BUILDING ON CHILDREN'S CULTURAL ASSETS IN SIMULATED CLASSROOM PERFORMANCE ENVIRONMENTS

Research Vistas in the Communal Learning Paradigm

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THE CENTER

Every child has the capacity to succeed in school and in life. Yet far too many children fail to meet their potential. Many students, especially those from poor and minority families, are placed at risk by school practices that sort some students into high-quality programs and other students into low-quality education. CRESPAR believes that schools must replace the "sorting paradigm" with a "talent development" model that sets high expectations for all students, and ensures that all students receive a rich and demanding curriculum with appropriate assistance and support.

The mission of the Center for Research on the Education of Students Placed At Risk (CRESPAR) is to conduct the research, development, evaluation, and dissemination needed to transform schooling for students placed at risk. The work of the Center is guided by three central themes—ensuring the success of all students at key development points, building on students' personal and cultural assets, and scaling up effective programs—and conducted through research and development programs in the areas of early and elementary studies; middle and high school studies; school, family, and community partnerships; and systemic supports for school reform, as well as a program of institutional activities.

CRESPAR is organized as a partnership of Johns Hopkins University and Howard University, and is one of twelve national research and development centers supported by a grant (R117-D40005) from the Institute of Education Sciences (IES, formerly OERI) at the U.S. Department of Education. The centers examine a wide range of specific topics in education including early childhood development and education, student learning and achievement, cultural and linguistic diversity, English language learners, reading and literacy, gifted and talented students, improving low achieving schools, innovation in school reform, and state and local education policy. The overall objective of these centers is to conduct education research that will inform policy makers and practitioners about educational practices and outcomes that contribute to successful school performance.

ABSTRACT

The achievement gap between low-income African American students and their White counterparts remains substantial. To address this, researchers have begun to examine the impact of culture on cognitive performance among African American students (Lee, 2001; Foster, Lewis, & Onafowora, 2003). The findings from this work suggest that when aspects of students' home culture are incorporated into academic learning contexts, strong academic performance and motivation result. This report presents the results of two experimental studies incorporating the cultural theme of communalism. For both studies, a general literature review is provided, along with statistical analyses and results specific to the procedures and measures used in each.

The results of the current body of research are generally consistent with previous findings and add to the literature on African American children's learning and achievement in math and reading comprehension (Dill & Boykin, 2000). Implications of and limitations to each study are entertained.

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INTRODUCTION

The academic performance of low-income African American elementary school students continues to be a topic of widespread concern and debate (Gordon, 1999; Hale, 1980; Cole-Henderson, 2000). The attention has recently focused on how to better equip such students to successfully negotiate the rigors and challenges posed by the American educational system. Toward this end, researchers at the Center for Research on the Education of Students Placed At Risk (CRESPAR) have launched a programmatic research effort that aims to cultivate enhanced performance in African American children by capitalizing on the cultural assets brought to the learning environment. Cultural assets or dimensions of African American culture have been found to significantly enhance the cognitive performance of African American children (Boykin, 1994). In particular, researchers have provided examples of communal learning and students' enhanced academic performance within differing contextual and simulated school conditions (Dill & Boykin, 2000).

This report offers a review of the literature on the cultural theme of communalism, and on the derived communal learning context and its effect on learning and performance among low-income African American upper elementary-level children. This report also discusses two research efforts that underscore the positive effects of the communal learning context on the academic performance of low-income African American elementary students.

REVIEW OF THE LITERATURE

Communalism is one of nine dimensions of an Afro-cultural ethos said to exist in the socialization experiences of low-income African American children (Boykin, 1986). Communalism, by definition, is a fundamental focus on sharing and interdependence. Communalism as a cultural construct includes the following dimensions: *Social orientation*, where the individual is oriented toward social relations and holds each social interaction as a valuable experience; *Group duty*, where the person believes that the needs of the group supersede the needs of the individual; *Identity*, where the individual has a sense of belonging and selfhood based on group membership; and *Sharing*, where exchange and mutual support are understood to be intrinsically rewarding in that they signify that participants contributed to the group (Boykin, 1986). The cultural fabric of communalism arises from these dimensions being interwoven into the African American children's everyday practices and orientations within their proximal environments (Boykin, 1994). As a result, the communal theme has become salient in many African American children's experiences (Boykin & Bailey, 2000). Thus, using communalism in the context of pedagogy promotes the behavioral and psychological manifestations of factors such as sharing and interdependence.

Despite the notion that all African Americans do not exhibit communalism to the same degree (Boykin, 1986; 1994; Boykin & Ellison, 1995), Boykin and his associates have found that it is salient in the socialization of low-income African American students. For example, Miller (1997) found that upper elementary-level African American students preferred and practiced communal behaviors in their own homes more than mainstream behaviors such as individualism and competition. Further, the students also reported that communalism was highly endorsed by their parents. Tyler (1999), in an examination of home socialization activities, found that low-income African American mothers encouraged their children to learn and work in communal ways more than in other mainstream orientations such as individualism and competition. Finally, Bell (2000) discerned that low-income African American mothers reported high incidence of communal practices in their households.

It can be argued that the communal theme in the home socialization experiences of low-income African American children influences their preference for communal settings outside the home. In particular, some research has indicated that for low-income African American elementary and secondary students, there is a strong preference for the communal theme in academic settings. For example, Marryshow (1995) determined that junior high and high school African American students preferred academic achievers who endorsed communal behaviors rather than mainstream practices. Martin (1997) found that among low-income African American elementary students, there was a significant preference for classroom structures that emphasize communal behaviors rather than traditional classroom structures that emphasize competition and individualized achievement. Recently, Watkins (2002) discovered that even among low-income African American kindergartners, there was a strong tendency toward communal behaviors.

These findings illustrate that low-income African American students are socialized in and prefer contexts that are rich with a communal orientation. Considering the demonstrated prevalence of the communal theme in the lives of this population, it is reasonable to believe that the settings where communal themes are salient are also sites where cognitive skills flourish. As a result, the incorporation of preferred cultural themes, such as communalism into classrooms of low-income African American students could foster cognitive competencies and, ultimately, enhance academic performance. Boykin and associates have concluded that low-income African American elementary school students demonstrate stronger performance on academically relevant tasks when they learn in contexts rooted in the communal orientation, as opposed to more traditional educational contexts, where themes such as individualism and competition are reinforced (Jagers, 1987; Albury, 1991; Coleman, 1996; Hurley, 1999; Dill & Boykin, 2000).

For example, Albury (1991) found that African American fourth- and fifth-grade students performed better in a high communal learning context than in low communal learning contexts that emphasized individualism and competition. In addition, Coleman (1996) used a creative problem-solving task in her experimental design and found that fourth-grade African American children generated significantly more original and

creative ideas in the high communal learning condition than did those students in the low communal learning condition. With a math estimation task, Hurley (1999) demonstrated that low-income upper elementary-level African American students who practiced the learning task in a high communal setting outperformed students who studied in the low communal setting. Finally, Dill & Boykin (2000) found that among African American upper elementary students who engaged in a reading comprehension task in either communal learning situation had significantly better recall of what they had read than similar students in peer-tutoring or individualized learning situations. This occurred despite the fact that students in these other settings were offered tangible rewards if they did well on the task.

These previous studies unveil compelling empirical evidence of enhanced academic performance among many low-income African American students when exposed to learning environments consistent with their cultural socialization at home. The review also establishes a persuasive link between communal socialization and cognitive performance in African American grade school children. Most research to date, however, has focused on basic, as opposed to applied, methodological designs. Specifically, many of the procedures used in the previous research on communal learning effects have not directly replicated the day-to-day applications and operations evident in actual classroom settings. To address this issue, researchers at CRESPAR seek to expand the communal learning paradigm. In particular, there is a need to measure the effects of communal learning over time to accurately assess its generalizability and applicability to classroom learning. Also, the expanded communal learning research needs to reveal any influence on the retention of actual classroom learning tasks and activities embodied in school curriculum, such as mathematics problem solving and reading comprehension.

This report presents two studies in which the effects of communal learning were explored and determined. The first study was an exploratory examination of the effects of high vs. low communal learning on the mathematics performance of African American upper-elementary students. In the second study, researchers investigated the effects of high vs. low communal learning on the reading comprehension performance of African American fourth- and fifth-grade students. Researchers hypothesized that mathematics performance in the high communal learning condition would be significantly better than mathematics performance in the low communal condition. Similarly, researchers predicted significantly better reading comprehension in social studies in a high communal learning context than in the low communal context.

COMMUNALISM STUDY NO. 1

This study had two objectives: 1) an examination of the effects of high vs. low communal learning conditions on the math performance of African American elementary students; and 2) a determination of the relationships between measures of at-home communal activity and preference with performance under different learning contexts.

Sample

The sample consisted of 48 low-income African American students from low socioeconomic backgrounds, as determined by participation in their school's free and reduced lunch program. All attended a public school in the Washington, D.C. Metropolitan Area. The sample was equally divided by gender from grades 3-6. Twelve students were randomly selected from each grade.

Instruments

The ***Home Communal Measure*** *(HCM)* evaluates the level of a student's endorsement of communal beliefs and activities occurring in the home (Boykin & Pippin, 1997). The HCM contains 20 items that are divided into four subscales representing the four dimensions of the communalism construct (fundamental interdependence, group duty, sharing, and group identity). The scale items are rated along a four-point continuum ranging from 1, "Not at all like me," to 4, "Very much like me." Obtaining the mean of the 20 responses determines the overall HCM score. The HCM has yielded an alpha reliability coefficient of .91 (Boykin & Bailey, 2000).

The ***Personal Beliefs and Behaviors Measure—revised*** *(PBBM-r)* was designed to measure a student's preference for communal attitudes and behaviors (Boykin & Pippin, 1997). Two scenario-based versions of the PBBM-r have been constructed: one depicting female characters and the other depicting male characters. The PBBM-r contains 20 different scenarios divided equally into four subscales representing the four communal dimensions. Students rate their similarity to the scenario's character using a four-point Likert scale ranging from 1, "Not at all like me," to 4, "Very much like me." The overall PBBM-r score is derived from the mean of the 20 responses. The PBBM-r has yielded an alpha reliability coefficient of .91 (Boykin & Bailey, 2000).

The ***Learning Context Questionnaire—modified*** *(LCQ-m)* is a 22-item sentence-structure measure of general cooperative, individual, or competitive orientation (Johnson & Norem-Hebeisen, 1979). The competitive items were not scored for this study. The gender-neutral statements were answered on a four-point Likert scale ranging from completely false to completely true. The scale contains items such as "I do better when I work alone" (individual orientation) or "It's a good idea for students to help each other learn" (cooperative orientation). These items are designed to elicit responses that indicate

a subject's learning orientation preference. The LCQ-m has yielded alpha reliability of .88 for the cooperative subscale and .80 for the individual subscale (Boykin & Bailey, 2000).

Experimental Task

"The Problem Solving with Fractions Task," a mathematics unit developed specifically for this study for students in grades 3-6, contains nine practice segments surrounding three instructional domains—identifying, adding, and subtracting fractions. Each domain encompassed three of the nine practice segments, which included 15 problems. The National Council of Teachers of Mathematics (NCTM) standards (1999) guided the determination of grade-level appropriate material. The practice segments were prepared with the notion that students achieve more in mathematics when provided with manipulatives to assist in their conceptual understanding of various mathematic domains (Lanius, 2000; NCTM, 1999; Heddens & Speer, 1995).

Measurement of performance on the identification, addition, and subtraction of fractions was carried out through the development and administration of pre- and posttests (Tests A and B) containing 15 multiple choice items and math computation problems. Each of the items was based on, but not directly reproduced from, the practice problems students were exposed to throughout the weekly experimental sessions. The pre- and posttest measures were developed by a former upper-elementary mathematics teacher. Test A and Test B were parallel forms of assessment testing students' knowledge of fractions regarding each domain in the Problem Solving with Fractions Task. Based on pilot testing, they were judged to be equal in difficulty.

Pre- and posttests were divided into three equal sections according to subject domains. The number correct was added and separate scores were computed for each subject. Adding the subject domain scores produced a total score. For each weekly assessment, the number of answers correct was calculated to a total score. Each weekly test was designed to assess the three mathematical domains separately.

Session Description

The sessions consisted of nine lessons—one for each session—designed specifically for this study. Each lesson included a lecture, practice, and review. An advanced graduate student, who developed the experimental tasks and performance measures for the study, presented the lessons. Each research assistant who served as a task facilitator received training in the academic tasks to be carried out by the student participants. The lessons were scripted for the facilitators to effectively instruct the students. The lectures began with an introduction that outlined a four-step problem-solving method with a guess and check strategy: identifying the problem, selecting a strategy, solving the problem, and checking the answer. The facilitators then used manipulatives to demonstrate an approach

to the problem-solving and guess and check strategies. During the practice, students completed one daily practice segment. Afterward, the facilitators continued with the review, revisiting two problems from the corresponding daily practice. For each problem reviewed, the facilitators demonstrated the suggested approach to finding the correct solution. Students were encouraged to follow along with the facilitators using the provided manipulatives.

Materials (Manipulatives)

Two types of manipulatives were used in this study—pattern blocks and fraction circle pieces. The pattern blocks were a standard set of plastic shapes: 1 hexagon, 2 trapezoids, 3 rhombuses, and 6 triangles. A set of fraction circle pieces consisted of 12 circles: eleven circles divided into 50 plastic circular regions, and one was intact.

Experimental Contexts

High Communal Learning. Scripted prompts were used to orient students to the demands of the randomly assigned experimental learning conditions. While researchers considered students in this study to be exposed to a high incidence of communal values and behaviors, within the school context, it was important to use the scripted prompts so that students would be matched on their experimentally designed exposure to the cultural themes. In the high communal learning condition, there were 12 students for each session. The students were equally divided into three groups. The classroom was set up to facilitate communal learning. For this condition, there were three rectangular tables with four chairs. Group members shared the table as they functioned interdependently. One set of materials was given to each group. To generate a sense of companionship among the participants, a facilitator directed students to stand and hold hands in a circle during the reading. A communal prompt was read:

> I would like you to help each other learn this mathematics lesson I've placed on the table. You will be learning about how to identify, add, and subtract fractions. You will have 15 minutes to study the information with your group. At the end of the 15 minutes, you will be given a short quiz. It is important for each member of the group to do the best he or she can so that the whole group will do well. You are encouraged to help each other learn the information. Your group is counting on you to do your best. You should be helpful, considerate, and give for the good of the group. This should be easy since you all live in the same area, have similar friends, and go to school together. Remember also that your group is working to get the most out of this time together. How well the group does depends on how much you all take part in the learning. Does everyone understand? I will remain in the room the entire time if you should have any questions. I will tell you when to begin.

This scenario introduced and reinforced the underlying themes of the communalism concept. For example, social orientation, group duty along with the ability

to share, was facilitated through the physical arrangement of the workstations in the high communal learning context. The physical arrangement of the desks, along with the use of one set of materials, provided a sense of identity among high communal students. The high communal learning prompt also emphasized the notion of group duty by stating that the success of the group is incumbent upon each group member doing his or her best. The high communal prompt established identity by stating that students lived in the same neighborhoods and went to the same schools. The sharing theme within the communalism construct was captured through the use of only one set of materials per group and through the prompt's emphasis on the value of helping each other.

Low Communal Learning. Each session for the low communal learning condition was administered to 12 students simultaneously. They were seated individually at desks facing the front of the classroom. Each participant received his/her own set of materials. Before beginning activities, the students heard a prompt for the low communal learning condition:

> For this assignment, you should work individually. Each of you will receive your own materials to use. You will be learning how to identify, add, and subtract fractions. Just like in your classroom, you are to work by yourselves and may not help or be helped by others. It is important to learn and work on this lesson by yourselves because your performance will be based on what you can do on your own. If you have any questions, quietly raise your hand and ask me. You will have 15 minutes to study. There will be a short quiz after the 15 minutes, so it is important that you work hard to do your best so you will do well on the quiz. Remember to make the most out of your study time so you can do your best on the quiz. Does everyone understand? I will remain in the room the entire time if you should have any questions. I will tell you when to begin.

Low communal group dynamics were characterized by an absence of the statements and classroom arrangements that emphasized communalism. For example, individual workstations and materials for each student, as opposed to a group of students, underscored individualized learning and an absence of social orientation and sharing. Group duty was not emphasized as the low communal prompt stated that it is important for each student to do his or her best.

Data Collection Procedures

Two African American male graduate students collected the data for this study. The students in the sample were divided into grade-level clusters of 3rd/4th and 5th/6th, and then evenly divided by grade and gender for each learning condition. Conditions were randomly assigned. Sessions were the same for each grade-level cluster. This study extended over three weeks, with an introductory session, nine task sessions, and a closing session, one session per day. The task sessions were administered, in consecutive order, three days per week. The closing session took place on the day following the ninth task session. Data collection procedures are depicted in sections according to the experimental

sessions. Prompts for the high and low communal contexts were read each day, before the experimental sessions.

Introductory Session. Before the introductory session, students were escorted by the research assistants from their classes to one classroom and asked to choose a seat at one of six tables. The research assistants greeted and introduced themselves to the students, recorded attendance, and informed the students of the three domains of instruction for the following three weeks. Students were encouraged to academically perform to their best abilities, advised of behavioral expectations in following directions and respecting one another, and apprised of their right to excuse themselves from the study at any time.

A pretest was administered during the introductory session. First, students were provided with pencils, answer sheets, and pretests, and were instructed to head their answer sheets with their name, date, and grade. Facilitators distributed both versions (A and B) of the test in an alternating fashion, assuring that adjacent students did not have the same version of the test. Facilitators read the instructions to the tests and allotted 10 minutes for the students to complete them. When this time expired, the facilitators collected the pencils, answer sheets, and pretests.

Research assistants introduced the manipulatives—pattern blocks and fractions circle pieces. Each participant received a set of pattern blocks. The facilitators named each shape in the set provided, and dispensed a set of fraction circle pieces. Students were instructed to freely explore the manipulatives for five minutes. The facilitators collected the manipulatives after that time and escorted the students back to their homeroom classes.

Task Sessions. Research assistants escorted students from their homeroom classes to two rooms, one for the communal learning context and one for the individualistic learning context. In the first task session, students in the high communal conditions were given their group assignments and informed that they would be working with the same students each session. Students in the low communal learning conditions were instructed to choose a desk that they would use for the duration of the study. During subsequent sessions, students were instructed to enter the room and sit in their seats.

Facilitators distributed the materialspencils, answer sheets, practice sheets, and manipulatives—and asked students to head their answer sheets with their name, grade, and date. The high and low communal condition prompts were read at the beginning of each experimental session, prior to student task engagement. The facilitators continued with a 10-minute lesson of the daily task. Following this, the students had 15 minutes to complete the practice segment of the daily task. After answer sheets were collected, the facilitators conducted a five-minute review of the practice segment, and collected the remaining materials. At the end of each of the nine sessions, students were escorted back to their homeroom classes by a research assistant.

Weekly Assessments. Weekly assessments were administered after the review segments of sessions three (identifying fractions), six (adding fractions), and nine (subtracting fractions). Students in the communal learning condition were separated from each other, allowing for independent assessment. Students were given their own pencils, answer sheets, and assessments, and were directed to head their answer sheets with their name, grade, and date. The facilitators read the instructions, allotted students 10 minutes to complete the assessments, and collected the assessment materials.

Questionnaires and Measures. After the review, the HCM was administered during session four, and the LCQ during session seven. The PBBM was administered after the posttest in the concluding session. First, the facilitators disseminated the questionnaire or measure. Then, in the communal contexts, research assistants provided each student with a pencil. The students silently followed along as the facilitators read the instructions. Next, the research assistants read each question and answer option. Students were directed to complete the questionnaire or measure as the answer options were being read. After students had an opportunity to answer each question, the questionnaires or measures and pencils were collected.

Concluding Session. For the last session, research assistants ushered students from their homeroom classes to the delegated rooms according to learning context. Students in both contexts sat separately to obtain individual posttest performance data. The research assistants gave each student pencil, answer sheet, and posttest, and told them to head their answer sheets with their name, grade, and date. Similar to the pretest, the posttest included problems in the identification, addition, and subtraction of fractions. Those who received Test A for the pretest completed Test B as the posttest. Conversely, those who completed Test B as a pretest received Test A for a posttest. Students were allotted 10 minutes to finish the posttest. As mentioned, the PBBM was administered following the posttest. The research assistants then expressed their gratitude for the students' participation in the study.

Results

The data analysis plan for this study included four three-way analyses of covariance to determine the effects of gender, grade-level cluster, and learning context on both overall mathematics performance and individual mathematics assessment in the identification, addition, and subtraction of fractions. Also, a series of correlation analyses was executed to determine whether exposure to, and preference for, communal themes outside of the classroom were associated with mathematics performance.

Reliability of Measures. The HCM yielded an internal alpha reliability of .67. The internal alpha reliability coefficient for the PBBM was .75. The LCQ had an internal alpha reliability coefficient of .67 for the cooperative subscale. For the individualistic subscale, the internal alpha reliability coefficient was .76.

Descriptive Statistics (HCM, PBBM, & LCQ). Descriptive statistics were obtained for the mediating variables to determine the level of endorsement for communalism and cooperation outside of school, and cooperative learning in school. Each scale's midpoint was 2.50. The HCM mean and standard deviation were 3.15 and .37, respectively; the PBBM mean and standard deviation were 3.02 and .45, respectively; the LCQ-cooperative mean and standard deviation were 3.16 and .61, respectively; and the mean and standard deviation for the LCQ-individualistic were 2.46 and .73, respectively. These results show that the participants endorsed communalism and cooperative learning past the midpoint for the HCM, PBBM, and LCQ-cooperative and did not endorse individualism beyond the midpoint for the LCQ-individualistic.

Analysis of Performance. Analysis of co-variance was executed to determine the effects of gender, grade-level cluster, and learning context on overall performance as a function of a co-varied pretest to posttest performance. A main effect was found for learning context (see Table 1). These findings disclosed that, overall, students in the high communal learning context performed significantly better on the posttest than students in the low communal learning context. A two-way interaction also emerged between learning context and grade level cluster (see Table 2). Post hoc analyses revealed significant differences in post-test performance between the low and high communal learning contexts within the third/fourth grade-level cluster. No significant performance differences emerged in the fifth/sixth grade-level cluster. Figure 1 depicts the interaction.

A 2x2x2 analysis of co-variance was conducted to examine the effects of gender, grade-level cluster, and learning context on weekly performance for identifying fractions. Pretest performance served as the covariate. A main effect was found for grade-level cluster (see Table 3). These findings imply that the students in the fifth/sixth grade clusters performed significantly better on the Identifying Fractions Weekly Assessment than students in the third/fourth grade cluster. Also, a two-way interaction emerged between learning context and grade-level cluster (see Table 4). These findings revealed a significant difference in student performance between the high communal and low communal learning contexts within the third/fourth grade cluster. No significant performance effect for the fifth/sixth grade cluster emerged.

Table 1
Unadjusted Means and Standard Deviations
for Posttest Main Effect: Learning Context

	Mean Score		F	Level of Significance
			5.78	.05
	Hi Communal	*Lo Communal*		
Pretest	8.06	8.44		
Posttest	11.25	9.31		

Table 2
Unadjusted Means and Standard Deviations for Posttest:
Learning Context*Grade-level Cluster Interaction

Mean Score			F	Level of Significance
			4.80	.05
	Pretest			
	Hi Communal	Lo Communal		
3/4 cluster	7.30	6.33		
5/6 cluster	8.82	10.55		
	Posttest			
3/4 cluster	11.40	6.44		
5/6 cluster	11.1	12.18		

Figure 1

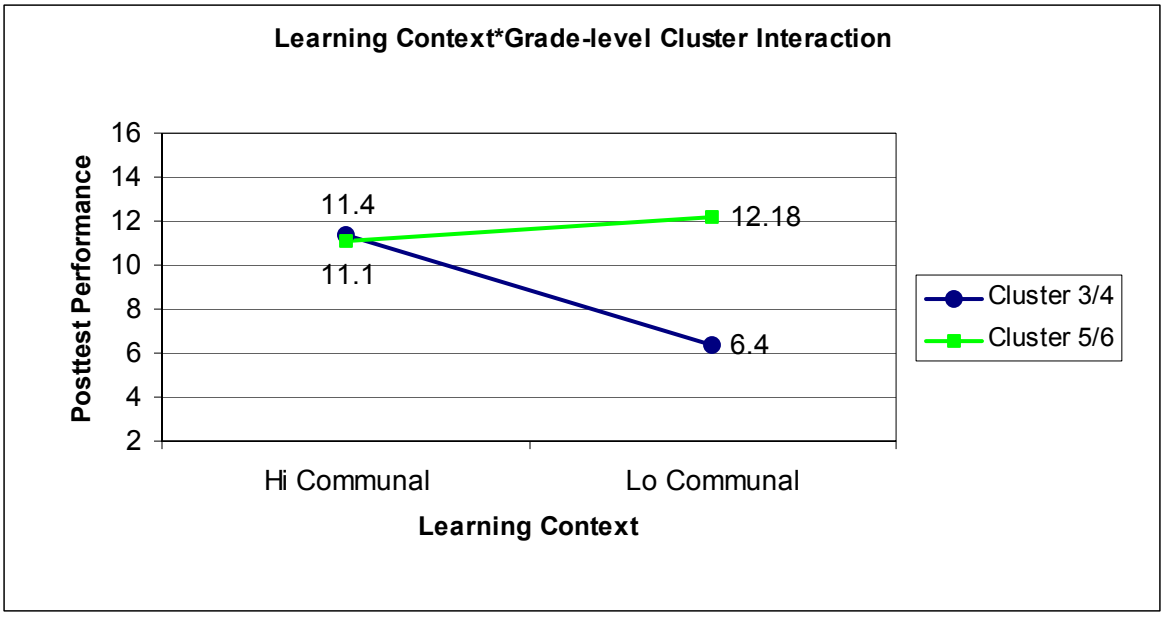


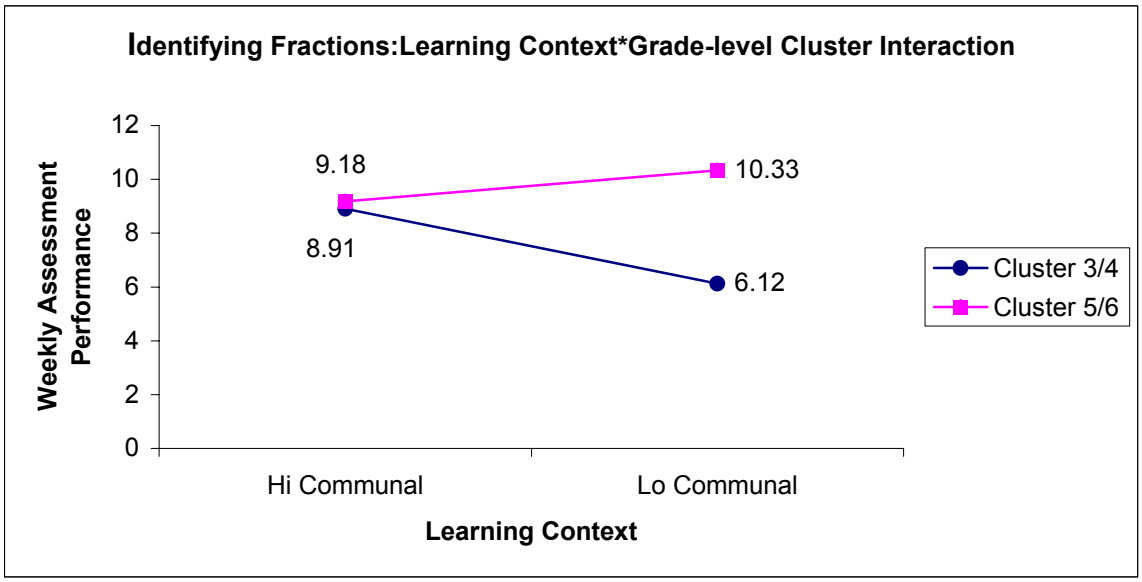
Table 3
Unadjusted Means and Standard Deviations Identifying Fractions
Grade-level Cluster Main Effect

Mean Score			F	Level of Significance
			7.60	.02
	Pretest	*Identifying Fractions*		
3/4 cluster	2.11	7.51		
5/6 cluster	2.59	9.76		

Table 4
Unadjusted Means and Standard Deviations for Identifying Fractions
Learning Context*Grade-level Cluster Interaction

	Mean Score		F	Level of Significance
			4.34	.05
Pretest				
	Hi Communal	Lo Communal		
3/4 cluster	2.09	2.12		
5/6 cluster	2.09	3.08		
Identifying Fractions				
3/4 cluster	11.40	6.44		
5/6 cluster	11.1	12.18		

Figure 2



Another 2x2x2 analysis of co-variance was performed to explore the effects of gender, grade-level cluster, and learning context on weekly performance in fraction addition. Pretest performance was the covariate. A marginal main effect was obtained for grade-level cluster (see Table 5). These findings suggest that students' performance scores in the fifth/sixth grade cluster were higher on the Adding Fractions Weekly Assessment than students' scores in the third/fourth grade cluster. A final 2x2x2 analysis of co-variance was implemented to search for the effects of gender, grade-level cluster, and learning context on weekly performance for subtracting fractions.

Table 5
Unadjusted Means and Standard Deviations for Adding Fractions
Grade-level Cluster Main Effect

	Mean Score		F	Level of Significance
			3.27	.08
	Pretest	*Add Fractions*		
3/4 cluster	2.40	8.00		
5/6 cluster	3.43	12.38		

A marginal main effect was also found for learning context (see Table 6). These findings revealed that the students in the high communal learning context performed better than students in the low communal learning context on the Subtracting Fractions Weekly Assessment. A two-way interaction emerged between learning context and grade-level cluster (see Table 7). Post hoc analyses revealed that there was a significant difference between student performance in the high communal learning context and student performance in the low communal learning context in the third/fourth grade cluster. In contrast, no significant difference in performance appeared in the fifth/sixth grade cluster. Adjusted mean scores are presented in Figure 3.

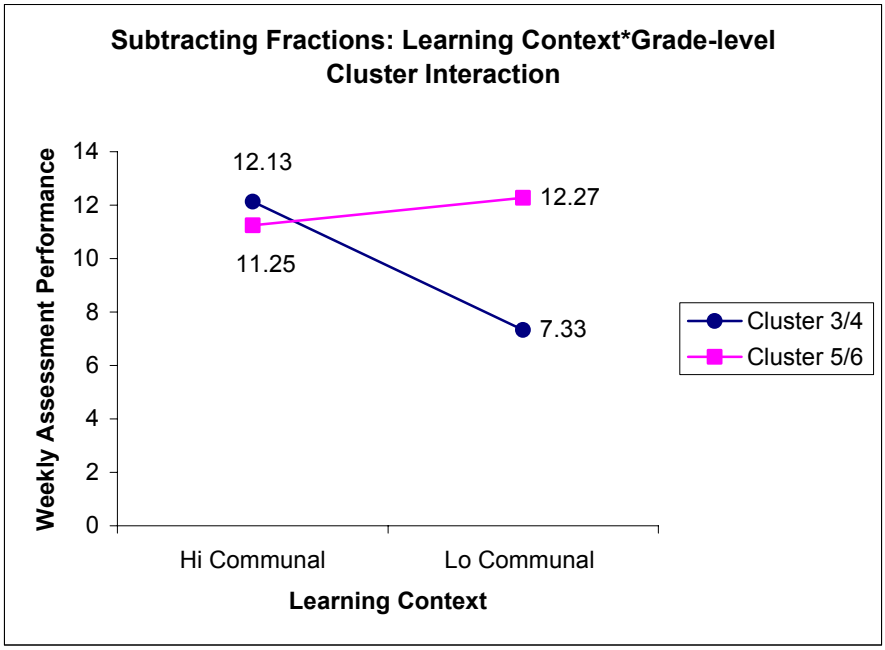
Table 6
Unadjusted Means and Standard Deviations for Subtracting Fractions:
Learning Context Main Effect

	Mean Score		F	Level of Significance
			3.86	.06
	Pretest	*Subtract Fractions*		
3/4 cluster	3.31	11.69		
5/6 cluster	3.12	9.80		

Table 7
Unadjusted Means and Standard Deviations for Subtracting Fractions:
Learning Context*Grade-level Cluster Interaction

	Mean Score		F	Level of Significance
			8.22	.01
	Pretest			
	Hi Communal	Lo Communal		
3/4 cluster	3.00	2.33		
5/6 cluster	3.63	3.91		
	Subtracting Fractions			
3/4 cluster	12.13	7.33		
5/6 cluster	11.25	12.27		

Figure 3



Analysis of Relationships. Table 8 shows two positive intercorrelations among the mediating variables. The first inter-correlation was found for the HCM and PBBM. This suggests that the higher students rated their perception of the level of communal beliefs and practices endorsed by family members in the home, the higher was their endorsement of communal behaviors and beliefs. The second correlation was found between scores on the PBBM and LCQ-cooperative. This suggests that the higher the students rated endorsement of communal behaviors and beliefs, the higher the rating for attitudes toward cooperative learning contexts.

Table 9 reveals that there were two negative correlations regarding mediating variables and performance in the communal context. There was a negative correlation between the LCQ-cooperative and the identifying fractions weekly assessment. This suggests the higher the rating for attitudes toward cooperative learning, the lower the performance on the identifying fractions weekly assessment. The next negative correlation was between the LCQ-cooperative and Adding Fractions Weekly Assessment. This correlation suggests similar results. The higher the rating for attitudes toward cooperative learning the lower the performance on the Adding Fractions Weekly Assessment.

Table 8
Mediating Variables Inter-correlations

	HCM	PBBM	LCQ-coop	LCQ-ind
HCM	1.00			
PBBM	.322*	1.00		
LCQ-coop	-.27	.42**	1.00	
LCQ-ind	.18	.18	-.21	1.00

*p<.05
**p<.01

Table 9
Communal Context Correlations

	Pretest	Posttest	Identifying	Adding	Subtracting
HCM	0.24	.27	.13	.09	.04
PBBM	-.03	.03	.06	-.14	.13
LCQ-coop	-.35	-.20	-.51*	-.54**	.04
LCQ-ind	.16	.13	.02	-.01	.02

* p<.05
**p<.01

Discussion

Researchers wanted to determine whether (a) performance on mathematics units was enhanced as a function of gender, grade-cluster and learning context; and (b) whether endorsement of the communal theme was related to academic performance. With a sample of 48 low-income African American students, the authors found that students in the high communal context performed significantly better on the overall mathematics posttest than those in the low communal context. Similar results were obtained for performance across certain mathematics domains. The authors also found that high endorsement of the learning contexts rich with cooperative themes were related to lower performance on both identification and addition of fractions in the high communal context.

Overall, the high communal learning context fostered high academic achievement for low-income African American children. In addition to being consistent with other empirical findings (Dill & Boykin, 2000), researchers were able to investigate and confirm the existence of communal themes in the out-of-school, proximal experiences of this population. These findings, taken together, further corroborate the claim that culture is intricately linked to cognitive development and, when incorporated into academic settings, academic performance of low-income African Americans is bolstered

substantially. These findings, however, emerged only for the students in the third/fourth grade cluster. In particular, interaction effects yielded significant performance for younger high communal context students, but not older. One possible explanation is older students worked on similar fraction lessons during regular classroom instruction. This increased exposure may have suppressed students' sensitivity to the manipulated conditions, while simultaneously producing ceiling effects for the fifth/sixth grade clustered sample.

The finding that increased preference for cooperative learning environments was related to lower performance in fraction units was not in keeping with expectations. In fact, a trend of negative correlations between the LCQ-coop and performance on the pre- and posttest, along with identification and addition, emerged. Researchers speculate that, in this study, the construct being measured in the LCQ-coop (i.e., cooperation) did not fully mesh with other indices measuring the salience of and preference for communal themes. In fact, upon inspection of the correlation matrix, a negative relationship between HCM scores and LCQ-coop scores emerged, although it was not significant. Therefore, a negative correlation between cooperative preference and performance does not implicate a negative relationship between communal preference and performance. More research, however, is needed to examine the operational, structural, and fundamental differences between cooperation and communalism.

COMMUNALISM STUDY NO. 2

This study had three objectives: 1) to determine whether performance on a classroom reading comprehension task would be enhanced by learning context; 2) to examine whether reading and studying in a particular learning context would influence the long-term retention of knowledge; and 3) to assess the relationship between performance in different learning contexts and preferences for communal vs. individualistic orientations.

Sample

The sample consisted of 69 low-income African American male and female fourth- and fifth-grade students from a northeastern United States urban public school. Low-income status was determined by the students' participation in the free or reduced lunch program at the elementary school they attended.

Instruments

The ***Home Communal Measure*** *(HCM)* evaluates the level of a student's endorsement of communal beliefs and activities occurring in the home (Boykin & Pippin, 1997). The HCM contains 20 items, divided into four subscales representing the four dimensions of the communalism construct (fundamental interdependence, group duty, sharing, and group identity). The scale items are rated along a four-point continuum ranging from 1, "Not at all like me," to 4, "Very much like me." Obtaining the mean of the 20 responses determines the overall HCM score. The HCM has yielded an alpha reliability coefficient of .91 (Boykin & Bailey, 2000).

The ***Personal Beliefs and Behaviors Measure—revised*** *(PBBM-r)* measures a student's preference for communal attitudes and behaviors (Boykin & Pippin, 1997). Two scenario-based versions of the PBBM-r have been constructed, one depicting female characters and the other depicting male characters. The PBBM-r contains 20 different scenarios equally divided into four subscales representing the four communal dimensions. Students rate their similarity to the scenario's character using a four-point Likert scale ranging from 1, "Not at all like me," to 4, "Very much like me." The overall PBBM-r score is derived from the mean of the 20 responses. The PBBM-r has yielded an alpha reliability coefficient of .91 (Boykin & Bailey, 2000).

The ***Learning Context Questionnaire-modified*** *(LCQ-m)* is a 22-item sentence-structure measure of general cooperative, individual, or competitive orientation (Johnson & Norem-Hebeisen, 1979). The competitive items will not be scored for this study. The gender-neutral statements are answered on a four-point Likert scale ranging from completely false to completely true. The scale contains items such as "I do better when I work alone" (individual orientation) or "It's a good idea for students to help each other learn" (cooperative orientation). These items are designed to elicit responses that indicate

a subject's learning orientation preference. The LCQ-m has yielded alpha reliability of .88 for the cooperative subscale and .80 for the individual subscale (Boykin & Bailey, 2000).

The instrument used to determine the text recall performance of the students consisted of two nine-question quizzes (one per week) and one unit exam that was a compilation of the two quizzes taken in the two weeks before the unit exam. The quiz items required students to provide definitions and short answers to questions about the lessons. The questions were taken from the teacher edition of the social studies textbook. Performance scores were the raw scores from the total number correct on each weekly 9-question quiz and the 18-question unit exam.

Experimental Tasks

The lessons used to construct the experimental task were taken from a fourth-grade social studies textbook entitled *Geography: The World and Its People* (Armstrong, Boehm, & Hunkins, 1998). The lessons consisted of two merged African geography reading selections, one focusing on general African geography, and the other on Egypt-specific geography. None of the students had previous exposure to the text. The following passages are samples taken from the general African and Egypt specific social studies lessons.

> ***(Africa-general selection)***
> In the South, most of Africa stands on very high land, more than 2,000 feet above sea level. In this part of Africa there are many grassy areas. They are called grasslands. This land is very much like the Great Plains of the United States. The land is used for growing corn and grass for animals to eat. Africa also has some very big mountains. Mount Kenya lies on the equator in east Africa. Mount Kilimanjaro is the tallest mountain in Africa. It is also the fourth tallest mountain in the world. Mount Kilimanjaro is taller than any mountain in Europe. The caps, or tops, of both Mount Kenya and Mount Kilimanjaro are snowy. The snow stays even in the warm climate. This is because they are so tall. The tops reach into the cold air above the clouds.

> ***(Egypt-specific selection)***
> The Sahara Desert is in North Africa. It starts near the Atlantic Ocean and ends in the Mediterranean Sea. It is so big it can cover all of the USA. The Sahara Desert covers most of Africa. It gives Africa two main parts. The part of Africa that is in the desert is called Saharan. The rest of Africa is south of the desert and is called "Sub-Saharan" because it is located south of the Sahara Desert. The desert is very hot and dry. It gets less than four inches of rain every year. Only part of the desert is made up of sand. The sand in the desert is found in dunes. Dunes are hills of sand made from the wind. The rest of the desert is made up of small rocks. The Sahara Desert covers most of Egypt. The rest of Egypt is near the Nile River.

Experimental Conditions

High Communal Learning Context. During the experimental phase, there were three high communal groups with three students each, for a total of nine students per session. The high communal learning context room was set up with three desks or small round tables in a circle in the center of the room. Three students were assigned to each set of desks or tables, in groups of two males and one female or one male and two females. Each group was given one set of materials (geography selection, paper, and pencil). Students were read an instructional prompt that encouraged them to study and operate in the manner consistent with the learning condition. Students were asked to stand in a circle and hold hands while the following passage was read:

> I would like you to help each other learn this geography lesson I've placed on the table. You will be learning about the geography of Africa and will have 15 minutes to study the information with your group. At the end of the 15 minutes, you will be given a short quiz. It is important for each member of the group to do the best they can so that the whole group will do well. You are encouraged to help each other learn the information. Your group is counting on you to do your best. You should be helpful, considerate, and give for the good of the group. This should be easy since you all live in the same area, have similar friends, and go to school together. Remember also that your group is working to get the most out of this time together. How well the group does depends on how much you all take part in the learning. Does everyone understand? I will remain in the room the entire time if you should have any questions. I will tell you when to begin.

Low Communal Learning Context. Each of the nine students sat at individual desks, lined up in rows facing the front of the room, similar to a traditional classroom. Each student was given his or her own set of materials. Similar to the high communal learning prompt, a low communal learning prompt was read to encourage students to study and learn during the experimental phase in a manner consistent with the learning context. The experimenter instructed students to remain seated at their individual desks throughout the instructional and learning phases of the experiment, and read the following passage:

> In this study you are working individually. Each of you will receive your own reading and writing materials to use by yourself. The information you will be learning about is the geography of Africa. Like in your classroom, you are not to work together and no one else may help you study. It is important to learn and work on this lesson by yourselves because your performance will be based on what you can do on your own. If you have any questions, quietly raise your hand and ask me, not your neighbor. You will have 15 minutes to study. There will be a short quiz after the 15 minutes. It is important to work hard so you will do well on the quiz. Remember to make the most out of your study time. Does everyone understand? I will remain in the room the entire time if you should have any questions. I will tell you when to begin.

Procedure

One African American female graduate student and one African American female undergraduate assistant served as the experimenters for this study. It consisted of two experimental trials held one day each week for two weeks. Each day, the experimenters escorted the fourth- and fifth-grade students from their classrooms to the two rooms in the school that were set aside for the study. Experimenters randomly assigned 69 students to either the high communal learning room or the low communal learning room. There were 36 students in the high communal learning room and 33 students in the low communal learning room.

For each trial, there were four experimental sessions conducted with both learning conditions operating simultaneously in different rooms. For both weeks, there were four high and low communal learning sessions each, with two of each in the morning and two of each in the afternoon. For example, during week one, in the first morning session, there was one high communal learning session with three high communal groups, comprised of three students and one morning low communal learning session with nine individual students. In the second morning session, there was one high communal learning session and one low communal learning session, with the same number of students in each. In the third afternoon session on the same day, there were high and low communal learning sessions operating simultaneously, with the same number of students per group. Finally, in the fourth and last session of the first trial, high and low communal learning were conducted at the same time. In the fourth session in both weeks, however, there were only six participants rather than nine in the low communal learning context.

Once in the learning context, students were instructed to read, study, and retain information from the geography lessons in either communal groups of three or individually. Text assignment of the geography lessons was fully counterbalanced across the four sessions for the two weeks of the learning phase. For example, in the first morning session during the first week, students in both learning contexts received the first lesson in general African geography. In the second morning session of the first week of the learning phase, students in both learning contexts received the first lesson in Egypt-specific geography. In the first afternoon session of the first week, students in both learning contexts received the second lesson in general African geography. Finally, for the second afternoon session of the first week, students in both learning contexts received the second lesson in Egypt-specific geography.

For week two, the structure of the learning context and number of students remained the same. The major difference was in the counterbalancing of geography lessons, where students in both learning contexts who did not receive a particular lesson in the first week received it in the learning phase of the next week. Overall, participants in each learning condition received all lessons in either the morning or afternoon of the two weekly trials.

The procedures for operating under the two learning contexts were explained to students once they were situated in their respective learning conditions in the separate classrooms. Explanations occurred each session. Experimenters explained the rationale for the study by telling students that this activity would help them learn better. Experimenters entertained students' questions or concerns and explained that their participation in the activity is entirely voluntary. Prior to the experiment, students were also ensured of their anonymity. Experimental prompts were read to students in each learning condition at each session.

For all sessions, students read to themselves as the experimenter read lessons aloud. Students then continued directly into their respective learning phase. During this phase, students were allowed 15 minutes to read and study the geography lesson. For high communal learning groups, one set of materials was provided for each group and within-group discussion of the lessons was strongly encouraged, but no between-group discussion was allowed. In the low communal learning context, each student was given a geography lesson to read on his or her own and no talking or sharing of ideas or materials was allowed. Each experimental session, including retrieving and returning students from and to their classrooms, took approximately half an hour.

At the end of the learning sessions, the experimenter collected the geography lesson materials and gave students a 10-minute quiz. All students sat at individual desks, just as participants in the low communal learning context had, and were given pencils and a quiz comprised of nine questions directly related to the geography lesson they studied throughout the first and second trials. For example, high and low communal learning context students in the first session of the first week took a quiz on the first lesson in general African geography. This procedure was also repeated for each experimental session for both weekly trials. The third week consisted only of an 18-question comprehensive unit exam that covered both lessons. The learning phase did not occur in the third week. Students were given 20 minutes to complete the unit exam. It was also after the completion of unit exams that all students received and filled out the HCM, PBBM-R, and both the cooperative and individual versions of the LCQ. All students were then debriefed, thanked, and escorted back to their classrooms.

One analysis of variance procedure was employed to discern the effects of trial (weeks one and two), gender (male and female), grade (fourth and fifth), and learning context (high and low communal) on the weekly quiz scores, which ranged from 0-9 and were determined by the teachers' edition answer key. Another analysis of variance procedure was employed to investigate the effects of gender, grade, and learning context on the unit exam scores, which ranged from 0-18. Zero indicated no correct responses on the 18-question exam, and 18 indicated all correct responses. To produce an academic indication of how well students performed on the weekly quizzes and on the unit exam, raw scores for correct responses were converted to grade percentages by dividing the number correct by the total number of responses and multiplying that quotient by 100. Also, correlation analyses were performed to determine any relationship between reports

of communal, cooperative, and individual preference and performance in the respective learning contexts.

Results

Reliability of Measures. Reliability coefficients for the measures were as follows: for the HCM (r=.69), the PBBM-R (r=.72); for the LCQ-M Sub-Scales; Cooperative (r=.89), and Individual (r=.88).

Descriptive Statistics. For all the instruments, including sub-scales, there was a scale midpoint of 2.50. Overall, for the HCM, the mean and standard deviation were 3.37 and .28. For the PBBM-R, 3.25 and .27, respectively. For the LCQ-M, the cooperative subscale had a mean of 3.51 with a standard deviation of .44; for the individual subscale, a mean of 2.10 with a standard deviation of .61 was obtained.

Analysis of Differences. To analyze weekly quiz performance by trial (weeks one and two), learning context (high and low communal learning), gender (male and female), and grade (fourth and fifth), the first analysis used a 2 x 2 x 2 x 2 Analysis of Variance (ANOVA) with repeated measures for the trial independent variable. This repeated measure analysis yielded a significant main effect for trial (see Table 10), indicating that overall performance was better at week two than at week one.

Table 10
Trial Main Effect

Mean Score		F	Level of Significance
		5.68	**.02**
Week 1	Week 2		
5.6	6.0		

Additionally, a significant main effect for learning context emerged (see Table 11), indicating that high communal learning context performance was significantly higher than performance in the low communal learning context.

Table 11
Learning Context Main Effect

Mean Score		F	Level of Significance
		154.48	**.0001**
Communal	*Individual*		
7.6	4.2		

The analysis also found a marginal ($p<.08$) two-way interaction between trial and learning context (see Figure 4). The difference in performance between week 1 and week 2 for the high communal learning context was significant. However, the difference in the low communal context performance was not significant across week one and week two. High communal performance scores were also significantly higher than those under the low communal context at week one and week two.

Figure 4
Interaction Means for Trial by Context

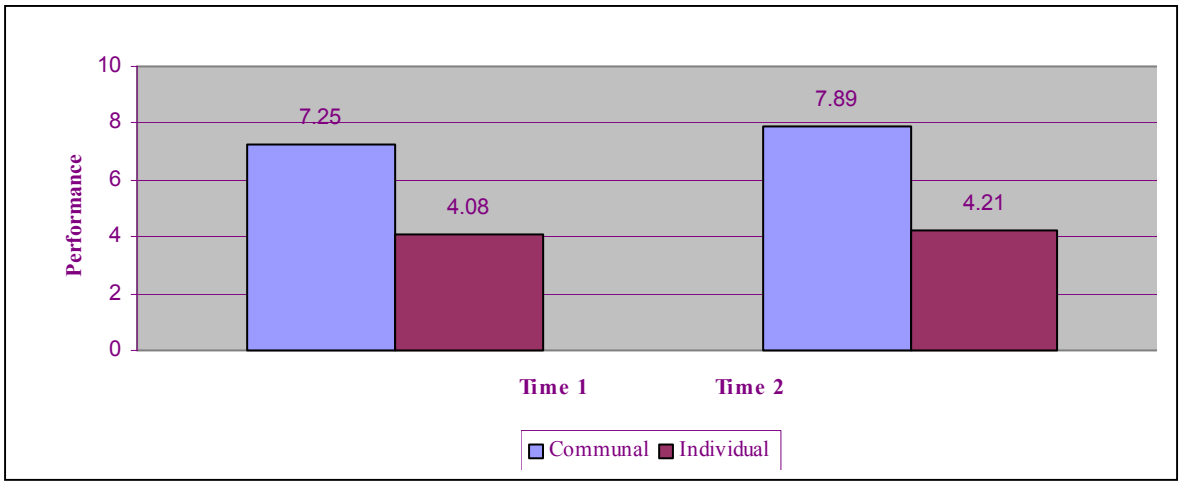


Table 12
Interaction Means and Standard Deviations for Learning Context by Trial

	Mean Score		F	Level of Significance
			3.01	.08
	High Communal	*Low Communal*		
Week one	7.25	4.08		
Week two	7.89	4.21		

To analyze exam (week three) performance by learning context, gender, and grade, the second analysis used a 2 x 2 x 2 analysis of variance (ANOVA). At week three, subjects took an 18-question comprehensive exam that was a compilation of the two 9-question quizzes covering the respective unit studied. This analysis yielded a significant main effect for learning context (see Table 13). This finding indicates that performance under the high communal learning condition was significantly higher than performance under the low communal learning condition on the unit exam.

Table 13
Learning Context Main Effect for Exam (week three)

Mean Score		F	Level of Significance
		101.37	.0001
Hi Communal	*Lo Communal*		
15.47	9.11		

Analysis of Relationships. Endorsement for the communal items on the HCM, the PBBM-R, or the LCQ-M did not reveal any significant correlations with overall performance under the high communal context. Under the low communal learning context, there was a significant negative correlation between exam performance (Time 3) and responses to the LCQ-M Individual Sub-Scale (see Table 14). That is, as performance on the final exam improved, there was a decrease in affirmative responses on the individual section of the learning context questionnaire.

Correlations were also obtained among the mediating variables. These results are first presented for the overall sample, followed by a presentation of the correlational findings based on grade. Inter-correlations were found in the overall responses to the PBBM-R and the HCM. Also, home communal experience significantly correlated with cooperative learning preference. This correlation suggests that the more students experience communal behavior at home, the higher their preference for cooperative learning behaviors. An inter-correlation was also found for cooperative learning preferences on the LCQ-M Cooperative Sub-Scale and responses on the PBBM-R. This indicates that the more students preferred cooperative learning, the more likely they were to endorse communal beliefs and behaviors. Finally, individual learning preference and cooperative learning preference were negatively correlated. The correlation shows us that the less students preferred individual learning, the more they preferred cooperative learning (see Table 15).

Table 14
Correlations for Learning Context Performance and Mediating Variables

Hi Communal			
	week one	*week two*	*week three*
HCM	-.11	-.15	.01
PBBM-R	-.32	.00	.09
LCQ-M(coop)	-.34	-.07	.18
LCQ-M (ind)	.12	-.01	-.32
Lo Communal			
	week one	*week two*	*week three*
HCM	.01	-.00	-.05
PBBM-R	.23	-.01	-.05
LCQ-M (coop)	.22	-.01	.30
LCQ-M (ind)	-.01	-.23	-.37*

*p<.05

Table 15
Mediating Variables Inter-correlations

	HCM	PBBM-R	LCQ-M (coop)	LCQ-M (ind)
HCM	1.00	.29*	.25*	-.18
PBBM-R			.50*	-.02
LCQ-M coop)				-.40*
LCQ-M (ind)				

*p<.05

Fourth-grade responses to the PBBM-R and the LCQ-M Cooperative Sub-Scale correlated positively. This indicates that as responses to the personal beliefs and behaviors scales increased, there was an increase in the preferences for the cooperative learning context. Fourth-grade responses to the PBBM-R and the LCQ-M Individual Sub-Scale correlated negatively. This suggests that as responses on the personal beliefs and behaviors scale increased, there was a decrease in fourth graders responses to the individual subscale of the learning context questionnaire. Also, responses to the LCQ-M Individual Sub-Scale and the LCQ-M Cooperative Sub-Scale correlated negatively, indicating that as scores on the individualism-based learning questionnaire decreased, scores on the cooperation-based learning questionnaire increased (see Table 16).

Fifth-grade responses to the HCM and PBBM-R correlated positively, as did their responses to the HCM and the LCQ-M Cooperative Sub-Scale and the PBBM-R and the LCQ-M Cooperative Sub-Scale. This suggests that as scores on the Home Communalism Measure increased, responses to the personal beliefs and behaviors along with those for the learning context questionnaire also increased. Responses to the LCQ-M Individual and Cooperative Sub-Scales also correlated negatively. This correlation suggested that as student responses on the individualism-based learning context questionnaire decreased, those on the cooperation-based learning questionnaire increased (see Table 17).

Table 16
Mediating Variables Inter-correlations (4th Grade)

	HCM	PBBM-R	LCQ-M (coop)	LCQ-M (ind)
HCM	1.00	.28	.06	-.04
PBBM-R			.69**	-.42*
LCQ-M (coop)				-.48*
LCQ-M (ind)				

*p<.05, **p<.01

Table 17
Mediating Variables Inter-correlations (5th Grade)

	HCM	PBBM-R	LCQ-M (coop)	LCQ-M (ind)
HCM	1.00	.36*	.38*	-.107
PBBM-R			.38*	.15
LCQ-M (coop)				-.33*
LCQ-M (ind)				

*p<.05

Discussion

Researchers wanted to determine whether short-term and long-term social studies learning for low-income African American students would be facilitated through particular learning contexts. Also, researchers sought the relationship between communal, cooperative, and individualistic orientations and students' performance within high and low communal contexts. Results from the study indicated that students who studied geography in high communal learning contexts performed better on measures of comprehension than students in the low communal context. Superior student performance in the high communal context was sustained for three weeks. For the first two weeks, quizzes were given on the passages studied for those weeks; in the third week, a comprehensive exam on all passages was administered.

There was also a negative correlation obtained for student performance on the comprehensive exam and preference for individual learning context. For low communal condition students, the correlation was significant; marginal significance was obtained for comprehensive exam performance/LCQ-ind correlation for high communal condition students. These findings suggest that as preference for individual learning increased, student performance on the unit exam decreased. While the relationship for high communal condition students appears sensible, the results for low communal condition students seem counterintuitive. Further research examining the relationship between cultural orientation and academic performance is needed.

While statistical significance was obtained for the mean difference between high and low communal contexts, the means, once converted to academic percentages, demonstrated the educational significance of the learning contexts and the performance differences they help to produce. Specifically, students studying geography in the high communal learning context scored an average of 86% on the 18-unit exam, nearly twice as high as the average of students in the individual learning context (51%). Furthermore, the exam was given after three weeks, requiring students to exhibit relatively long-term retention and the ability to integrate information on a task requiring multiple cognitive skills. Students were not informed of any future assessment of their geography knowledge during or after the two-week experimental phase. Also, all student materials were collected each week to limit additional exposure to experimental task information.

SYNTHESIS AND IMPLICATIONS OF FINDINGS

The major purpose of this experimental research was threefold: 1) to extend the range of conditions and academic tasks of previous studies in the communal learning paradigm (Jagers, 1987; Coleman, 1996; Hurley, 1997, Dill & Boykin, 2000), which found that African American children's cognitive performance is enhanced when cultural themes are infused in the traditional instructional setting; 2) to move the communal learning paradigm from primarily research-based instructional settings toward more school-based settings with actual elementary school tasks and texts; and 3) to determine the cultural orientation and socialization factors that mediate the effects of communal learning on academic performance.

The results of this research are generally consistent with previous findings and add to the current literature on African American children's learning and achievement in several ways, including:

1. High communal learning tends to facilitate identification, subtraction, and overall mathematics fraction performance among African American students in the third and fourth grades, but not in the fifth and sixth grades.

2. With geography lessons, high communal learning tends to promote superior long-term comprehension among fourth- and fifth-grade African American students more than low communal learning.

3. Reported practices of, and socialization toward, communal themes and behaviors at home are significantly related to African American elementary school student preferences for such themes, but not associated with performance.

Several implications from these findings warrant attention. First, the significant differences in reading comprehension and mathematics performance between high and low communal learning students demonstrate the feasibility of employing such conditions for many African American students. Specifically, high communal learning strategies lend themselves to classrooms as the experimental tasks in both studies were derived from actual textbooks and school curriculum modules. Furthermore, high communal learning contexts resulted in higher grades in both reading comprehension and mathematics problem-solving. From a school reform perspective, high communal learning appears to generate the type of academic results educators and students want to see.

There is a need for researchers to examine the pragmatic fit of the high communal learning paradigm into actual schools of low-income African American children. For example, while the high communal learning conditions fostered superior performance in math and reading comprehension in social studies, how well such conditions cultivate success across the curriculum has yet to be determined. Also, the current studies have only approximated classroom conditions for low-income African American students by

using school-based curriculum modules in out-of-classroom experimentally designed conditions. Researchers need to examine how the high communal learning context would hold in a typical elementary classroom, where students are exposed to one teacher and learn information across several subjects each day. Issues of classroom management and teacher efficacy using high communal learning strategies also warrant further research.

Another implication of these findings is the opportunity for researchers and educators to consider communalism as a cultural theme that fosters cognitive development and, therefore, is a likely facilitator of academic success. Although not directly related to academic performance, students in both studies reported the salience of communal themes in their out-of-school experiences. Should researchers accept the link between cognitive development and culture, then the home environments of many low-income African American children should be considered as sites where cognitive development flourishes. As such, incorporating the cultural themes from such sites into the classroom experiences of this population could foster academic success. Findings from the present studies corroborate this claim. Future research should, however, move beyond the simple presence of cultural themes as indicative of their interpenetration with cognitive development. It would be important to discern the specific situations and conditions where cognitive development meshes with cultural themes such as communalism. By identifying the manners and circumstances under which communalism filters into the cognitive development of many low-income African American students, researchers could more accurately represent such activities into modified classroom learning experiences.

Limitations and Future Directions

Despite the promise that the current research holds, several limitations persist. The relatively small sample sizes limit generalizability of the present findings. Moreover, a wider span of grades should be considered. Another limiting factor evident across the investigations was subject matching. It was not clear whether students, across grade levels and learning contexts, were matched on their exposure to the academic material in the experimental conditions. Although actual school curriculum modules extend the feasibility of communal learning conditions, uncontrolled subject exposure to experimental tasks threatens external validity of these findings.

Such is the case in study one where fifth- and sixth-graders very likely had experience with identifying, adding, and subtracting math and, therefore, performed the tasks well regardless of the learning context. Similarly, though a learning condition main effect emerges in study two, it was not clear whether students across learning contexts had prior instruction, albeit formal or informal, in the academic task. Closer scrutiny of study two calls into question the difficulty of quiz items across the geography topic. Although the questions came from the teacher edition of the same fourth-grade text, it is

not clear whether they were equally difficult with respect to the general African and Egypt-specific lessons.

By not examining the full range of academic skills necessary to achieve success in elementary school, these findings are limited in their applicability to the actual academic experiences of low-income African American children. Though previous studies have investigated the effects of communal learning contexts on critical thinking skills, particularly knowledge transfer and metacognition (Coleman, 1996; Serpell, 2002; Singleton, 2002), none used lessons from school-based curriculum or examined the effects of the learning conditions on critical thinking skill development over time. Future research should address such issues.

Finally, future research should assess home cultural conditions using a multi-method approach. It may be the case that in both studies, stronger endorsement of communal orientation may have resulted had the vignettes used in the questionnaire more strongly represented the actual activities of the population that was assessed. The operationalization of the communalism construct may not take into consideration the different ways and patterns and overall conveyance of communal themes. It is possible that students strongly endorse communal themes, but perhaps not in the ways presented on paper and pencil tasks. Future research should employ qualitative data collection strategies to gather information on the nuances, specifications, and dynamics of a communal orientation among a sample of elementary school students and use that to guide the construction of subsequent quantitative measures for communalism and communal learning.

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