.

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