

## **IMPROVING STUDENT ACHIEVEMENT THROUGH AN AFTERSCHOOL KNITTING PROGRAM: CULTURAL HISTORICAL ACTIVITY THEORY IN AN URBAN SETTING**

### **Background of the Study and Relation to My Research Agenda**

I taught knitting in elementary classrooms as part of my practice as a teacher. This experience inspired these research questions: How does knitting and learning to knit help children cognitively, emotionally, and socially? How does engaging in craftwork improve student achievement? Recent magazine and newspaper articles note that schools are rediscovering the academic benefits of knitting (Reinert & Stanton, 2007; Neary, 2007; Bafile, 2004). Teachers report that knitting has helped students increase their math and reading skills, as well as levels of concentration, control, follow-through, and sense of mastery. Students who knit are also reported to have improved hand/eye coordination, small motor skills, and communication skills (Seth Boyden Demonstration School, 2004). Evidence of the benefits of knitting on academic skills, however, remains anecdotal. There have been no research studies to quantify the correlation between the acquisition of knitting skills and an increase in academic achievement. Through a controlled study, this research project is designed to determine if reading and mathematical skills are improved through learning to knit.

This research will be conducted through the lens of cultural historical activity theory (CHAT) as theorized by Vygotsky (1978), Cole (1996), and Engestrom (1990), and others. CHAT seeks to make sense of human learning in a social context. The focus of this study is the use of an activity-based program in an afterschool setting to improve the educational experience of children. Aspects of CHAT, including mediation (through language and through tools), the essence of educational activity systems in a collaborative context, and the conscious utilization of the zone of proximal development will be explored in a diverse, multi-voiced setting.

This study is part of my overall research agenda to explore ways to improve the academic performance of “at-risk” or marginalized students through artistic and craft activity. This particular project has gained the attention of both scholars and handcraft industry leaders, and thus has lent momentum to my research agenda. I attended a workshop at the 2007 AERA conference on Cultural Historical Activity Theory in the World of Educational Quality. There I was encouraged by senior scholars to pursue this study as a model activity system. With this endorsement, I then contacted Karen Kendrick-Hands, proprietor of City Knits, Inc., a knitting shop in Detroit. She is an experienced knitting teacher and coach who has developed various curricula in knitting classes and workshops. She agreed to provide technical and pedagogical support for the project through the development of a curriculum that fits the particular needs of an afterschool program. Ms. Kendrick-Hands will also train the instructors of the course. Ms. Kendrick-Hands’ international status brought me in touch with Richard Caron, Global Knitting Coordinator for Coates & Clarke, International, and member of the Craft Yarn Council of America. A preliminary proposal was written and submitted to Coates & Clarke in June with the help of Susan Campbell, Project Officer in the Office of Research and Development. Verbal commitments on the part of the Craft Council have been made in terms of supplying tools and yarn, as well as volunteer instructors.

### **Design of the Study**

The project will proceed in two phases. The first phase is a pilot study (January through May, 2008) in which a knitting curriculum will be developed and used with a group of 15-20 elementary-age students in an afterschool program located in a public school or academy in an industrial urban setting. The program of instruction will take place twice a week during a 12-week period. Pre- and post-test data will measure math and reading skills of the students before and after participation in the knitting program. The proposed testing instrument will take less

than one hour to administer and will quantify math and reading skills. Qualitative data will be collected through participant interviews, teacher interviews, field notes, and recordings of the knitting sessions. Both quantitative and qualitative data will be analyzed in relation to the purposes of the pilot study, which are to: 1) document and fine-tune the efficacy of the knitting-instruction curriculum; 2) train a prospective group of knitting instructors; and 3) provide a preliminary analysis of the effects of learning to knit, and 4) provide an analysis of this after-school program through the perspective of cultural historical activity theory. I will be responsible for overseeing the development of the curriculum, securing arrangements with the participating school, supervising and participating in the course of instruction, and analyzing the data. The first phase will begin in January 2008, and conclude in May 2008. A report of the preliminary data has already been accepted to be presented at the Eastern Educational Research Association (EERA) Conference, February, 2008. A poster presentation of this phase will be presented at the National Needle Arts Association Conference in June, 2008.

The second phase of the study will proceed in Fall, 2008. This phase will involve a controlled study at an urban public school or academy. In addition to the intervention (knitting) group, a control group will also be established whose members will be matched for demographic characteristics, but who will not participate in the afterschool knitting program. Pre- and post-tests, interviews, and grades, and schoolwide testing results be analyzed for both groups. An analysis of this phase of the study will be presented at AERA, 2009.

### **Timeline for the Project**

January 2008	Knitting course developed, site, participants and instructors secured. Evaluation instruments and data collection equipment procured.
February-April 2008	Pilot knitting course conducted (Phase I). Data collected.
February 20-23, 2008	Preliminary data presented at EERA, Hilton Head, SC
April-July 2008	Data transcribed and data analysis completed.

June 10, 2008	Preliminary report made to The National Needle Arts Association meeting, Columbus, Ohio
August 1, 2008	Project evaluation and report issued for Phase I.
Sept.-Dec. 2008	Controlled study conducted (Phase II)
Dec. 2008-April 2009	Controlled study data transcribed and data analysis completed.
April 2009	Data presented at the AERA San Diego, California

### Projected Costs:

Development of knitting curriculum		
10 hours with Karen Kendrick-Hands @\$40/hour	400.00	
Printed materials for knitting curriculum	250.00	
Coordination and training of instructors	200.00	
Videotaping equipment for sessions	175.00	
Knitting equipment and supplies	1,200.00	Cost born by yarn industry
Data transcription	500.00	
Pre- and post – assessment instrument	300.00	
Eastern Educational Research Association (Feb 2008)	1,000.00	Cost born by Teacher Ed Dept.
National Needle Arts Association (June 2008)	500.00	
American Educational Research Assoc. (May 2009)	<u>1,000.00</u>	Cost born by Teacher Ed Dept.
Total Cost:	5,525.00	
Minus partner support	<u>-3,200.00</u>	
Total Award Sought:	2,325.00	

This budget includes the development of a curriculum that can be replicated and disseminated to parties interested in carrying out similar research. It also includes a training module to help insure the effectiveness of the program. The knitting equipment and supplies are expected to be donated by the Craft Yarn Council and/or Coates & Clark, Inc. Data transcription tasks will be shared between myself and a hired transcriber to note approximately 100 hours of instruction, interviews, etc. The assessment instrument will be licensed to the College of Education for use by any other researchers. Travel funds for attendance at the Eastern Educational Research Association and the American Educational Research Association meetings will be born by the Department of Teacher Education. The poster presentation anticipated for the National Needle Arts Association is intended to encourage further participation from the yarn/handcraft industry in funding future projects.