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## A mural made of clay!

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A MURAL MADE OF CLAY!

MASTER'S PROJECT

Submitted to the School of Education  
University of Dayton, in Partial Fulfillment  
of the Requirements for the Degree  
Master of Science in Art Education

by

Patricia Boone  
School of Education  
UNIVERSITY OF DAYTON  
Dayton, Ohio  
July 1995

Approved by:

A solid black rectangular box used to redact the signature of the official advisor.

Official Advisor

✓ July 19, 1995

## TABLE OF CONTENTS

	Page
Approval Page.....	ii
Chapter I.....	1
Problem Statement	
Purpose	
Justification	
Hypothesis	
Definitions	
Design of Project	
Sample	
Chapter II.....	6
Review of Literature	
Chapter III.....	16
Implementation	
Development of Plan	
Choosing Materials	
Production of Drawing	
Rolling Tiles and Transfer of Drawing	
Showing Depth	
Division of Labor	

Technical Considerations

Color Application

Drying and Firing

Mounting Specifics

Finishing

Chapter IV.....40

Evaluation

Examining the Process

Student Reaction

Conclusion

References.....48

## Chapter 1

### The Problem

This project charts the process and effects of a student generated art installation in a suburban elementary school in Kettering, Ohio. The art image is a 9 foot by 5 foot clay tile mural depicting the school mascot, the Viking Explorer. The project was undertaken by all students at J.E. Prass Elementary in Kettering and completed in the 1993-94 school year. The mural currently hangs in the lobby of the school. The student body and faculty gained a sense of community from the experience of a large group effort and continue to enjoy the permanent adornment to the school building.

### Purpose

The purpose of this project is to provide art teachers and interested parties a chronology of a major art installation done by students and two art teachers. It is a huge endeavor to involve 400 children in one project with limited time and space to work, but the finished result is an impressive mural gracing the entry of the school. The finished piece visually defines our school mascot for visitors and future students. This document will provide instruction to others who wish to undertake a similar task, but who may lack the technical knowledge or experience to do so.

### Justification

This project was designed in part to strengthen the perception of the art department by our staff, students and community. Before I arrived at this school, the focus was on craft oriented art activities that fostered little enthusiasm or credibility toward arts instruction. By practicing a more life-centered approach to teaching, art specialists can generate more energy and better work from their students. This project was built upon that energy and through group effort leaves in place at Prass a permanent art work to enhance the environment.

Another focus for the project was to stimulate the students and school atmosphere. The typical elementary school is planned around halls and doorways leading to classrooms and other places of assembly or exit. Priorities in design are function and cost. Walls serve to define and limit our space. They can also be a repository for artwork and have been since ancient people first portrayed the hunt image with primitive tools on cave walls. To create a visual focal point in an elementary school setting requires a person or group who sees the need and will follow through with a plan. I thought Prass Elementary needed a major project that could involve all students and be long lasting. Working with 400 children on one project was not easy, but the group effort created a feeling of community in all who contributed to it, and will affect those who view our work in years to come.

### Hypothesis

The purpose for this project was twofold: to provide a meaningful experience for all involved in the production of the mural and to enhance the entryway to our school with a visually pleasing and educational mural. In working together toward a common goal, students across grade levels, Kindergarten through six, came to understand how planning, compromise, creativity and accuracy come together in group art projects. There are applications to math, literature and social studies in such a project. For example, drawing the image to scale provided a select group of students an unique experience. They were chosen for their drawing ability and skills at working with others. These students felt a special sense of pride as their job provided all other students an image to follow. The entire student population contributed to the finished project in some aspect of construction or color application. A feeling of community and pride is a reward for each student as great as the gift of the mural to the school.

### Definitions

Clay: a fine-grained earth, chiefly aluminum silicate; it is produced by the deposit of fine rock particles in water, and used in the manufacture of bricks, pottery, and other ceramics.

Cone or pyrometric cone: a small triangular pyramid made of ceramic materials that are compounded to bend and melt at specific



temperatures. The cone serves as a time-temperature indicator of heat work in the kiln.

Fire: to bake in a kiln, as bricks, pottery, etc.. The heating of clay or glaze to a specific temperature.

Glaze: to overlay with a substance which gives a glassy finish when fused. A glass-like coating fusion bonded to a ceramic surface by heat.

Kiln: A furnace or oven for drying, calcining or firing ceramic objects.

Leather-hard: The conditioning of raw clay ware when most of the moisture has evaporated leaving it still soft enough to be carved or joined to other pieces.

Mural: a picture, typically large, placed or mounted on a wall.

Raw: Unfired, in a natural state, also called greenware.

Tile: a thin, usually rectangular piece of glazed, fired clay, often decorated, used for fireplace borders, bathroom walls, etc..

Underglaze: a colorant for clay which contains a high proportion of clay. A colored decoration applied to raw or biscuit ware before the glaze is applied.

### Design of Project

The project details the design and installation of a large clay tile mural in J.E.Prass Elementary in Kettering, Ohio. The subject matter is the Viking Explorer, the school mascot. This image incorporates a multicultural theme which the children are inherently interested in due to it being the school logo. They learn about Vikings in the fifth grade, and

until then, carry the image on school related items with no education in the meaning of the symbol. The mural was a learning opportunity for current and future students at Prass in the appearance and lore of the Viking. The report details all technical considerations such as: funding, design stages, logistics of group process, methods and materials of construction, storage, work space, application of color, firing, mounting, installation and troubleshooting. With this format, others may consider their own project with an agenda for action. Description and analysis of the whole process, including not only positive happenings, but pitfalls as well, provide valuable information to the reader.

#### Sample

The subjects used in this project include the entire student population of J.E.Prass Elementary. The school includes children from Kindergarten through sixth grade. Demographic characteristics of the student population include mostly Caucasian youngsters from middle to upper middle class homes with the typical mix of single and dual parent living situations. There are approximately 400 students in eighteen class sections. Art instruction occurs once a week for a sixty-minute time period. During this school year, I was assigned one and one-half days at Prass and directed the project. Another teacher was assigned two full days of art classes and assisted.

## Chapter 2

### Review of Literature

In producing our clay mural at Prass, we have stimulated not only the children, but the environment. According to Schimmacher (1988), an esthetically pleasing arena for education makes for a more meaningful learning experience. As a model for students, the teacher's willingness to undertake a large project with students has shown a commitment to the arts and to the school. Ownership and pride in one's environment has been achieved as the result of our group effort. The report on "National Standards for Art Education" states that attributes such as self-discipline, the collaborative spirit, and perseverance which are used so commonly in art instruction can transfer meaning to other learning experiences and in the rest of life. Our students worked as a team for the entire year and learned many lessons besides how to roll out clay tiles and make an image.

In the "National Standards for Arts Education", there are outlined content standards for various types of arts instruction, such as dance, music, theater and the visual arts. These standards point to quality and accountability. The measures can be used as a guide to evaluate and/or plan curriculum content. A basic content standard for the visual arts is the understanding and application of media, techniques and process. In our group project, the students had a keen awareness of these concerns by nature of the process we undertook.

Another standard is using knowledge of structures and functions:

that is, understanding how visual organization of elements in a work of art conveys ideas, attitudes or emotion by their arrangement. Our Viking theme utilized key images integral to the meaning, and communicated to the viewer without words or description. It was through our initial drawing process that the students organized pictorial placement for both meaning and expression.

"The National Standards" listed another content standard as that of making connections between visual arts and other disciplines. In our mural project, we began with a brief description of what our school symbol, the Viking Explorer, meant. He was not just a silly character drawn on student t-shirts and backpacks, but rather an important figure in history. We also discussed with the children the importance of working together in a group, how one person's effort and accuracy affected the next and indeed, the whole group. Spencer Kagan in Educational Leadership writes that cooperative learning reduces the individual disappointment some students may feel when not chosen to answer a question or participate in an event. An opportunity for a feeling of disappointment was possible in the early stages of our work when some students were chosen to draw the initial image. To reduce this possibility, we kept the students rotating a bit and only officially announced our project plan when the drawing was complete. Even then, latitude was built in for changes in areas such as land masses, clothing texture and ship design. Those students working on such an area as land masses

could decide if they wanted a ridge of mountains, a lake, a shore line etc. In general, the feeling of teamwork was supportive, and minimized feelings of competition in favor of the greater good.

The benefits of teamwork and cooperation were emphasized and compared to other pursuits such as sporting events, family life or group projects in the classroom. The children were very interested in the technical aspects of the project, such as how heavy would it be, how would it be hung and how much clay would it take? A discussion of science evolved from these questions. How would we keep something wet for a long time? Would condensation appear on the plastic sheeting? How quickly would evaporation from the tiles in the classroom occur? What makes the clay so red? Why do some tiles warp? Why is it necessary to hollow out the backs of each tile? Why does clay shrink and will clay that seems really wet shrink as much as drier clay? In fielding these questions, we turned the query back to the child and invited speculation, which usually led to the correct answer. Math played a huge part in the project, especially in the beginning. It was necessary to measure very carefully the size of each section and regulate the size of each tile. Gridding off the drawing into tile sized pieces demanded careful measuring from several students. Before these pieces could be cut apart, a coding system had to be developed and understood by the children to ensure correct placement of their piece on the drawing. Finally, for the installation, the children saw my teaching partner and I

cutting wood and cement board, mixing grout and filling in the cracks between tiles. These were not jobs normally associated with art in their minds, but as they passed by and asked questions, they could see art is not only about drawing on paper, it utilizes many skills from other aspects of life.

According to N.D.Perkins in Educational Leadership a learning experience is made more meaningful when the learner can display the understanding of new information by demonstrating it. Perkins calls this "understanding performances" and characterizes such actions as possessing the ability to explain the new information, exemplify it's use in fresh contexts, make analogies in other situations and generalize the facts or principles. When a child can assimilate learning and go beyond it in new applications, it shows understanding. Our children had many math applications in the mural making process. It was like one giant fraction problem: where did a piece fit in? How much of the mural do we see now? How much of an image overlapped on other sections, etc.? Each child above the third grade had to have a clear understanding of the organization of the project, and that organization relied on systems of numbers. A follow up project might have been to design a drawing that employed a number of parts that may or may not have been rearrangeable. The student would have to attend to the same concerns on a small scale as we did together on a grand scale.

Michael Parsons in How We Understand Art, describes various

stages of aesthetic experience as they relate to cognitive development. He discusses how individuals relate to a work of art, such as a painting, within predictable structures of response. Parson outlines 5 cognitive stages such as: stage 1, favoritism, stage 2, beauty and realism, stage 3, expressiveness, stage 4, style and form, and stage 5, autonomy. Each level describes characteristics associated with cognitive functions with increasing age. For example, very young children like just about all paintings. They can easily find something about a picture that they find pleasing, primarily color. Often, youngsters think the more color the better the art work. Subject matter is also a source of pleasure. If the picture has a cat in it and they have a cat, they like it. Young children are not interested in what others view, their opinions come from their own limited experience. Successive stages in aesthetic experience involve a greater emphasis on subject matter, expression, interpretation and relationship to other works, all dependent on cognitive development.

In planning a large project with a wide age range of children, stages of cognitive development had to be considered. As Parson finds, young children are not overly interested in deep meanings, but love color. The task we chose for them in our project dealt with applying bright pink glaze to already fired, colored tiles. We tapped the youngsters' pleasure of color by letting them stroke the pink glaze on top of other colors, and watching it slowly disappear under the glaze coat. Older

children were in charge of decision making and image construction to utilize their more discerning eye. By choosing jobs relating to cognitive development, we increased meaning and enjoyment of the project.

The completed tile installation has increased attention to the art program at Prass. At this school, there has been a negative reaction to art in recent years because of a poor art teacher who failed to generate enthusiasm or interest. Art class was seen as an hour of stern discipline with little opportunity for creativity. With a change of staff, the excitement and respect for art has risen. Positive art programs help children immediately and good community support ensure continued instruction by art specialists. Without community support, art programs are cut due to failed levies and as a result, art is taught by classroom specialists with no particular training in art education.

The work the children completed on our mural satisfied the components of what the Ohio Department of Education defines as a Comprehensive Arts Education. They offer four main goals for study in the arts of dance, drama/theater, music and visual art. They are: an aesthetic inquiry, a cultural understanding, a creative artistic intelligence and an understanding of the role of the arts in society.

An aesthetic literacy requires perception of aesthetic relationships in works of art, interpretation of meaning, judgment of significance, reflection and personal expression. Our children had to constantly examine the relationships of individual parts under construction in the



mural. They developed visual meaning by arranging a composition that defines the Viking Explorer without words. We looked at examples of public art and spoke of its significance, and finally, our children created the mural with their hands and hearts.

A cultural understanding lets one appreciate artistic achievements of their own and past societies. We spoke to the children about large public works of art and other ways people have chosen to adorn their environment in different cultures and times.

A creative artistic intelligence develops skills in perception, critical and creative thinking and problem solving. This was the main focus of our project. Through constant monitoring of student progress on the mural, changes were made and problems solved. It was necessary to be flexible and allow the children to be equal decision makers. When something wasn't working, we all needed to find a way to change it for the better, a good lesson not only for art, but for life.

Finally, an understanding of the role of the arts in society enables children to see the impact of the arts and recognize our culture in its images. We spoke to the students about what an impact a large work has on the viewer, especially in a medium not generally associated with large scale and pictorial presentation. We viewed other large works by artists such as Picasso, Georgia O'Keeffe and Andy Warhol and briefly described how the time they were living in affected their image making.

Education in the arts is crucial to preparing our children to be

culturally literate. Art education shows children how cultures and civilizations affect attitudes, beliefs and behavior (Hodsoll 1988). Schools with a strong art program enjoy such benefits as increased motivation to learn, better attendance, increased graduation rates, greater skills in creativity and problem solving and an improved multicultural understanding (Wolfensohn, 1993).

Correlations with other subject areas are many. Goldonowicz (1985), a high school art teacher in Connecticut, relates art to math in that art has certain principles for pictorial organization that are logical and time-proven. The mural, a feat of both composition and mathematical accuracy, includes 144 six inch tiles in the main image and at least that many smaller tiles serving as a border. All need to come together to create an effective image. The cultural theme of the Viking Explorer has social studies and literature references that will involve children in research as well as creating a picture. A fact sheet on Vikings with a line drawing of the mural design to color was given to each child in the school. Goldonowicz relates art to English as both require a vocabulary of communicable ideas and terminology. Schirrmacher (1988) correlates art to science in observation of physical properties such as wetness, texture, hardness etc. In this project, attention to moisture content of clay, change of shape with pressure, effects of water, composition of materials and attention to the firing process are critical elements that need careful monitoring.

In a wall mural project directed by a group of art education students at Morehead State University in Lexington, Kentucky, the student population of a local elementary school designed and painted a large jungle scene. An important part of the children's instruction included frequent critiques of the work in progress. Areas that needed attention or change were realized with group study. This was an invaluable process in construction of the Viking mural as in any art activity, and had applications in other areas of life as well. Problem solving skills were heightened by seeing an area for improvement and finding a way to solve the situation or enhance the idea.

Students at J.E.Prass experienced interpersonal interaction across grade levels for a common goal. Dewey (1934) wrote that an experience has a flow from something to something. In a work of art, different acts, episodes and occurrences melt into unity, but do not lose their character as they do so.

In a mural project completed at Brentwood Elementary School in Plainfield, Indiana as described by Gamble (1988), 600 students created a 5 foot by 18 foot tile mural. A visiting artist was brought in to share his expertise in ceramics. It was decided to create something out of clay that would be a permanent installation in the school. Before students began working with the clay artist, the art teacher taught about color balance and composition. The tiles used were commercial and unglazed. Each grade level participated in taping, drawing and painting the tiles. The

art, music and physical education teachers in the school supervised the day long decorating event, then helped number and spray a clear glaze coating over each tile. The reaction to the tile wall far exceeded everyone's expectations. The group effort brought administration, faculty and students together for a very successful endeavor.

## Chapter 3

### Implementation

This project was by necessity a joint effort with another art teacher who taught students in this school. Before beginning the project, her approval and commitment were secured.

The first step in the project was development of the mural idea and discussion of its desirability and feasibility with the school principal. A grant proposal was written to cover expenses for the project. We discussed the plan for the entry, looking at a small scale model I had produced, that showed a possible layout and border design. The clay model (fifteen inches by eight inches), included such essential elements such as the Viking, his ship, shield and sword, and land masses in a field of water.

In our conversation we discussed placement in the building, size, scheduling concerns of utilizing all Prass students, cost and production schedule. We paced off the possible size of the mural, and looked at two different installation sites in the lobby. The idea was met with enthusiasm. I strive to make art class an exciting place to visit for the children at Prass. I am fortunate to have a principal who takes note of his students' and teachers' hard work, and I enjoy his full support and trust. His almost blanket approval of any special project makes our artistic possibilities truly unlimited.

We anxiously awaited word from the grant proposal I had submitted to a local arts agency. Unfortunately when it came, we were

turned down, but my principal suggested asking our PTA for funds to complete the project. We proposed the idea at the next PTA meeting, and requested their financial support of the project. The scale model I had completed in clay was presented for their inspection. The principal pitched the idea, placement in building, timetable and cost. The cost to the school was only for materials, that being about five hundred dollars. The reaction of the PTA to the mural idea was not only approval, but enthusiasm. Funds were allocated and materials ordered.

In many large scale projects such as this, an artist in residence is necessary to head the project. The benefits of this approach are many, such as a focus on the project by a person without other classroom duties in the building. In carrying out the project, a full load of classes each day with one hour free to devote to the mural, (but no room to work, as the art room was used at that time by another art teacher) made progress slow and technical aspects more critical. The mural would have to remain uniformly wet for months. Another benefit of using an artist in residence working in their area of speciality is their experience. Similar undertakings allow resolution of problems and troubleshooting along the way.

The regular art teacher has the responsibility of adhering to curriculum requirements, school display, local shows or contests and other responsibilities that make concentration on one theme impossible. The main disadvantage of an artist in residence is cost. Typically, a grant

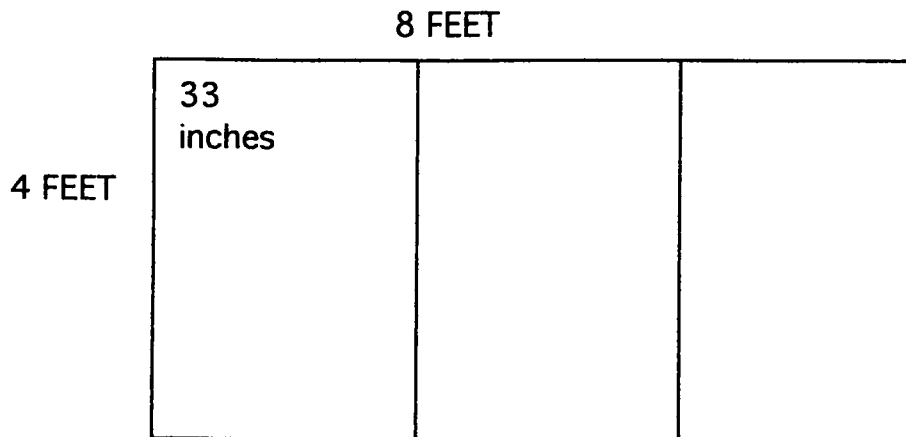
is developed to cover the cost of the specialist's time. I am a ceramic specialist and have had much experience in various aspects of pottery and production. To keep cost down and still provide the experience, it was decided to use our home expertise.

The main material was, of course, clay. We used a coarse red earthenware body reinforced with grog. Grog is clay which has been fired once, then ground to a particle size ranging from fine to coarse and added to the wet clay batch. The benefit of grog is an aeration of the body by providing "spacers" in the compacted clay body. These particles facilitate drying by "opening" up the body, and thus reduce the risk of warping. This clay fires to cone 04, which is about eighteen hundred degrees. The prepared clay comes in fifty pound boxes at a cost of eleven dollars per box. We ordered six hundred pounds, and predicted there would be some clay left over.

Another material we needed immediately was plywood for laying out the tiles we would soon be making. I chose 3/4 inch plywood, and had the lumber yard cut the the four foot by eight foot sheets into three equal pieces measuring 48 inches by 33 inches (see Figure 1). We needed six pieces of such wood. Our finished panels would be mounted in these six separate sections, each abutted to it's neighbor. Another necessity to begin was heavy weight sheeting to cover the plywood and tiles. The clay would have to be kept wet during the entire construction

process, and only allowed to dry very slowly at the completion of image and color application.

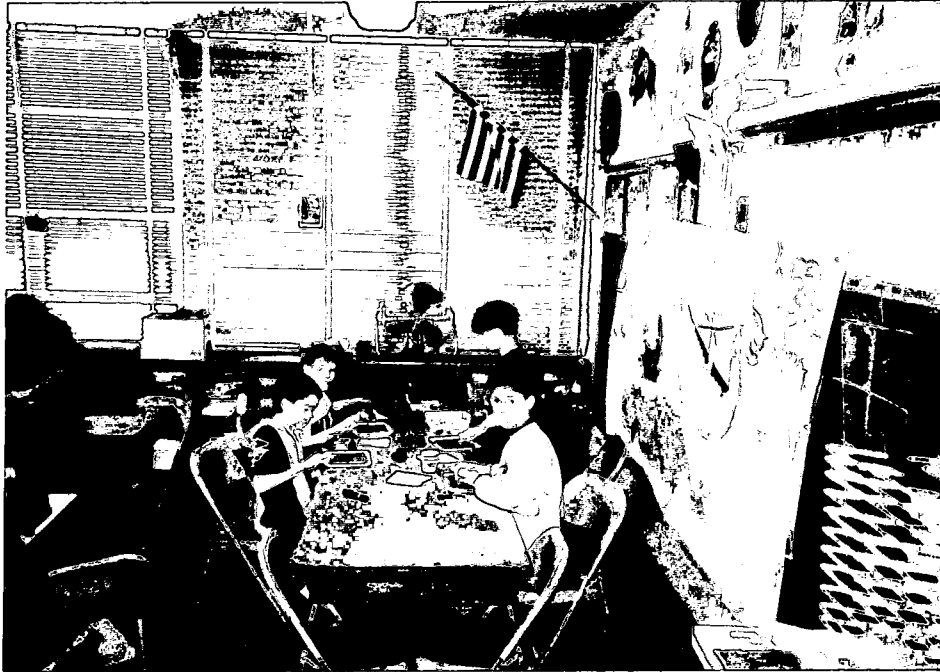
*Figure 1: Full sheet of plywood cut into sections .*



With school about a month into session, the proposal for the mural was presented to each class. The idea was met with eagerness and excitement at the magnitude of the mural. Select members of our sixth grades were chosen to draw the composition of the mural to actual size. Reference material from the public library served as inspiration for our artists. Approximately twelve students completed a drawing adding detail and a collaboration of their ideas to create an image with visual force and accuracy (see Figure 2 ). An extra copy of this drawing was made to cut into tile-sized pieces with which to transfer the drawing to clay. The finished drawing measured one hundred eight inches by seventy two inches and was completed on large white roll paper.



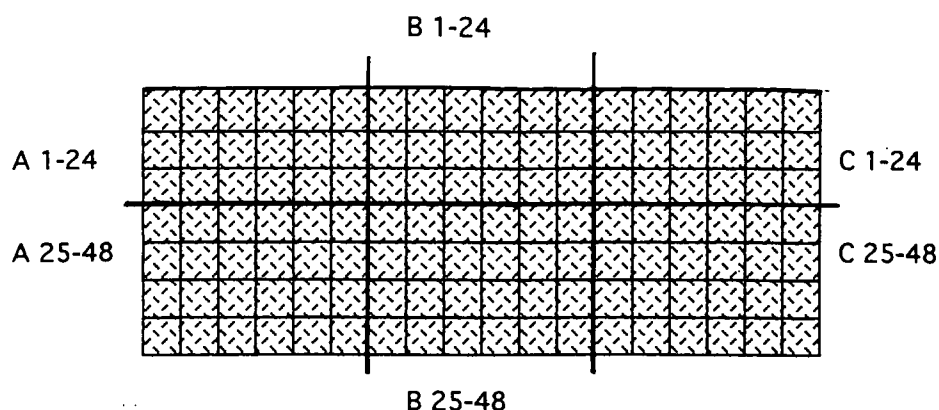
*Figure 2: Photo of children working with the drawing as their guide.*



A few careful students were selected to grid off the drawing into six inch squares, each representing a tile. We had developed a labeling system that would tell us what tiles went where when they were later mixed on students' tables in the classroom. We marked our drawing A, B and C to show the mural sections, and gave the additional mark of one through forty-eight on each small square. Since the mural was done in 6 separate sections with 24 tiles each, the top row numbered 1-24, and the bottom rows 25-48 (see Figure 3). Thus, a tile may have been marked C - 18. This would tell exactly where the tile should be placed. When the drawing was gridded off and labeled, the same students carefully cut

apart the pieces. We kept the stacks of sections separate. Our extra drawing remained in one piece.

*Figure 3: Coding system for the large drawing.*



Members of the fifth and sixth grade classes were chosen to roll tiles to a uniform thickness and size. The thickness of each tile was kept constant by rolling the clay between dowel rods the rolling pin could rest on. In this way, uniformity was maximized. The thickness of the tiles was one-third inch. Each tile measured six inches square and 144 were needed for the mural, not including a small border of two inch tiles. Extra tiles were made to cover any problems such as cracking or breaking.

When all tiles were cut, whole classes began to transfer and build up the image on sections of the drawing. One section was chosen for beginning the process. After explaining the procedure to the students, a tile on a foam tray was handed out to each child along with a square of the drawing. Squares with more difficult images were discretely given to children with the greatest drawing ability. Their first task was to label the

clay with the code on the drawing. The tile was then inverted and the drawing transferred to the clay. This step was achieved by using weaving needles to carefully pinprick the outline through the paper and on to the clay. The paper was then carefully removed and the pinpricks traced with a pencil for additional clarity. At this point in our process, we asked the local newspaper to come out and record what we were beginning. A photographer arrived at the school and shot pictures while students worked (see Figure 4). Several were interviewed for their comments. It was our intention to show the public a glimpse of what was to come.

A high relief was desired to make the mural three dimensional. The students agreed that the parts of the drawing that were in the foreground of the scene should have the highest relief. The Viking was the most important element, and so he was raised by adding clay to the tiles. His hand extended above the basic plane of the mural by three inches. Some students had nothing but water on their drawing piece. The water was made more interesting by making three dimensional waves. Coils of clay the size of an index finger were added to the water tiles. Coordination with others doing the same parts was necessary to make the image consistent (see Figure 5). Students would sit near others completing the same task, checking their joint progress and helping each other if it became necessary. Each person has a different way of working, and this could result in disaster in such a large group effort, but our

Figure 4. The picture appearing in The Kettering-Oakwood Times.

## Students at Prass leave mark with mural

By Pam McGinnis  
Staff Writer

The entire student body at J.E. Prass Elementary School are creating something big and permanent.

They have charted out the design, started to mold the clay and - with a little luck - by May the school's entrance will be the home of a fabulous tile mural. The mural, which will be made with about 300 pounds of clay, depicts a viking - the school's mascot - and his ship.

"This school just didn't have anything great that greeted people when they came in," said Patricia Boone, an art teacher at Prass who came up with the idea. "I majored in ceramics and thought this would be a project the entire school could participate in."

Boone said that the students are so excited about this project that they have been working on it during recess, lunch time and after school. Fourth-grader Kyle Brightman said he's looking forward to seeing the project completed.

"It's big and cool plus it shows the school's mascot," he said. "It will be fun to come back in a few years to



photo by Chip Cameron/Editor

Those working on the mural, include (clockwise from left to right) Jeff Tanme, Shane Brookshire, instructor Susan Bennett, Rasesh Patel, Tim Cashman, instructor Patricia Boone, Kristin Passaro, Tracie Weinheimer and Wynn Meyer. The students are scheduled to complete the project this spring.

**"It's big and cool plus it shows the school's mascot. It will be fun to come back in a few years to see and say that I did some of that."**

**Fourth-grader Kyle Brightman**

see and say that I did some of that."

The project started with Boone making a down-scaled model of the mural. Some

sixth-graders then transferred the model to paper. Students are given a paper square which they transfer to clay.

After the tiles are fired, the students will then add color. Boone said the finished product should be colorful and a "visual focal point" at the

entrance of the school.

"We helped draw the mural on paper," said Kristin Passaro, a sixth-grader. "We had to use history books to see what the viking looked like and what the ship looked like."

The project also helps the students learn about teamwork, Boone said.

"Technically this is quite difficult," she said. "It's truly a cooperative learning

Please see page 15

## Mural

Continued from page 15

process. "A student's job directly affects someone else's work."

Third-grader Bret Britton said he's been busy working on border tiles.

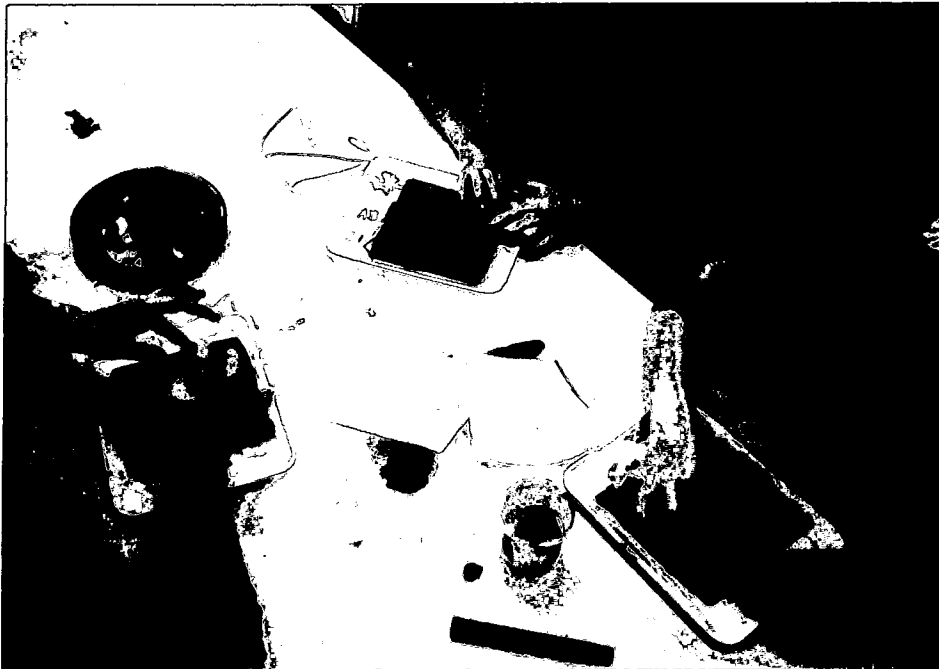
"I can't wait to see it all finished and hanging," he said.

The mural is definitely a break from the usual routine, Passaro said.

"This is a lot more fun than typical art activities," she said, "especially if you like working with clay."

students saw the need for consistency and monitored themselves quite nicely. Careful observance of these steps is necessary in completing a project with visual integrity.

*Figure 5. Students working on section A.*



At the end of each class period, the tiles were returned to their place on the plywood. Clay, as other materials, has a tendency to dry first from the outside edges, then into the middle. We needed to keep everything uniformly moist to keep the shrinkage from drying to change the size of any tile. If the outside had been allowed to dry early, the tile size would have changed slightly and thrown off our continuing image. We managed to accomplish this by putting slightly wet paper towels on

the edge tiles before they were covered by the plastic sheeting. This was not always necessary, but only if we sensed any early drying.

Placement back on the plywood was a lot like putting together a puzzle. This step was facilitated by two chosen students who understood the system and allowed the author to supervise cleanup of the room. The mural was not to overtake the regular art curriculum, so work periods were kept to one class period for construction, and one later for color application. Some students were particularly excited in the mural's progress, and would stop in at lunch or recess to offer their services. This proved to be valuable time for delicate tasks with a small number of children.

I had one hour without classroom duties on Fridays to devote to the project. With the cooperation of the sixth grade classroom teachers, a rotation of students in small groups would come each week to work on whatever task was needed. As there was no room available at this time, our work space was the school lobby or the hallway. These chosen students worked within these constraints, flattered by the fact that their job as the elders of the school was to complete the most difficult parts of the mural.

Soon, all six sections of the mural were under way. The other art teacher and I would communicate through notes, phone calls and students who would report on the progress made the previous day. We consciously involved key students in leadership roles to boost their self

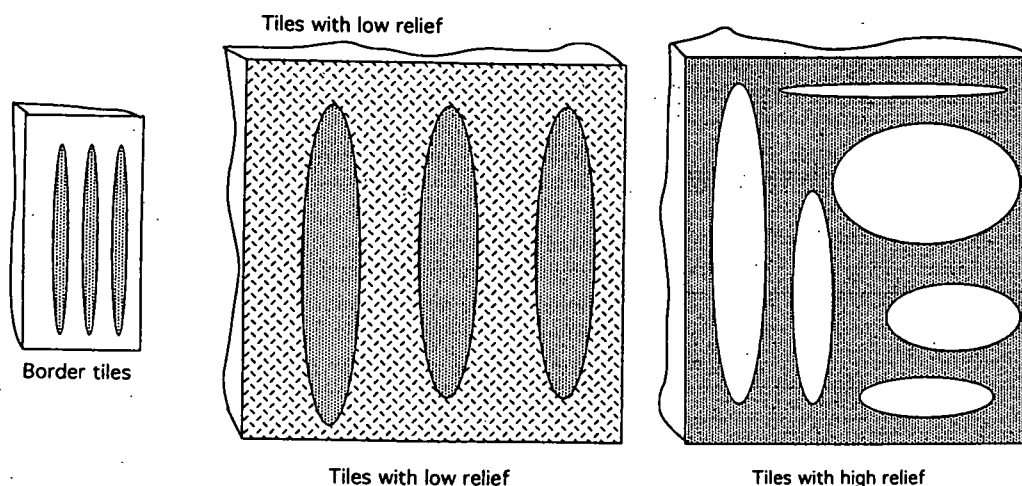
confidence. Our reliance on them was evident, as was their enjoyment of their importance.

A task we reserved for second and third grade students was making border tiles. A frame of smaller tiles measuring two inches by three inches seemed a good way to contain the mural image. Our third graders rolled out these small tiles, cut and decorated them. We decided a textured background with a button-like addition on top would make an interesting design. Designated tables made their texture vertical, others horizontal for contrast. As with the larger tiles, these border pieces were rolled with a pin, then cut around a laminated pattern to ensure size. There was some variation on size because of nine year olds controlling the cutting tool, but our mural was done completely by children and unless the size was grossly off, the tiles were used. The combing effect to produce texture was done with plastic forks from the cafeteria. The button design was made by rolling a clay bead the size of a grape, then adding to the textured tile by gently pressing down. The children then pushed a pencil onto the top to create a depression on the bead. This also helped join the two pieces together.

Each of three classes of third graders made three tiles apiece. With this many, an allowance for glaze flaws or cracks was built in. The tiles were loaded onto plastic cafeteria trays, and stored away. These tiles were later allowed to firm up a bit before another step was begun on them. The small tiles were removed from the plastic covering and, in a

single layer, were left uncovered to facilitate air circulation. Clay that can be handled without warping or disfiguring is called leather hard. When our border tiles reached this state, other students took clay tools and made three vertical cuts in the back of each tile to reduce the weight of the piece (see Figure 6). These cuts, made in the larger tiles as well, also aided in drying, prevented warpage, and gave the tile adhesive something to hold onto.

*Figure 6. Border and main tiles with cuts from behind to aid the drying process.*



By keeping the sections tightly covered throughout the process, the tiles managed to remain moist from October to early spring. It was only in early March that we saw the six main sections of the mural together. Since it took up so much space and classes filled up the art



room all week, there was no room in the school to lay out the project in total. Near the end of the construction however, I felt a need to make sure sections fit together and the images met at the edges. Our drawing, when gridded off, left some parts by necessity continuing on another section. It was critical these parts flowed together and didn't drop off an inch or two, or utilized different textures than on it's neighboring section. We carried all six sections on plywood to the lobby, then laid them on the floor. The tiles were moved on their plastic "bed" to the interior edges of the wood so the sections could be viewed together. It was quite thrilling to see all our hard work come together. It also pointed out several areas that needed adjustment. We made note of these and later in the classroom pulled those sections and worked on the areas that needed our attention.

Two very important tasks remained to be completed on the mural, color application and hollowing out the backs of the tiles.

It was my belief that students could use our clay tools to make the cuts in the back of the large tiles. I assembled a group of about six students to work on this one day after school. The children understood the process, but found it difficult to complete. Some cuts were too deep or too close together. After this experience, I decided this was a job just for adults. This decision added to the tremendous workload the mural already represented in our schedule, but if the children's hollowing would damage the structural integrity of the tiles, it had to be done by

adults. The tremendous variance in clay thickness, even within one tile, had to be evened out from beneath both for drying and weight concerns. There was no creative process in completing this job and so I didn't feel we were infringing on the students' work. This task was completed by myself and my cooperating teacher, and by a student teacher I was working with at the time. The tiles with especially high relief were the hardest and the most important to hollow. Some pieces weighed three pounds wet! This procedure would overlap the color application which was commencing by the students.

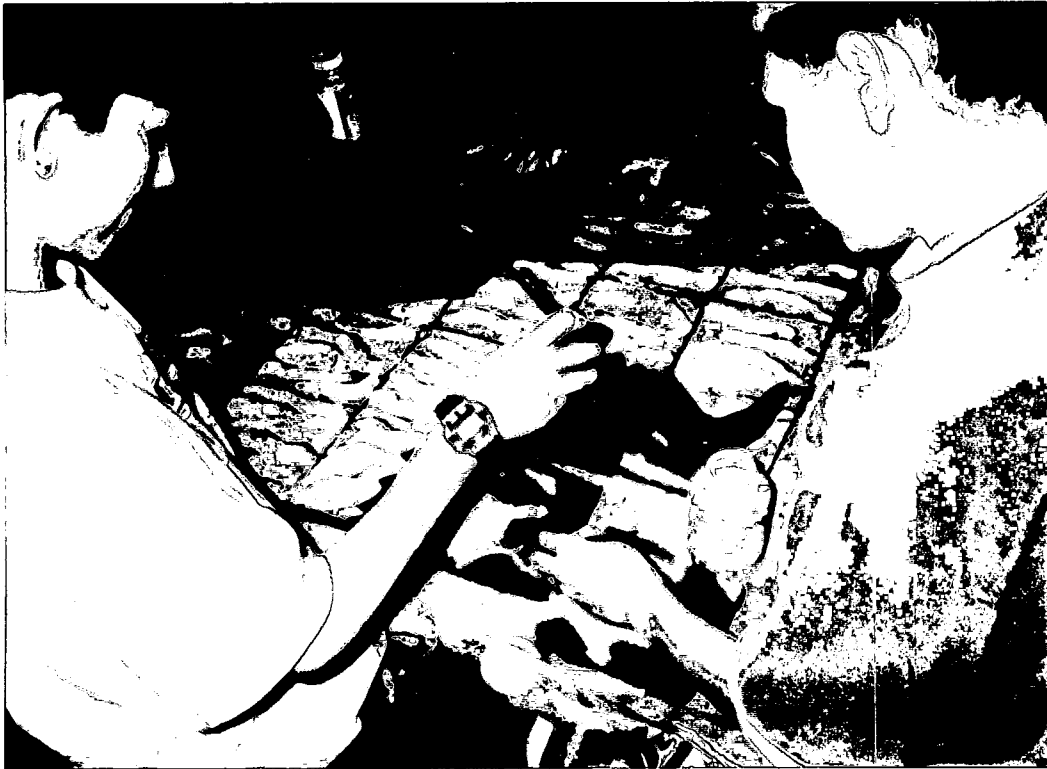
Color application was in the form of both underglaze and glaze coats and was delegated to grade levels by the degree of difficulty. After pretesting, we decided on a combination of ceramic underglaze and glaze coats. Ceramic underglaze, color that is applied to raw clay, that is, clay that has not been fired, is mainly liquid clay with pigment and binders to help it adhere and melt slightly to the clay forming a tight bond. It's advantages are ease of application and correction. When clay has been fired once the body is very absorbent and soaks up the glaze very quickly. Underglaze, however, is put on clay that is wet, making it easier for students to get an even application (see Figure 7). If underglaze gets on a spot it's not intended for, it can be easily wiped off. A final step in the color process was to take a clay tool and cut through the colored underglaze to make accent lines revealing the clay color beneath. The tool removes a line of wet by the manner in which it's held. Any number

of line qualities may be achieved by manipulation of tool. The tool needn't be specifically for clay, it could be a bobby pin, pencil, skewer, popsicle stick, or even your finger. We chose a particular sized clay tool for consistency. These lines provided a nice contrast to the constant color of the mural.

There are pitfalls with underglaze however. The clay for the mural was red earthenware, a very strong color full of iron in the body that would come up to discolor the underglaze if too much brushing was done. As children worked, their tendency was to visit with each other and if their conversation got too involved, we found they would continue to brush away on the same spot until their colors were muddled. Monitoring the students' work helped minimize this problem. A second or sometimes third coat after periods of drying also helped this problem. Another disadvantage in the classroom setting was that the work had to be recovered with plastic after each work session, making the slow drying wet on wet approach subject to scuff marks and general marring. Still, the advantages of even application and correction outweighed any disadvantage.

Pretesting color combinations on sample tiles served as a guide for color selection and control. Some areas of the mural were left the raw clay color and reserved for glaze coating, and some were left as pure clay color and would remain as such on the finished mural.

*Figure 7. Students apply underglaze to the wet tiles.*



When the final coats of underglaze were applied, the tiles were allowed to begin drying very slowly. I would leave them uncovered for a few hours each day. After they reached a state of being "leather hard" that is dry enough to be handled without warping or marking, the tiles were periodically flipped to facilitate drying from both sides. If available, a rack system as in an oven would be ideal in these highly textured tiles. This would allow air circulation from all sides. If tiles have no relief decoration, they may be pressed between sheets of drywall to pull the moisture out and weight the pieces for warpage control.

In our school situation, space and material problems were a

given, and had to be worked around. With no racks available, we gradually removed the plastic sheeting and flipped tiles to facilitate drying. The only place the tiles in this delicate stage, could be placed to dry free from contact with students was the boiler room where our kilns were. In this very hot location, special care had to be taken to control the speed of drying. We began this process by placing the tiles on wooden tables without their bottom layer of plastic. The tiles were covered with plastic on top, and gradually over a period of several days, the plastic was loosened, then removed. Our water tiles were drying faster due to a minimal amount of relief, thus weight. These tiles dried in a matter of 2 days uncovered. Clay is ready to be fired when it can be placed against your cheek and does not feel cold. The coldness is a sign of water remaining in the clay. There will still be chemical water in the particles, but this is burned out in the firing process. If clay is fired too early, the water in the body changes into steam and it escapes in any way possible, often by blowing through the wall of the art work. A slow firing schedule is always necessary in processing greenware. Several hours of preheating will usually take care of any water that causes a threat.

The tiles were fired as ready. We were able to stack the large tiles four deep providing a relative weight and even surface. The tiles with a great amount of relief were fired in a single layer.

Any tile that had cracked in the kiln, been dropped or suffered any serious flaw, was able to be remedied by checking the code on the

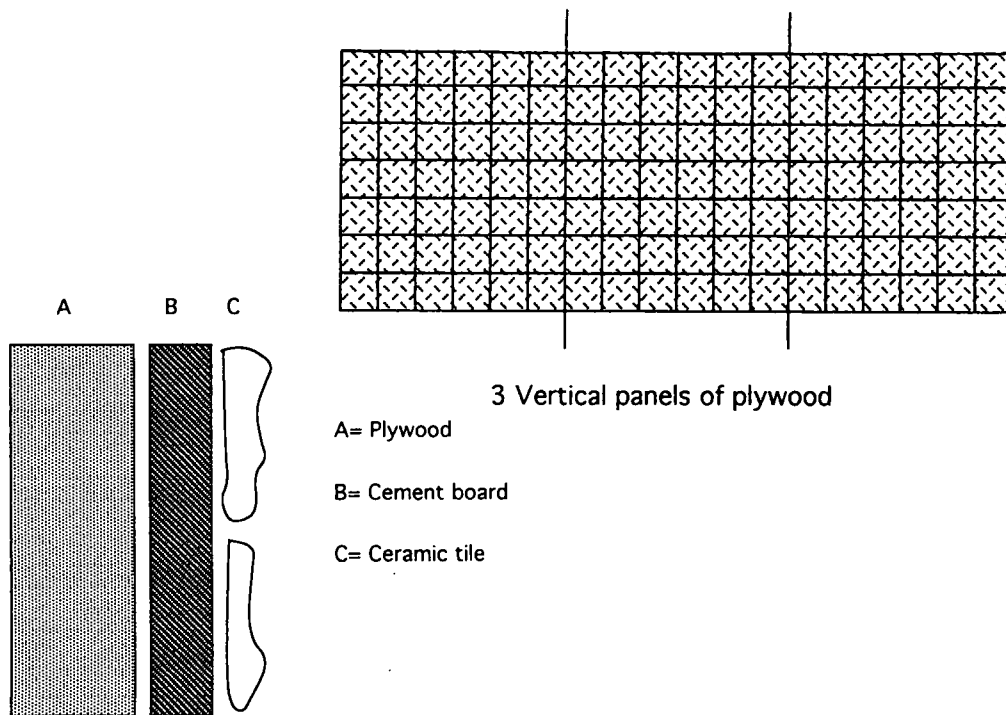
back, pulling that piece from the original drawing and remaking the particular tile. The size templates were stored away with the drawing. Amazingly enough, no tiles had to be remade although we did have a few cracks, and one tile broke completely in two from the stress in design. These problems were corrected upon mounting. The cracks were filled in with a bit of extra grout, then colored, and the broken tile suffered a clean break and was mounted together so that one would never notice it's flaw.

We were fortunate enough to enjoy the advice of a parent in the home construction and remodeling business. Involving parents in their child's education increases their feeling of unity with the process. I have found parents very eager to participate in special projects such as field trips or art shows. Early on in the project I met with our construction parent and discussed the feasibility of my plan. We spoke primarily of mounting procedures and options. The school district's maintenance department would be completing the hanging of the mural, but it is a help to such busy individuals to have as much ready as possible, as they had little time to act as my personal consultant. With a few material changes and specific hardware and mounting directions, we developed a plan for hanging. We met several more times during the course of the year just to check the progress and he was very enthusiastic and helpful. He even procured some products we needed at wholesale prices, and donated others. People are often generous with their expertise if asked.

The mural was completely fired and laid out before the end of the school year, but the installation was to be done after school closed. The children were able to enjoy the mural completely assembled including the border before they left for vacation, and their delight was very gratifying.

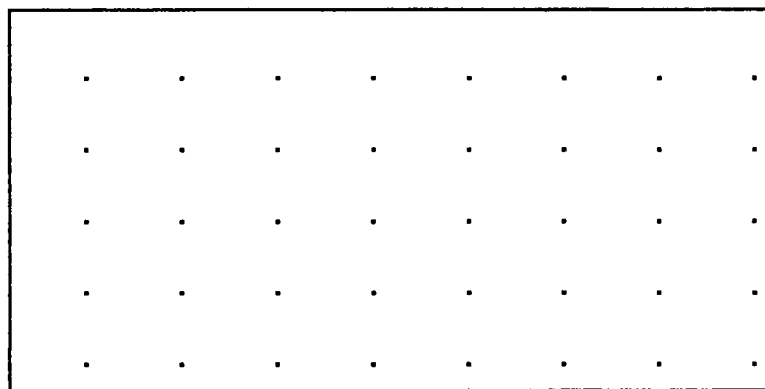
The tiles were to be mounted on 1/4 inch cement board connected to 3/4 inch plywood. It was decided to use three pieces of plywood vertically, mounting 2 sections of the mural on each piece (see Figure 8).

*Figure 8. Layers of tile, cement board and plywood as they were mounted and vertically hung plywood sheets as they were installed on the wall.*



This would minimize hanging problems in placement and make the load bearing support easier to construct. It was necessary to get the exact size each board would need to be and those sizes needed to be consistent. A very careful layout of the entire mural was completed and measurements taken. The plywood was purchased and cut, then the cement board cut to the same size. Cement board is frequently used behind tiled showers in that it will not warp, accept moisture or decay. It is also known as Duroc. It is easily cut with a utility knife. The desired cut is scored with the knife, then snapped over the edge of a table. To attach it to the plywood meant putting in drywall screws every six inches on a grid (see Figure 9).

*Figure 9. Cement board was measured for drilling.*



Dots indicate placement of screws.

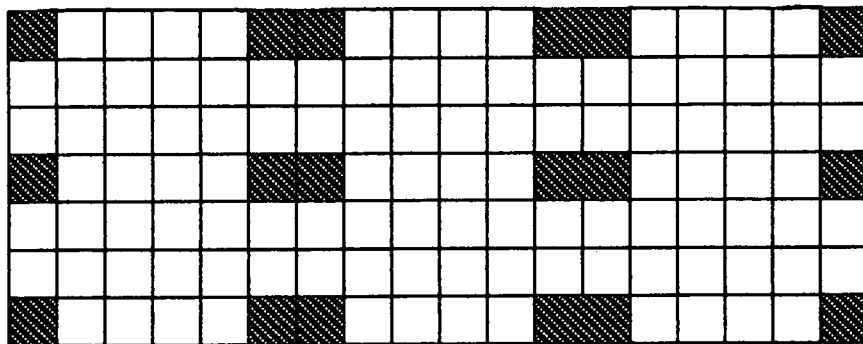
Each screw had to be predrilled and countersunk for flatness. An electric drill with a screwdriver bit made this job fairly easy, but each



screw had to be hand tightened to insure it being flush to the cement board. Our mural used one hundred and fifty screws.

When the cement board and plywood were securely attached, the mural had to be once again laid out exactly as the finished product would look. Fasteners to the wall were to be placed at the midsections of each plywood panel. The school maintenance department would be responsible for the actual hanging of the mural, and our job was to provide it ready to hang. We decided to begin the cementing of the tiles to the cement board while the tiles were in place. In this way, disturbance of layout was minimized. The tile areas reserved for the large fasteners were marked by masking tape so we would not accidentally cement those down (see Figure 10). These tiles were cemented down after the mural was hung by maintenance.

*Figure 10. Darkened areas indicate spots reserved for wall fasteners.*

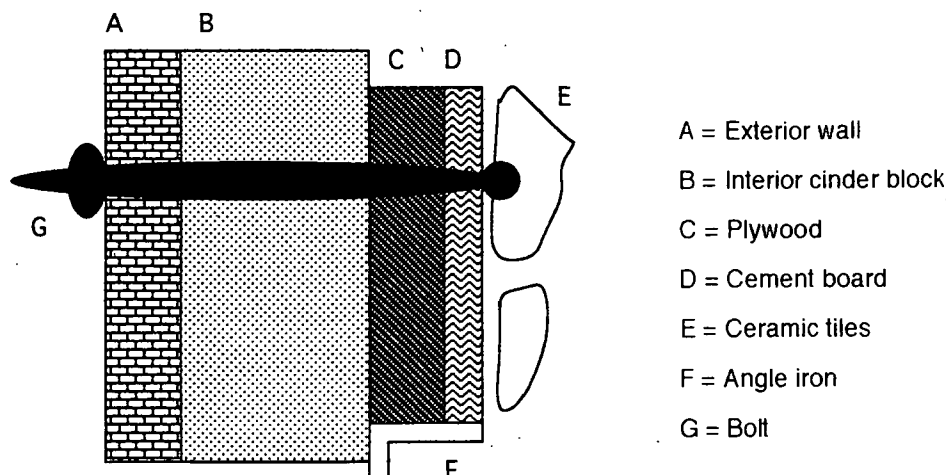


Darkened areas reserved for wall fasteners.

The cement called "TEC Full Flex", a latex thin set mortar, was mixed to it's proper consistency as directed on the bag then applied to each tile with a putty knife. Extra adhesive was smeared on the cement board then the tile pressed in. Care was taken not to let the adhesive ooze out enough to secure the reserved tiles to the board. The mortar had to be mixed every fifteen minutes or so to avoid it getting too stiff before it could be used. This mounting part of the process was a bit scary because of it's finality. Every placement was done very carefully and checked for accuracy. Finally this step was completed and we had only to wait for maintenance to hang the mural.

Because the mural was to hang on an outside wall, it was possible to completely bolt through to the exterior (see Figure 11). An angle iron was placed at the bottom of the mural to bear much of the weight. The weight of the project was tremendous, but by breaking the whole into three manageable parts, the hanging went without a hitch.

*Figure 11. Layers from the tile face to the outside wall.*



When the students returned to school in the fall, they were full of exclamations and excitement. It was gratifying to me to hear their comments after we had all worked so hard on the project. Our last task was to complete the filling in between tiles. Because of the nature of handmade tiles, some of the sizes varied leaving gaps of between  $\frac{1}{4}$  to  $\frac{3}{4}$  of an inch. There are several ways to approach this problem. First came the decision to make the spaces local color as opposed to a unifying color to span the whole mural. After receiving advice from many passersby, we decided on matching the local color of each tile. I tried hand tinting grout to fill in the spaces. This proved to be messy and inefficient. The grout had to be mixed a little at a time and it was very time consuming. Next, we tried white tile grout scooped out by our fingers and pushed into the cracks. We tested a small area to ensure the surface could be tinted after drying. I liked this method because it seemed to fill the cracks, especially the biggest ones with a clean appearance. It was necessary to keep a wet sponge nearby to smooth the grout and clean up the bordering tiles. Truthfully, the highly textured tiles took on a lot of grout from the process and had to be scraped clean later. The stray grout was painfully obvious because it was white. We then tried a latex caulk with a caulk gun. We liked this method the best in that it was fairly easy to get the grout in place and reduced the clean up mess from the hand application. We continued. When the grouting was finished and dried, all that remained to do was to color the lines. This

was simple, using thinned out acrylic paint and a sponge. Our colors were mixed to match the color of the area, then sponged on. The whole mural took, at most, two hours to tint, and at last it was done. Dedication and unveiling was targeted for the School's Spring Festival when most of the staff, student body and their families would be present.

## Chapter 4

### Evaluation

In looking at the entire process involved in this project, there are two evaluative measures to be examined; how smoothly did the work progress and how does the completed mural affect the children and school community?

While the progress of the mural was continuous, I did not expect the project to take the entire year. There were several reasons for this: the size of the mural was indeed very large: the author had one and one-half days per week assigned to the school that year; curriculum concerns and an annual art show had to take top priority; and, the combination of Christmas break, plus nine snow days, took away much work time.

An easier first- time- mural would begin with a more modest size of completed project. Perhaps a smaller space to design an installation should be selected. A project designed for a specific grade level would be a good way to ease into such an endeavor. The physical constraints of a school building would often make storage and layout difficult for a project of this size. Another way to solve this problem would be to design an image or theme that could stand alone in a section by itself, or be joined by other sections as in a quilt. This type of design would not have to continue onto other sections such as in our drawing. This would make the matching up of pictorial elements from one section to another avoidable.

Elementary art teachers are often split in their assignments between two or even three buildings. While this was a great concern for me in designing the project, I had the full cooperation of the other art teacher in the building. This arrangement had to be acceptable to all parties involved in such a large undertaking. While I tried to accept the bulk of organizing, firing and coordinating, my limited time did affect the progress on some occasions. A better scenario would be to choose the school you have the most time to devote to for a mural project, or, enlist the expertise of an artist in residence as was mentioned earlier. There were really no problems in having the process take a longer time. The end result was worth the trouble.

Curricular concerns and commitments to school art shows and functions must take priority over special projects. We met certain components of the curriculum in the mural, but children would get bored with the same project for a stretch of time. That is why we kept the work sessions to one hour devoted to production and one for color application.

Finally, the unavoidable breaks for holidays and unexpected snow days slowed our progress, but with the mural always tightly covered, no harm was done.

With the completion of the mural, we were all able to share the delight of the community as they arrived for the ice cream social and official mural unveiling. Each child was given a black and white line drawing of the mural they could color in as a reminder of their hard work.

Often, a child would take their parent up to the mural during this event to explain how it was made, and detail their role in it's production. The press was there to record our finished work and interview students for the local newspaper.

As the mural was first hung and later in the year of the unveiling, I interviewed a host of students to get their feelings on the project. What follows are some of the questions I posed, and their responses.

*\*WHAT WAS YOUR PART IN THE PROCESS OF MAKING THE MURAL?*

1. girl, age 9 - We made all the little tiles that went around the outside. It was fun making the balls. I had to help Mark because he was having trouble.

2. boy, age 8 - I did the water. I put the blue color on the clay. Someone in our class dripped green on it by mistake, but Miss Boone liked it so we all did. It made it look like ocean water.

3. boy, age 11 - I helped do the first drawing. I worked on the sword with Alex and then we got to do the same part in clay. We got to leave class on Fridays to work in the hall. It was fun.

4. girl, age 12 - I helped Miss Boone and Mrs. Bennett

organize everything. I was in charge of getting the pieces back where they should go after people worked on them. I'd also tell them what we did during the week so we knew what to do the next time. Every time I saw Miss Boone I'd say "everything's going to be fine". We laughed!

*DID YOU LIKE WORKING IN A GROUP?*

1. boy, age 10 - It was pretty fun. I had to work with three girls and Joey. Our part was real important, so we had to make sure it was okay.

2. girl, age 8 - It was fun! We got to work in the boiler room. It was hot. Miss Boone took our picture!

3. boy, age 11 - I liked doing the drawing. We got to because we can draw really good. There were like 2 kids from each sixth grade and a couple fifth graders. Then later we did the tiles in class and everyone used our drawing. It was awesome!

*HOW DO YOU LIKE THE MURAL? DO YOU LOOK AT IT VERY OFTEN?*

1. boy, age 9 - It's neat! I can see the part I made. I showed my mom and dad.



2. girl, age 10 - You can't miss it - it's huge! I look at it when we line up after lunch. It's neat!

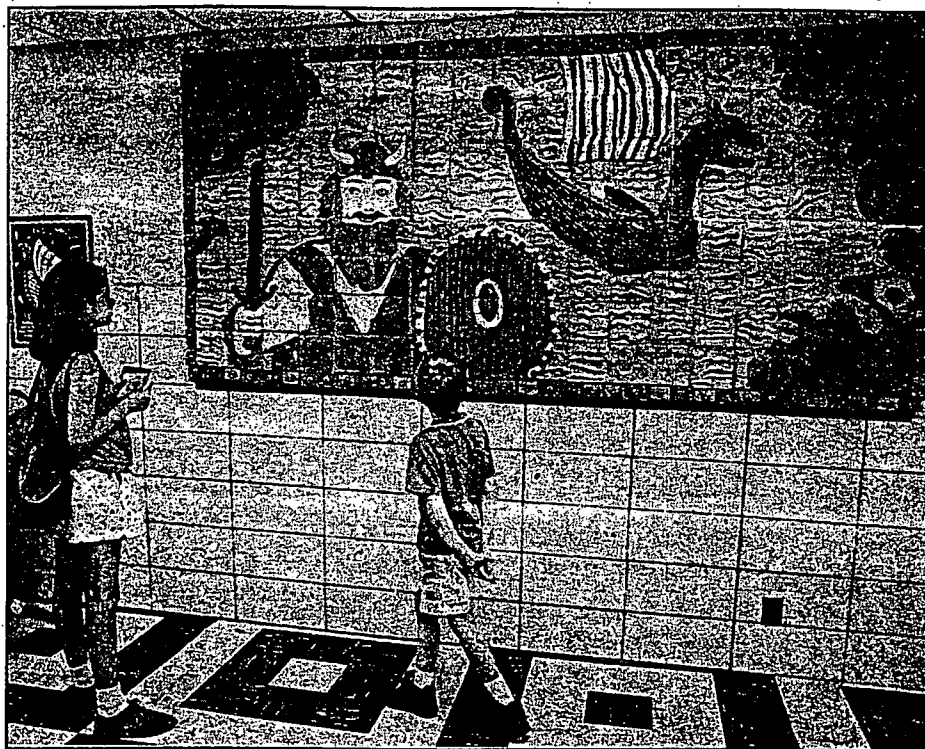
3. girl, age 7 - Vikings rode in big boats. I like his hat. It has horns.

4. boy, age 12 - It's pretty cool. I bet it's really heavy. Sometimes when I pass it, I look at the part I did. We did the shield. It looks good!

We have received many positive comments from staff and parents that move through our building. It is gratifying to hear their positive reaction to all our hard work. I believe our mural shows what can be accomplished in art class with a little energy and vision. The students saw a different approach to art. Their clay experience had been restricted to individual pieces that by necessity are rather small. The scope of this project impressed them as did the process. We spoke of other artists past and present who use a group approach to producing work. Typically, the process is not very democratic. An artist, usually of some note, designs a work of art, and either directs it's assembly (not unusual in sculpture) or sees to whatever process the work involves.

Our children enjoyed working in a group situation, put forth their best effort, and aided others when necessary. I believe their perception of myself and Mrs. Bennett changed during the process. They saw that we were willing to work extra hard for a long time to provide them and their school with a really unique experience, and still did ambitious projects in our regular art classes with them. The students at Prass continually work hard and produce really fine art work. Our mural project was rated a high success by all.

Figure 12. Newspaper article from the dedication ceremony.



### New Prass mural

J. E. Prass Elementary School proudly unveiled its school mural Thursday at its annual Ice Cream Social. The mural adorns the front entry wall and is the culmination of months of work by Prass students last school year. The students designed and drew a rough draft of the mural. They then made clay tiles which were fit to scale. The mural depicts Prass' mascot, the Viking. Prass art teachers Patti Boone and Susan Bennett coordinated the event, which was funded by Prass' PTA. Above, Ian Sturgill and Ashley Hovey (right) look at the mural while Anna Schwarz and her kids, Eli and Gabi, enjoy the Ice Cream Social.



Figure 13. The author stands with the completed mural .



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