The Effects of a Self-Reflective Learning Process on Student Art Performance

Lisa Shawn Bland
THE FLORIDA STATE UNIVERSITY
SCHOOL OF VISUAL ARTS AND DANCE

THE EFFECTS OF A SELF-REFLECTIVE LEARNING PROCESS ON STUDENT ART PERFORMANCE

By

LISA SHAWN BLAND

A Dissertation submitted to the Department of Art Education in partial fulfillment of the requirements for the degree of Doctor of Philosophy

Degree Awarded:
Spring Semester, 2005
The members of the Committee approve the Dissertation of Lisa Shawn Bland
defended on September 24, 2004.

_________________________
Charles Dorn
Professor Directing Dissertation

_________________________
Gary Peterson
Outside Committee Member

_________________________
Tom Anderson
Committee Member

_________________________
Marcia Rosal
Committee Member

Approved:

______________________________
Marcia Rosal, Chair, Department of Art Education

______________________________
Sally E. McRorie, Dean, School of Visual Art and Dance

The Office of Graduate Studies has verified and approved the above named
committee members.
# TABLE OF CONTENTS

List of Tables .................................................................................... iv  
List of Figures .................................................................................... v  
Abstract ........................................................................................ vi  

1. INTRODUCTION................................................................................ 1  
2. REVIEW OF LITERATURE................................................................ 10  
3. METHODOLOGY............................................................................... 47  
4. RESULTS .................................................................................... 70  
5. DISCUSSIONS AND IMPLICATIONS................................................ 77  

APPENDICES .................................................................................... 88  
   A Letter to Board ........................................................................ 88  
   B Informed Content ..................................................................... 89  
   C FSU Review ............................................................................ 91  
   D Learning Style Inventory ....................................................... 92  
   E Metacognitive Awareness Inventory ...................................... 95  
   F Art Performance Rubric .......................................................... 99  
   G Writing Performance Rubric ................................................... 100  
   H Prompts ................................................................................. 101  
   I MAI Permission Statement ..................................................... 102  
   J FSU Human ............................................................................. 103  
   K Schley Permission Statement ............................................... 104  
   L Art Scores ............................................................................... 105  
   M Art Scores ............................................................................... 106  
   N Art Scores ............................................................................... 107  
   O Art Scores ............................................................................... 108  

REFERENCES .................................................................................... 109  

BIOGRAPHICAL SKETCH ................................................................. 119
LIST OF TABLES

Table 1: Study Variables ................................................................. 70
Table 2: ANCOVA Art Performance .................................................. 73
Table 3: T-test Learning Styles ....................................................... 75
Table 4: Study Variables ................................................................. 107
Table 5: Experimental Group Pretest Scores ..................................... 107
Table 6: Experimental Group Posttest Scores ................................... 108
Table 7: Control Group Pretest Scores ............................................. 109
Table 8: Control Group Posttest Scores .......................................... 110
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Self-regulated Model</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>Learning Style Model</td>
<td>57</td>
</tr>
<tr>
<td>3</td>
<td>Self-regulated Learning Model</td>
<td>60</td>
</tr>
<tr>
<td>4</td>
<td>Authentic Assessment</td>
<td>61</td>
</tr>
<tr>
<td>5</td>
<td>Characteristics of Assessment</td>
<td>62</td>
</tr>
<tr>
<td>6</td>
<td>Reflecting about Art</td>
<td>72</td>
</tr>
<tr>
<td>7</td>
<td>Intrapersonal Intelligence and MAI</td>
<td>74</td>
</tr>
<tr>
<td>8</td>
<td>Visual/ Verbal Learners</td>
<td>75</td>
</tr>
</tbody>
</table>
ABSTRACT

This study is a quasi-experimental study designed primarily to investigate whether a student self-regulated learning strategy would positively affect the student art performance of 50 students from two intact eighth-grade classes in a Georgia Public School System. The treatment for the experimental group was instruction and practice in reflecting personal artwork through planning, monitoring, and evaluation on their artwork through written assessment. Implementing a self-regulated learning strategy using art portfolios allowed students to plan, sequence, and monitor their learning. The aim for this study was to strengthen the metacognitive and reflective skills of students to assist them in adopting strategies and reflective processes that enable them to define, plan, and self-monitor their thinking through problem solving. Students in the experimental group and the control group both completed pretest and posttest portfolios of artwork. Students in the experimental group also completed a self-reflective writing pretest and posttest.

Results from the experimental group indicated an increase in the scores of the written reflections that led the researcher to conclude that instructional strategies that teach students to practice self-regulated learning skills while learning course content improves both the learners’ process of self-evaluation and their self-assessment strategies providing metacognitive knowledge. However, the art performance scores for students in the experimental group and the control group were about the same for the posttest, identifying the results of the treatment did not show a significant increase for art performance.
CHAPTER 1
LEARNING IN ART EDUCATION

Introduction

Dealing holistically with learners in a learning situation involves a set of principles that influence students’ successes. These principles refer to metacognitive, cognitive, affective, developmental, and social factors (Paris & Ayers, 1994/1999). Metacognitive and cognitive factors include the nature of the learning process, the goals of the learning process, the construction of knowledge, and higher-order thinking. Affective factors include motivational influences on learning, intrinsic motivation to learn, and the characteristics of motivation-enhancing learning tasks. Developmental factors involve developmental constraints and opportunities. Personal and social factors involve social and cultural diversity, social acceptance, self-esteem, and learning. Individual differences involve differences in both learning and cognitive filters. Learners have different capabilities and preferences regarding learning mode and strategies. Personal beliefs and understandings do result from prior learning and the results become the student’s basis for cognitive constructs.

Successful students surpass other students because they possess more information about their own cognition and they actively engage in more techniques to help foster learning (Zimmerman & Martinez-Pons, 1990). Successful students play a more active role in learning; they process new information more effectively; they relate new information to previous information; they organize and transform presented material; they set goals for themselves; they plan their strategies; and they seek assistance when needed. Successful students are likely to be engaged in self-regulating their performance. Self-regulated learning is a complex process that involves many intertwined sub processes (Zimmerman & Schunk, 2001). To be an effective
learner, a student needs to develop strategies and tasks, and have the skills to plan, set up, control, and monitor the learning process. As students engage in reflective exercises, they can judge the quality of learning through examining statements about goals, progress towards goals, and learning processes used.

Learning in art (Beattie, 1997) involves knowledge of the content; knowledge of skills and processes; knowledge concerning why certain procedures and processes are used and in which situation; knowledge concerning one’s own strengths and weaknesses; knowledge about motor skills; and knowledge about attitudes. Art requires student involvement in the learning process in order for students to have the opportunity to collaborate with the teacher, to analyze the strengths and weaknesses of their work, assess their attitudes toward learning, set goals, or identify ways to monitor their progress toward those goals.

Learning style awareness is one cog in the wheel of the learning process. What happens when a student learns about learning styles? Flavell (1979) explains that the student’s metacognitive knowledge base somehow undergoes a change. The student acquires more declarative knowledge about the individual and the person factor in learning gets better organized. Self-development is subsequently stimulated—having a positive effect on the student’s ability to self-regulate the learning process. When a student acquires more, better organized, and more refined metacognitive knowledge, self-assessment becomes more accurate. Therefore, the metacognitive knowledge functions as conditional knowledge for cognitive tactics (Weinert & Kluwe, 1987). As the knowledge of cognitive conditions improves, one’s conditional knowledge becomes more discriminating. As a result, there is a higher degree of the precision of comparisons that monitoring generates between standards and the greater the capacity to regulate one’s approaches to learning. The development of “self” plays a role in the learning process that generates motivation—all in support of self-development and self-goals, and that in turn enhances the ability to self-regulate.

Shin (1998) suggested three reasons for teaching self-reflection: (a) learning ability can be improved through training of relevant skills; (b) metacognitive skills such as reflection can be practiced throughout one’s life and, as a result, become incidentally
developed; and (c) metacognitive strategies can be developed through training and transferred to dissimilar learning situations (metacognitive theory).

Documented in many research studies is the claim that portfolios promote high-order thinking skills, engage the learner in cognitively complex activities, provide opportunities for self-reflection and self-assessment, and are culturally responsive/allowing for variation in language, cognitive and communicative style (LaBoskey, 2000; Linn, et al, 1991; Farr and Trumball, 1997; Wolf, et al, 1991). In The National Board for Professional Teaching Standards (2001), the Board explains that it is the art teacher’s responsibility to “help students reflect on their own art learning and monitor their progress” (p. 56).

Statement of the Problem

Integration of reflective and metacognitive practices for students in the classroom has shown great promise in achieving higher learning skills (Anderson and Gluck, 2000). The role of metacognition in reading is to have good readers monitor their comprehension and engage in processes that are likely to increase their comprehension (setting goals), asking questions that they try to answer. The role of metacognition in mathematics is to have effective problem solvers monitor their progress toward problem solutions. They also have epistemological beliefs conducive to problem-solving success; for instance, they recognize that mathematical procedures make logical sense and they know that they need to try several different approaches before they are successful. The metacognitive role in science concerns student beliefs about what science has influenced how they study and learn science; for instance, those who believe that science consists of isolated facts are likely to focus on meaningless memorization. Furthermore, student abilities to conduct meaningful experiments are influenced by the extent to which students ask themselves questions about their observations and interpretations. The role of metacognition in social studies is to provide a true understanding of history, which involves the recognition that a great deal of historical “knowledge” is interpretive rather than factual. The role of metacognition in writing is to have writers set goals for their writing, consider what their
audience is likely to know about their topic, and think how to help the audience understand the message they are trying to communicate.

In academic subjects, researchers conclude that instructional strategies that teach students to practice metacognitive skills while learning course content increases metacognitive awareness and improves the use and awareness of these skills, as well as performance (Hacker, Dunlosky, & Graesser, 1998). As researchers became interested in explaining academic self-regulation, experiments and intervention studies (Schunk & Zimmerman, 1998) reported results of improving students’ academic functioning. Answers to theoretical issues guided research efforts for these answers (Schunk & Zimmerman, 1998): What motivates students to self-regulate during learning? Through what process or procedure do students become self-reactive? What are the key processes that self-regulated students use to attain their academic goals? How does the social and physical environment affect students’ self-regulated learning? Moreover, how does a learner acquire the capacity to self-regulate when learning? However, studies to test the effectiveness of developing self-regulated learners in art education have not been included in educational theory and practice.

Boekaerts, Pintrich, and Zeidner (2000) explain that it is necessary to identify situations where self-regulation may interfere with the achievement of goals:

Say we want to foster a creative and spontaneous learning or work environment. Excessive self-regulation may take people out of the flow of behavior, causing them to resist the affordances of the spontaneous and creative environment; thus, the effect of self-regulation is violated. (p. 768)

For learners and learning in the Arts, does using a self-reflective learning strategy increase art performance?

Significance of the Study

In the last twenty years of cognitive research, the literature suggests that metacognition is a critical component of the intellect. One can begin to be self-
regulatory about behavior only when there is an awareness of the behavior. Learning is the process students experience as they take in new information and make sense of that information. By making “meaning,” they acquire knowledge. Therefore, a student who constructs knowledge and is aware of the gaps in the understanding of that knowledge is using both their cognitive and their metacognitive strategies. In the awareness of knowing what they do and what they do not know, they participate in the first step to construct meaning. Opportunities for personal reactions allow students to go inside their own heads and think about their learning. That personal reflection is embedded in the metacognitive processing in which students look over their progress.

There is growing evidence that metacognition is an important component of intelligence and cognition as well as being a major influence on academic success (Boekaerts, Pintrich, and Zeidner, 2000). For students to have awareness and control over their own thinking, they must plan metacognitively, monitor progress metacognitively, and evaluate metacognitively (Fogarty, 1994). Thus, the three areas, planning, monitoring, and evaluating, provide the appropriate framework for self-reflection (Schunk & Zimmerman, 1998). Involving students in the assessment process is an essential part of evaluation. Students become successful learners when they reflect on what they have learned and how they learn (Paris & Ayers, 1994/99). The process of self-regulated learning guides students in how to examine their work, think about what they do well and understand in which areas they still need help. When students have reflected on their learning, they can set goals, and as they work toward these goals, they can become more active participants in the assessment process. With practice, students can begin to evaluate their strengths and attitudes, analyze their progress, and set new goals (Schunk & Zimmerman, 1998).

Research has concentrated on the application of teaching and learning theories in general education without specific references concerning art education. This study focuses on training students in the use of a self-reflected learning strategy. The strategy is based on the idea that through the process of metacognitive thinking, students become aware of the self-assessment strategies they use and the relationship of these strategies to their performance in art. This study will suggest an approach to student self-reflective learning that can provide a new dimension to what emphases art
instruction in schools might take in the improvement of art instruction. In particular, the study seeks to provide a new look at the potentials of student self-reflection as part of the assessment process. The purpose of this study is to use a metacognitive approach to learning that will allow students to self-reflect on their artwork and improve their art performance.

**Research Questions**

This study is intended to answer whether a self-regulated learning strategy will affect art performance. The researcher expected to find an improvement in art performance for students who practice reflective learning. The study also intended to identify whether student awareness of learning processes would influence the way students reflect. The expectation of this study was that a student learning profile used by the students to develop their skills for self-regulated learning would increase their self-reflection. The researcher expected that the discovery of their learning profile, including the aptitude for intelligences and preference for specific learning styles, would allow students to make adjustments in strategies.

The following research questions were presented to specify the problems and interests of the study.

1. Is there a significant difference between pretest and posttest “reflecting about art” scores in students who receive a self-regulated learning strategy?
2. Is there a significant difference in the art performance scores between eighth grade students who use a self-regulated learning strategy and those who receive regular instruction only?
3. Is there a significant relationship between intrapersonal intelligence and the metacognitive awareness scores among students receiving a self-regulated learning strategy?
4. Is there a significant difference in the art performance scores of students receiving self-regulated learning strategies who have a visual preference in learning as compared to students who have a verbal learning style?
Definition of Terms

To ensure clarity and consistency, the definitions of specific terms are made as follows:

**Alternative assessment**- assessment that deviates from traditional pencil-and-paper item formats (Beattie, 1997). Alternative assessment is a term used to group performance events, open-response questions, and portfolio into a single category. These assessments differ from others in that students develop their own responses to questions instead of choosing from a predetermined set of options.

**Authentic assessment**- multiple ways of evaluating students’ learning, achievements, motivation, and attitudes that is consistent with classroom goals, curricula, and instructional methods (Paris & Ayers, 1994/1999).

**Intelligence**-the ability to find and solve problems and create products of value in one’s culture (Gardner, 1990).

**Learning styles**-Learning styles are characteristic cognitive, affective, and physiological traits that serve as relatively stable indicators of how learners perceive, interact with, and respond to the learner environment (Ast, 1988).

**Metacognition**-thinking about thinking or knowledge related to self-appraisal and self-regulation of one’s thinking and actions (Paris & Ayers, 1994/1999).

**Metacognitive awareness**-a student’s awareness of where they are in the learning process, their knowledge about content knowledge, personal learning strategies, and what has been done and needs to be done (Wilson, 1999).

**Metacognitive evaluation**-a student’s judgment made regarding one’s thinking capacities and limitations as these are employed in a particular situation or as self-attributes (Wilson, 1999).

**Metacognitive regulation**-occurs when students modify their thinking. It draws upon knowledge and use of executive skills to make effective use of one’s own cognitive resources (Wilson, 1999).
**Performance assessment**- any assessment that requires students to both show and apply what they have learned. Open-response questions, performance tasks and events, and portfolio prompts are types of performance assessments.

**Portfolio**- is a meaningful and valid form of assessment and instruction reflecting the context of classroom instruction and student performance.

**Prompt**-questions developed by the teacher/researcher to improve the self-reflective insights in their writing.

**Rubric**-a set of descriptions of various explicit levels that specify different standards or levels of performance on a task.

**Self-assessment**-reflections and insights about one’s own accomplishments, progress, and development (Paris & Ayers, 1994/1999).

**Self-reflection**- is a process by which learner’s actions are improved; and as a skill, which the learner employs to set goals, identify the source of problems/successes, and adapt their learning. When a learner pauses to think about what they are learning, they are using reflection.

**Self-regulated learning (SRL)**-learning that occurs largely from the influence of the students’ self-generated thoughts, feelings, strategies, and behaviors (Zimmerman, 1998).

**Summary**

This chapter introduces a set of principles that influence student successes in academic achievement. In addition, the researcher explains the art learning process and the success art education has shown having students use portfolios as a self-assessment tool. In identifying the processes that successful students engage, the evidence supports self-regulated learning as an effective strategy. Self-regulated learning refers to learning that occurs largely from the influence of students’ self-generated thoughts, feelings, strategies, and behaviors, which are oriented toward the attainment goal (Schunk & Zimmerman, 1998). Research suggests important roles this behavior has through students’ self-regulatory activities. Academics have studies that
provide evidence that self-regulated learning is beneficial for students in math, science, reading, writing, and social studies.

This chapter explains that students become successful learners when they reflect on what they have learned and how they learn. Research also shows that teaching and learning theories are limited to general education without specific references to art education. The purpose of this research is to provide a study that shows the use of a metacognitive approach to learning that will allow students to self-reflect on their artwork and improve their art performance.
CHAPTER II
REVIEW OF THE LITERATURE

Introduction

The first part of this review will identify the art learning process and the importance of student self-regulated learning strategies. The second part will address the importance of art assessment. The third part of this review will identify why authentic assessment is the most appropriate method to measure studio art performance. The fourth part will review the literature on the significance of art portfolio assessment. The last part and summary will explain the need for research based on current literature.

Art Learning

Conceptions of the Learning Process

According to Fernald, teaching through the auditory, visual, and kinesthetic modalities has been documented as early as pre-Christian Greece (1943) (Semple, 1982). Materials designed to promote sensory and motor development are found in Montessori’s 1912 work. Kephart’s work, in 1960, reinforced Montessori’s idea that sensory motor or perceptual motor manipulation was the basis for later academic and survival skills. In 1963, Kagan, Moss, and Sigel developed tests to measure how people categorized objects. They were interested in the methods people used to sort information in connection with sensory perception. In 1970, Mills published the Learning Methods Test; Dunn, et al. (1975) designed the Learning Style Inventory; and Barbe and Swassing unveiled the Swassing-Barbe Modality Index in 1979 (Semple, 1982).

In 1984, Marie Demery presented an operational approach to acquiring and using self-esteem and art skills in a model concerning elementary school art activities using
multicultural data. According to the literature review relevant to this model, the visual arts provide three major educational purposes: perceptual training, balancing of the left and right brain hemispheres, and developing and enhancing self-esteem. Considering the three domains of learning, cognitive, psychomotor, and affective, it presumes that art activities balance the use and production of skills, self-expression, and self-satisfaction (major components of self-esteem), as well as the balance of verbal and non-verbal functions of the human brain. Demery explained, “When self-esteem is fostered in the arts, perceptual training and balanced brain hemispheric functions are natural outcomes” (Demery, 1984, p. 2). “For where there is high self-esteem among children, there is constructive achievement, irrespective of the educational discipline” (Demery, 1984, p. 2). High self-esteem is a primary prerequisite to successful learning according to Shepard (1979) and Vogel (1974) (Demery, 1984).

Keefe (1987, p. 16) provided a comprehensive definition of learning styles: “Learning styles are characteristic cognitive, affective, and physiological traits that serve as relatively stable indicators of how learners perceive, interact with, and respond to the learner environment” (Ast, 1988). Ast (1988) said that students tend to achieve better and are more interested in the subject if they are taught by their preferred learning method. Muir (2000/2001) points out that Papert (1996) said:

I am convinced that a large proportion (though certainly not all) of cases of learning difficulty are produced by imposing on children ways of learning that go against their personal (learning) styles. Over and over again I have seen children shake off their apparent disabilities when given the opportunity to learn in a way that comes naturally to them.

(p. 1)

Kolb (1984) explained that people tend to fall into four categories: (1) those who perceive concretely and process reflectively-sensors/feelers and watchers; (2) those who perceive abstractly and process reflectively-thinkers and watchers; (3) those who perceive abstractly and process actively-thinkers and doers; and (4) those who perceive concretely and process actively-sensors/feelers and doers (Swanson, 1995). Kolb’s four-stage learning cycle model is an experiential learning theory. Experiential learning
is “learning from experience” or “learning through experience.” In this model, the educator is in essence a facilitator of a person’s learning cycle.

Kolb (1984) described learning as a four-step, cyclical process. It begins with a concrete experience, which is full involvement in the experience. The next step is reflective observation, thinking about the experience from different perspectives. Third in the process is engagement in abstract conceptualization or principles that integrate observations into sound theories. This finally leads to active experimentation where the learner uses generalizations or theories as guides to further action, testing what has been learned in a new situation. This results in another concrete experience, and the cycle continues according to Claxton and Murrell (1987) (Swanson, 1995).

A particular learning style is a combination of the way one perceives information and the way one processes it. Some people perceive through the senses-others through the intellect. On one end of the spectrum, sensors tend to be closer to the concrete end of the line and thinkers tend to be closer to the abstract end. Sensors are people who need to focus upon tangible materials and concrete experiences, build upon what they already know, and discuss things with others. Thinkers are comfortable with concepts and ideas they read directly from experts. Processing is making the information relevant. The continuum is from active to reflective. Doers want to use the information immediately. Reflectors need time to think about what they are learning to make sure they understand fully.

The introduction of learning styles has enabled educators to better understand students’ responses and behavior in terms of character and temperament. Students involved in the same activities will react differently using the four basic mental processes, Sensing (S), Intuition (N), Thinking (T), and Feeling (F). This temperament concept is based on understanding the terms perception and judgment. Perception is concerned with enhancing awareness, and gathering information. Judgment involves the decision making process. Two kinds of judgment include Thinking and Feeling. Thinking links ideas together making logical connections and Feeling relies on an understanding of subjective and group values. The Sensory Feeler (SF) is compassionate, people-oriented, sensitive, responsive, and tolerant. The Sensory Thinker (ST) is organized, consistent, responsible, determined, hard working and task oriented. The Intuitive Feeler
(NF) is a risk taker, creative, innovative, active, and spontaneous. The Intuitive Thinker (NT) is analytical, logical, objective, independent and efficient (Wachtman, 1996).

As students receive information, it is selected, organized, and experienced based on a personality preference. Student learning is enhanced by providing a situation with choices that support individual problem-solving skills (Gardner, 1983). It is important that teachers understand that each child has a unique set of intellectual strengths and weaknesses. In education, it is important for teachers to accommodate a variety of learning styles, since “each person’s potential to learn is unique and depends upon past and present opportunities to use this potential” (Chalmers, 1996, p. 68). Gay (1994) explained that specific goals and related objectives are quite numerous, and vary according to contextual factors such as school settings, audiences, timing, purposes, and perspectives. These cover all three domains of learning: cognitive (concerned with processing, encoding, storage, and retrieval of information), affective (concerned with attention, motivation, and personality), and psychomotor (concerned with perceptual modes, energy level, time preferences, and preferred learning environment) and incorporate both the intrinsic (ends) and instrumental (means) values of multicultural education. These goal clusters are ethnic and cultural literacy, personal development, attitude and value clarification, multicultural social competence, basic skill proficiency, educational equity and excellence, and empowerment for societal reform.

The arts are cognitive in nature according to Project Zero’s co-founder, Nelson Goodman (Pearson, 1998). The arts are an entry to the processes of thinking and learning. Doing and studying about art calls into practice many kinds of cognition-visual processing, analytical thinking, posing questions, testing hypotheses, verbal reasoning, and more. It has been shown that a great number of students do not truly understand the material they have studied. They are not able to use knowledge outside of set formulas, and they cannot make connections outside of school. Students in art education have the opportunity to put their understanding to work. These activities could include building an argument, constructing a product, generalizing, finding new examples, carrying out applications, creating works of art, and other activities in art that demonstrate understanding through the cognitive theory of multiple intelligence.

**Self-reflection: A component of Self-regulated learning**
Within the literature on self-regulated learning, self-reflection is described as both a desirable competency and as a process, which produces improved learning (Belfiore & Hornyak, 1998; Zimmerman, 1998). Self-reflective practice emerges through the learners’ process of self-evaluation and self-assessment strategies. Metacognitive control and metacognitive monitoring are both processes and skills developed by the learner that can filter into future self-regulated behavior. This reflective process or outcome is measured in its ability to produce future self-regulating behavior not measured for validity or reliability within itself. Self-reflection in this model can facilitate or undermine subsequent learning processes (Zimmerman, 1998).

Zimmerman (1998) suggested that the ultimate goal of self-reflection is for the learner to use the self-reflective process in subsequent experiences to further improve their ability to learn new information and skills. Zimmerman identified four processes involved in self-reflection: (a) self-evaluation, the learner compares his/her efforts with some sort of standard or goal, followed by; (b) attributions about why they achieved the results they did; (c) self-reaction and identification of the source of learning errors; and (d) adaptation, the learner improves their learning process using strategies that work best for him/her. In this case, self-reflection is conceptualized as both a process by which a learner’s actions are improved and as a skill that the learner employs to set goals, identify the source of problems/successes and adapt their learning.

Ertmer and Newby (1996) presented a similar model in which reflection serves as the link between metacognitive skill and self-regulation. According to them, effective self-reflection requires the learners’ involvement in a number of activities. First, the involvement is in characterizing a problem. Second, the involvement is in analyzing knowledge of (a) one’s self as a learner, (b) the nature of the task, and (c) strategies for learning. Third, it involves reorganizing one’s available resources (cognitive strengths, weaknesses, motivation, ability, and attitude). Fourth, it involves managing the progress of learning through a continuous process of planning, monitoring, and evaluating (Ertmer & Newby, 1996). Self-reflection, in this instance, is viewed as a competency manifested in self-regulated learners. It is the ability to reflect on ones' learning process.

Constructivist Learning Environment for Self-Regulated Learners
From the epistemological perspective, constructivist approaches assume that the student within the teacher-supported learning environment should personally construct acquiring knowledge (Zimmerman & Schunk, 2001). Constructivism is a theory of knowledge that views knowledge as being generated within the learner’s mind while depending on existing knowledge to make sense of difficult new experiences. The constructivist approach supports learning through active construction of knowledge from the learner’s experience. An effective constructive learning environment must be flexible in nature to support individual differences in understanding. In a constructivist approach, the teacher’s role is to be the facilitator of learning. The student’s role is to be cognitively active and involved in the knowledge construction process. To encourage self-directed deliberate practice, students need tools that promote self-regulation (Zimmerman & Schunk, 2001)).

The North Central Regional Educational Laboratory (2000) presented constructivist teaching and learning models in which Caine and Caine (1991) suggested that constructivist learning is affected by the context in which an idea is taught as well as by students’ beliefs and attitudes. Caine and Caine (1991) explained that there are 12 principles used in teaching and learning. Effective teaching employs a variety of learning strategies. Teachers cannot merely address the intellect. Effective teaching recognizes that meaning is personal and unique, and that student understanding is based on that individual student’s unique experiences. Effective teaching connects isolated ideas and information with global concepts and themes. Learning is influenced by emotions, feelings, and attitudes. People have difficulty learning when either parts or wholes are overlooked. Learning is influenced by the environment, culture, and climate. Students need time to process how they learn as well as what they learn. If it does not promote spatial, experienced learning, teaching that emphasizes rote learning can actually inhibit understanding. Experiential learning is effective. The classroom climate should be challenging. Teaching must be flexible enough to allow students to express preferences.

**Training Students in Self-reflective Learning**

Schunk (1993) identified three major ways in which instructors can train students in metacognitive strategies like self-reflection. These include: (a) helping learners acquire knowledge about various self-regulated learning strategies (declarative and
procedural knowledge); (b) providing the student with opportunities to practice and use
the strategy (applied practice); and (c) providing reasons for why the strategy should be
used by emphasizing how, when, and where to use it (conditional knowledge) (Volet,

Self-reflection can be fostered using a strategic approach (Shin, 1998). Instruction
should focus on helping students reflect throughout the learning process. Students
should be encouraged to reflect on (a) the requirements of a given task, (b) the type of
learning that is desired, (c) the appropriate strategies that will help accomplish the goal,
and (d) whether the strategies actually helped accomplish the task. In Winne and
Hadwin’s (1998) model of metacognitive monitoring and control, studying was found to
involve four interrelated phases: (a) defining the tasks, (b) goal setting and planning, (c)
enacting study tactics and strategies, and (d) metacognitively adapting study strategies
for the future.

Carr and Biddlecomb (1998) proposed that in teaching metacognitive strategies
to students, teachers could orient students toward the desired goal by constraining
student actions or by orienting them to the possibilities of the situation. The teacher is
helping the student develop competency and an understanding of the process of self-
reflection. Peterson (1988) found that teachers needed to actively model and instruct
cognitive and metacognitive strategies.

Self-regulated learning describes the motivated and strategic efforts of students
to accomplish specific purposes. It is functional, personal, and independent, precisely
the kind of curious knowledge seeking and strategic problem solving that educators
can be described as self-regulated to the degree that they are metacognitively,
motivationally, and behaviorally active participants in their own learning process” (p. 1).
He discussed three processes relevant to students’ self-assessment: self-observation,
self-judgment, and self-reaction. Towler and Broadfoot (1992) listed four phases of self-
assessment that are fundamental in their approach to assessment: (a) The knowledge
phase: students recall previous experiences, review their work, and provide concrete
records; (b) The analysis/understanding phase: students seek to understand why things
happened and to make attributions for their performance; (c) The evaluation phase:
students make judgments about the quality of their work and construct plausible explanations for their evaluations; (d) The synthesis phase: students organize their new knowledge with experience, fit their evaluations into a larger context, and set future objectives.

Reflective thinking is a catalyst for growth because it stimulates reassessment and synthesis. It can be cultivated as a habit of mind by incorporating it into a total process for growth and learning (Unrath, 2002). Burton (1980) and Taunton (1984) recommended three strategies for students in this process:

1. Invite students to pause and reflect as they are working. Help develop an awareness of choices, actions, thoughts, developments, and possibilities by paying attention, asking questions, honoring effort, acknowledging choices, and encouraging reflection. It is important to ask students to describe their work, identify choices, and to make associations with ideas and feelings.

2. Make reflections a regular and natural part of the process of representation. Encourage conscious recognition of thought processes and choices that may have resulted from a curious mix of intuition, memory, distillation, observation, inclusion, omission, emphasis, intent, accident, discovery, problem solving, and creative thinking.

3. Ask students to consider the purpose(s) served by different modes of thought and representation. Ask them to talk about what they were able to think about and what they discovered through the process of envisioning, perceiving, and/or responding.

Paris and Ayers (1994/1999) distinguish four characteristics of ongoing assessments that promote self-regulated learning. First, the activities are meaningful, authentic learning activities that stimulate student curiosity and imagination. Second, student reflections are metacognitive because they are engaged in appraising their own
ways of knowing. Third, students are stimulated to reflect on their growth because they access progress over time. Fourth, students notice their strengths and weaknesses.

Self-regulated learning (SRL) refers to learning that occurs largely from the influence of the students’ self-generated thoughts, feelings, strategies, and behaviors (Zimmerman, 1998). Advocates of self-regulated learning contend that the learning process is directed toward the development of metacognitive skills. Flavell (1979) suggested that metacognition is the individual’s awareness of themselves as an active element in their environment, deliberately storing and retrieving information. Flavell’s conception of metacognition is based on the notion that one can think about his or her own thoughts. Thinking in this instance can be what one knows, ones’ current behavior, or what ones’ cognitive or affective state is. Metacognitive skills, such as problem solving, self-reflection, self-assessment, and goal setting, are essential components of the learning process. They are important skills to develop in learners, as students make their own learning decisions, set their own goals, and sustain interest in difficult cognitive work. Metacognitive strategies can be developed through training and can subsequently be transferred to dissimilar learning situations.

Livingston (1997) stated:

Although most individuals of normal intelligence engage in metacognitive regulation when confronted with an effortful cognitive task, some are better than others are. Those with greater metacognitive abilities tend to be more successful in their cognitive endeavors. The good news is that individuals can learn how to regulate their cognitive activities. (p. 3)

There are identifiable cognitive strategies, previously believed to be utilized by only the best and brightest students, which can be taught to most students (Halpern, 1996). Metacognition enables students to be successful learners (Borkowski, Carr, & Pressely, 1987). Livingston (1997) explained:
Metacognitive refers to higher order thinking, which involves active control over the cognitive processes engaged in learning. Activities such as planning how to approach a given learning task, monitoring comprehension, and evaluating progress toward the completion of a task are metacognitive in nature. (p. 1)

Unlike distinct learning styles and multiple intelligences, metacognition is a series of learned behaviors. To become aware of these behaviors throughout development means they can be acquired. Once acquired, improvements can be made and better performance can take place. “In short, metacognition appears to be a large component of what we consider to be intelligent behavior,” says Osborne (1998).

Tishman (1999) explained that active learning experiences are enhanced by three kinds of reflection: (1) metacognition, self-reflection on one’s own learning process, (2) consolidative reflection, understanding the big message from the learning process, and (3) active connection-making, actively seeking connections between newly learned information and existing knowledge. Tishman (1999) presented three questions to be used by the student in this process: (1) What went well for you in this process? (2) What big ideas or questions do you have now that you did not have before the process? and (3) What connections can you make between what you learned and other things you know about?

Self-regulation refers to students’ ability to control their learning. Learners become self-regulated using both knowledge and strategies that Schraw & Brooks (1999) refer to as “skills. The motivational desire to use these skills referred to as “will” is depicted in Figure 1. Self-regulation is a metacognitive learning strategy. Learners who are well developed metacognitively are confident that they can learn, make accurate assessments of why they succeed in learning, think clearly about inaccuracies when failure occurs during tasks, actively seek to expand their repertoire of strategies for learning, match strategies to the learning task (making adjustments when necessary), ask for guidance from peers or the teacher, take time to think about their own thinking, and view themselves as continual learners and thinkers.
Self-regulated Learners

Seven features of motivational and cognitive dynamics are evident when students direct their own learning (Paris & Ayers, 1994/1999). First, students select goals to pursue and work on a variety of tasks. Furthermore, self-selected goals oriented toward extrinsic rewards such as grades, tokens, or praise are less meaningful and sustaining than goals oriented toward intrinsic standards of the student; such as mastery, learning, or improving on one’s own past performances (Ames & Archer, 1988). Depending on the situation, self-regulated learners can choose appropriate goals such as mastery, task completion, extrinsic rewards, or social cooperation. For the most part, self-directed learners choose goals for learning that are tied to personal standards and satisfaction. A second characteristic of self-regulated learning is the need for challenge. Third, self-regulated students know how to use the resources available to
them in a classroom; so they have control of their own learning. They know how to plan, allocate resources, seek help, evaluate their own performance, and revise and correct their own work. Self-regulated learners are aware of their own learning strategies and know how to use them effectively. They are very much self-directed in terms of pursuing their goals for learning and applying appropriate strategies. Fourth, self-regulated students collaborate as they read and write.

Collaboration serves two functions, encouraging persistence and providing strategic help when necessary. Students provide these cognitive and motivational resources for one another in the same ways that good teachers provide them for students. Indeed, teachers can effectively model how to collaborate through their own behavior. Choice, challenge, control, and collaboration are critical aspects of intrinsic motivation (Paris & Turner, 1994; Stipek, 1993); their importance is evident in the reflections of both students and teachers. A fifth characteristic of self-regulated learning is the focus on constructing meaning. Self-regulated learners can manage their efforts to fill in blanks on worksheets or fill in bubbles on test forms with appropriate strategies if they must, but their autonomy and creativity are more evident on richer tasks that foster comprehension and communication aimed at making and sharing meaning. A sixth characteristic of self-regulated learning concerns the consequences of classroom activities. The consequences of rich activities are personally rewarding to students who can take pride in their efforts and the meaning they construct. Because their success is a reflection of their personal imagination, comprehension, and strategies, as well as their hard work, they enhance their feelings of ownership and efficacy to a much greater degree than is possible with constrained activities such as copying sentences from the board or filling in worksheets. Self-regulated students evaluate and interpret their behavior in ways that promote further effort. Their attributions for success and failure are constructive, not debilitating, because they understand when and how their behavior is due to controllable forces. Additionally, self-regulated students are not likely to blame others for their problems or credit luck for their success. They understand that strategies or persistence is fundamental for maintaining their effort and feeling pride in their accomplishments (Weiner, 1992). A seventh characteristic of self-regulated learning is an overarching focus on awareness and orchestration of learning on the metacognitive
aspects of learning. Self-regulated students monitor their own performance and evaluate their progress against established criteria and reasonable standards (McCombs & Marzano, 1990). They know whether they are improving, and they know when their performance is acceptable. They often engage in self-reflection and find it informative, not threatening, to talk to other people about their performances and accomplishments.


According to Paris, Lipson, and Wixson (1983), there are three kinds of metacognitive knowledge. First, self-regulated learners have declarative knowledge and information about what strategies are available to help them, whether their task is writing a letter, composing a story, searching in the library, or rereading a textbook. They understand the kinds of strategies that can be used before, during, and after the task. Second, self-regulated learners understand procedural knowledge about strategies, that is, how strategies operate. Self-regulated learners consider how strategies facilitate the expression and construction of meaning, and they understand how to selectively use strategies to accomplish their goals. Third, self-regulated students understand the conditional knowledge about strategies, that is, under what circumstance strategies are helpful, when they should be applied, and why they are necessary. Knowing why one's behavior and strategies are effective (or not) is critical for self-improvement. In addition to knowing these things about useful strategies for learning, self-regulated learners enact their plans; they fuse their motivational orientations with their knowledge, strategies, and intentions. They know how to make appropriate plans and choose strategies before they begin a task. They know that during a task they should periodically check their performance and possibly revise their strategies. Following task completion, self-regulated students review their work, evaluate their performance, and share their work with others. They also understand volitional strategies for maintaining their commitment to chosen goals and preventing distractions (Corno, 1992). They are persistent, strategic, and directed in their efforts. That is why self-regulated learning
involves motivated problem solving and not simply the exercise of skills or compliance with someone else’s directions.

Burton (1980) illustrated the value of asking students to pause and reflect on the choices they have made. In calling attention to choices made and through questions, a dialogue between the maker and the work begins. Taking time to consider what has resulted and how it has come about offers opportunities to consider the nature of perception, response, and visual modes of thinking.

**Cognitive and Metacognitive Learning**

The role of metacognitive skills in the development of autonomous learners is accomplished by considering the use of student cognitive profiles. A cognitive profile is regarded as consisting of the measures of an individual’s cognitive style, learning style, and personality. Student awareness of the learning process has become increasingly relevant with the shift of emphasis toward active learning. A review of learning styles supports self-directed learners because students have different abilities to construct meaning. This way the teacher will have a deeper understanding of the type of metacognitive skill that will fit the student’s learning style.

Learning is a process of discovering and constructing meaning from information and experience, filtered through the learner’s unique perceptions, thoughts, and feelings to pursue personally meaningful goals (Paris & Ayers, 1994/1999). Metacognition or the ability to control one’s cognitive processes (self-regulation) has been linked to intelligence (Borkowski, et al., 1987; Brown, 1987, Sternberg, 1984, 1986, 1986). Howard Gardner’s Theory of Multiple Intelligences (MI) extends and enhances the learning process (Beckman, 2002). Gardner identified intelligence as “the ability to find and solve problems and create products of value in one’s culture” (Campbell, 1992, p. 197). Described in his book *Frame of Mind* (Gardner, 1983), the theory identified seven distinct and universal capacities. Innately endowed in all humans, these capacities or intelligences manifest quite differently in different cultures (Walters, 1992). The intelligences include linguistic, logical/mathematical, musical, bodily kinesthetic, spatial, interpersonal, intrapersonal, and naturalistic. Gardner (1999) added the eighth intelligence, naturalistic, to his original list in his book *Intelligence Reframed*. He is currently considering a ninth intelligence, existential intelligence. His Theory of Multiple
Intelligence is a theory of cognitive functioning, and it proposes that each person has capacities in all eight intelligences. Students demonstrate each intelligence area through specific talents, skills, and interest. The fact that these intelligences can be nurtured and strengthened has an influence on how students are taught for maximum learning and achievement (Nicholson-Nelson, 1998).

**Self-regulated Learning in Art Education**

Learning in art (Beattie, 1997) involves: (a) knowledge of the content-including facts, ideas, and generalizations related to specific themes; (b) knowledge of skills and processes (procedural knowledge); (c) knowledge concerning why certain procedures and processes are used and in which situation (conditional knowledge); (d) knowledge concerning one’s own strengths and weaknesses (metacognitive skills); (e) knowledge concerning motor skills, such as how to manipulate tools of processes for painting; and (f) knowledge about attitudes-including information about traits, dispositions, motivations, interests, values, preferences, or other personal emotional states and habits. Art requires student involvement in the learning process in order for students to have the opportunity to collaborate with the teacher, analyze the strengths and weaknesses of their work, assess their attitude toward learning, set goals, or identify ways to monitor their progress toward those goals.

In The National Board for Professional Teaching Standards (2001), it is expected that qualified art teachers “regularly monitor, analyze, and evaluate their teaching and student progress” (p. 55). In addition, the Board explains that it is the art teacher’s responsibility to “help students reflect on their own art learning and monitor their progress” (p. 56). Shin (1998) suggested three reasons for teaching self-reflection: (a) learning ability can be improved through training of relevant skills; (b) metacognitive skills such as reflection can be practiced throughout one’s life and, as a result, become incidentally developed; and (c) metacognitive strategies can be developed through training and transferred to dissimilar learning situations (metacognitive theory). The latter suggests that there can be an emphasis on self-reflection as both process and as a competency.
Art Assessment in Education

For art teachers in the United States to begin an appropriate art assessment process, they will have to overcome a number of obstacles set in place by the Goals 2000 school reform effort (Dorn, Madeja, & Sabol, 2004). These include the National Education Goals, the National and State Content Standards, and the current national assessment effort being undertaken by the National Assessment of Education Progress.

President Bush and the nation’s government released six national education goals in a document called America 2000. The arts were not included. The arts communities’ dissatisfaction with America 2000 led the government to reevaluate its position on arts education and art education was acknowledged as a fundamental subject in the national goals. In August 1994, the United States Senate passed the $12.5 billion Elementary and Secondary Education Act, which enhanced the position of art education for all young people of the United States. However, as the funds shifted from the federal level to states and districts, the national goals became optional and the visual arts standards voluntary.

Teams of art professionals established six national visual art standards in the Goals 2000 Educate America Act. These standards do not identify which artistic skills should be taught, what emphasis should be given to a specific standard, or how much attention should be given among and between standards.

The National Assessment of Educational Progress (NAEP), whose purpose is to survey and monitor changes in the educational accomplishments of U.S. students, first assessed visual arts achievement in 1974 and 1978. In 1997, NAEP visual arts consisted of items to measure eighth graders’ knowledge and skills in creating and responding to art. These findings focused attention on national visual arts assessment, which in turn contributed to examinations of local assessment issues in visual arts education (Dorn, Madeja, & Sabol, 2004). The test did not test what most students learn in most studio art classes, nor did the test did consider that students are not equal in
their aesthetic abilities and that schools are unequal in their ability to deliver quality instruction.

The act of assessment is the analyzing of the collected data to make instructional decisions and informed evaluations. Assessment generally addresses five major goals, or purposes (Guenter, 1999). These purposes include high expectations, multiple forms of assessment, self-assessment, judgment, and ongoing assessment. These factors create teacher reflection on how to plan, manage, and teach visual arts. Multiple forms of assessment provide a holistic perspective for both student and teacher. Self-assessment offers students the opportunity to read their own work. Through structured discussions, review of key points and comparisons to previous efforts and established personal goals, the student begins to understand self-reflection. Single correct answers do not usually fit into an art assessment because they represent convergent thinking. To encourage creative thinking, teachers promote divergent thinking, or the understanding that a range of possibilities exists. Knowing how to support these possibilities through opinions is the process that the teacher can share with students. Students need to try out the process and grow with it. Continuous assessment allows for student growth. Students and teachers gain a richer understanding of the content and concepts being taught if assessment is not reserved as the final grading procedure. The portfolio serves as tangible evidence of artistic growth (Guenter, 1999).

Sabol and Bensur (2000) identified the common types of assessment. Listed in order of priority, they include: work samples, professional judgment, teacher-developed tests, portfolios, discussions, critiques, sketchbooks, checklists, exhibits, questionnaires, anecdotal records, interviews, puzzles and games, standardized tests, and video/audio recordings. Furthermore, Sabol and Bensur (2000) explained that 84% of the art teachers strongly believed that paper-and-pencil tests were not the best method for assessing what students had learned, and 58% agreed that portfolios were the best way to evaluate what students learned in art.

Beattie (1997) explained that assessment is the method or process used for gathering information about students for making an evaluation. She also pointed out that effective assessment techniques can "improve classroom instruction, empower students,
heighten student interest and motivation, and provide teachers with ongoing feedback on student progress” (Beattie, 1997, p. 2). Furthermore, she states:

An effective art assessment program enables the art educator to diagnose student strengths and weaknesses early and on a regular basis, to monitor student progress, to improve and adapt instructional methods in response to assessment data, and to use information about students individually and as a group to manage the classroom more effectively.

(Beattie, 1997, p. 2)

Beattie (1997) listed the principles of quality classroom art assessment: (a) assessment is student-oriented and teacher directed; (b) assessment supports, rather than interferes with, instruction and course objectives; (c) assessment is multi-layered; (d) assessment is continuous and focused on providing ongoing information; (e) assessment is contextual and authentic; (f) assessment represents an appropriate balance of formal and informal strategies; (g) assessment focuses on both products and processes; (h) assessment provides opportunities for students to revise and make changes in products and processes; (i) assessment is responsive to different types of knowledge; (j) assessment is responsive to expanded notions of intelligence and creativity; (k) assessment is concerned with students’ preconceptions and misconceptions; (l) assessment is equal for all; (m) assessment is standards-based; (n) assessment is criterion-referenced and compares students’ performance to past performances; (o) assessment is responsive to collaborative and cooperative learning; (p) assessment allows for reserved judgment; (q) assessment is explicit and ordered; and (r) assessment exemplifies the latest and best assessment techniques.

In addition, effective art assessments will encompass the cognitive, psychomotor, and affective domains of learning. Beattie said, “Expanded concepts of intelligence, such as Howard Gardner’s model of eight different intelligences, have potential for improving both instruction and assessment” (Beattie, 1997, p. 7). Beattie (1997) wrote:
The art portfolio, in its expanded definition, can replace other types of assessments and function as a teaching tool as well in that it motivates and challenges students, promotes learning through reflection and self-assessment, encourages student-teacher collaborations, validates different learning styles and approaches, and encourages the research, resolution, and communication of ideas. (p. 15)

**High Stakes Testing**

Student learning is an on-going process; unfortunately, one thing that art teachers lack is a credible way to assess, document, and evaluate student learning. Boughton (1996) explained how the business of conducting assessment remains one of the most complex tasks teachers face, despite the best efforts of experts to clearly state expected achievement standards in the arts. Boughton (1996) listed several factors that contribute to this complexity: (a) First, assessment demands several forms of analysis and reporting from teachers to serve up different educational purposes; (b) Second, much discussion about evaluation and assessment in the field is confused by the lack of agreement about, or understanding of the meaning of some key terms; (c) Third, the current effort by politicians and administrators to neatly define the nature of the field in terms of performance standards is lacking at best; and (d) Fourth, recent thinking and research has provided an array of suggestions for alternative forms of evidence and methods of analysis in the assessment of the fine arts and student learning.

Art teachers use a variety of strategies to assess student work. Madeja (Dorn, Madeja, & Sabol, 2004) explained:

Art teachers will admit they use the art product as a criterion for determining a grade, but they also integrate such things as level of effort, the uniqueness of the concept of the visual product, and the deportment or classroom behavior of the student to determine student progress and success in art. (p. 51)
In 1990, the National Commission on Testing and Public Policy released a report entitled “From Gatekeeper to Gateway: Transforming Testing in America” (Campbell, Campbell, & Dickinson, 1996/1999). This article highlighted a growing concern that standardized tests tend to over assess rote knowledge while under assessing what students can do with their knowledge. The Commission recommended that the United States (a) revise how it develops and uses human talent by restructuring educational testing, (b) limit reliance upon multiple choice testing since it lacks accountability and leads to undermining vital social policies, (c) cease using test scores as the single measure in making important decisions about individuals and their competencies, and (d) promote greater development of all Americans with alternative forms of assessment so that testing opens gates of opportunity rather than closing them off.

While norm-referenced, multiple-choice tests are quick and efficient to administer, policy makers are nevertheless reconsidering their value (Campbell, Campbell, & Dickinson, 1996/1999). Rhode Island, Vermont, California, Kentucky, and Connecticut have pioneered approaches that provide more genuine pictures of student learning than possible with paper and pencil, short-answer evaluations. In 1991, the Council of Chief State School Officers identified 40 states currently planning or implementing some form of alternative assessment. Campbell, Campbell, & Dickinson, (1996/1999) state:

Numerous teachers and districts are also working with portfolios and performance-based tasks. Admittedly, still in the developmental phase, new forms of assessment are fraught with questions about time, reliability, and manageability. Yet, many educators, acutely aware of the deficiencies and limitation of standardized measures, believe that new approaches to assessment will capture more of what students know and can do both within and outside of school. (p. 301)

Critics of standardized achievement tests, teacher-made tests, and tests found in textbooks argue that testing should not be separated from instruction. The purpose of testing should be to have students create, reflect, solve problems, collect and use information, and formulate interesting and worthwhile questions. This identified testing
as a valuable learning experience. Instead, standardized achievement tests are used to compare students with other students, to place students into groups or programs, and to guide and counsel students. Unfortunately, many of these purposes are not justified, and to a certain extent, are not effective in measuring skills that are crucial for students in the real world.

Traditional assessment methods do not adequately meet the needs of fine arts programs (Burke, 1999). One reason is that evaluating student performance using traditional pencil and paper methods does not appear to improve student learning. Evidence that this problem exists includes teacher observations and student performance on traditional and standardized tests in comparison to student performance on authentic assessments. There has been a shift toward the need for more authentic assessment tools relating to real-life, including problem-solving activities and higher order thinking skills.

Teachers nationwide are realizing that standardized tests and traditional measuring assessment tools are not accurately depicting student learning. Traditional methods of testing, such as scantrons, do not allow for any type of student reflection or personal conferencing. Another reason is that grading using traditional measurement tools often allows a teacher to pass judgment on a student and issue a grade based on things like behavior, attendance, and attitude, as opposed to a grade based on actual knowledge gained (Burke, 1999). This can happen very easily in fine arts classes when sufficient time is not allotted for proper assessment, especially when a teacher may only see a student once a week. Furthermore, varying assessment is necessary in order to give an accurate picture of the complex learning that takes place in the fine arts curriculum (Jasmine, 1994).

Linda Ann Bond, director of assessment at North Central Regional Educational Laboratory (NCREL), explains the accountability/assessment movement in education as the result of students not acquiring the new skills and knowledge they need to be successful in the twenty-first century global economy (Bond, 1995). National, state, and local policy makers searched for ways to motivate students to reach new and higher levels of achievement. This is a call for educational accountability in schools. Federal program requirements, state and district accountability concerns, testing for minimum
competency, testing for admissions, and testing for special diplomas have created a movement for educators to design assessment programs that provide valid and reliable results. Dissatisfaction with the limitations of testing has created an interest in alternative assessment. Innovative ways to assess students include asking students to perform, create, produce, or do something that requires them to use higher-level, problem-solving skills. The assessment tasks themselves represent meaningful instructional activities, or are relevant to real-life tasks, or they represent tasks that are common to a particular discipline.

In “The Teacher as Stakeholder in Student Art Assessment and Art Program Evaluation,” Dorn (2002) states that art teachers are facing an assessment dilemma as politicians attempt to improve U.S. schools. Accurate assessment must identify the content or “The Arts” may face the possibility of not being included in the curriculum. Dorn, Madeja, and Sabol (2004) explained that the nation’s art teachers should begin the process of (a) developing their own authentic assessment instruments, (b) developing school and district assessment plans using a peer review process, and (c) developing ways to document student progress and establish sensible and appropriate record-keeping systems that meet the agreed-upon goals of the district and state.

**Authentic Assessment**

Authentic assessment includes “the multiple ways of evaluating student’s learning, achievements, motivation, and attitudes that are consistent with classroom goals, curricula, and instructional methods” (Paris & Ayers, 1994/1999, p. 165). Authentic assessment focuses on the ability to use relevant knowledge, skills, and processes for solving open-ended problems during meaningful tasks. In addition, it provides opportunities for students to integrate many different kinds of learning.

An effective art assessment program enables the art educator to diagnose student strengths and weaknesses early and on a regular basis, to monitor student progress, to improve and adapt instructional methods in response to assessment data, and to use information about students both individually and as a group in order to manage the classroom more effectively (Beattie, 1997). Assessment is an integral
component of quality teaching. Pre-assessing for prior knowledge, building on prior knowledge through instruction, reassessing, re-teaching based on assessment findings, and final assessing are all part of sound classroom teaching practices.

In authentic assessments, “students have greater clarity about their obligations and are asked to master more engaging tasks, and teachers can see assessment results as meaningful and useful for improving instruction” (Wiggins, 1990, p. 2). Authentic assessment is the process of gathering evidence and documenting student learning and growth in an authentic context. Authentic assessments may assume a variety of forms (including demonstrations, oral interviews/presentations, simulations, self-assessments, and peer/instructor evaluations); however, their focus is always on evaluating learners’ mastery and performance of objectives, rather than on degree of compliance or conformity. Authentic assessment has been defined as “the multiple ways of evaluating student’s learning, achievements, motivation, and attitudes that are consistent with classroom goals, curricula, and instructional methods” (Paris & Ayers, 1994/1999, p. 165).

Classroom Examples of Authentic Assessment


1. Authentic assessment is consistent with classroom practices. The assessment procedures and content are derived from students' everyday learning in school; therefore, it has instructional and curricular validity. The assessment is relevant to the educational experiences.

2. Authentic assessment collects diverse evidence of students' learning from multiple activities. The technique involves gathering evidence over time from many different activities rather than relying on single tests or narrow samples of student knowledge.

3. Authentic assessment promotes learning and teaching among participants. This process seeks to directly promote student learning and motivation and is evaluated on that benchmark. This assessment is functional, pragmatic, and beneficial.

4. Authentic assessment reflects local values and standards.
Attributes

McAlpine (2000) characterized authentic assessment by listing 11 attributes. Among these are: (a) authentic assessment is nonalgorithmic and highly creative students enjoy this kind of thinking; (b) authentic assessment encourages self-regulatory skills and higher order thinking as students monitor their own development of skills and accept challenges to work on tasks requiring critical evaluation and creativity, which is ideally suited for art students; (c) authentic assessment provides the opportunity for students to be active participants in assessment activities and to reveal what they are good at doing; (d) authentic assessment offers challenges based on real tasks that are relevant for the art student; (e) authentic assessment provides scoring criteria to be developed in partnership with the student, sometimes using self-assessment; (f) authentic assessments provide high content validity because authentic assessments sample a wide domain of content that matches the real world.

McAlpine (2000) explained:

What about reliability? It is not possible to construct parallel forms of authentic tests to establish equivalent-form reliability. Is either test-retest or split-half methods of determining reliability appropriate? Claims for the reliability of authentic assessment rest mainly on "repeated measures," or in this case, on "repeated performances" over time. (p. 3)

Assessment tools need to measure meaningful skills and worthwhile classifications of knowledge. An aspect of authentic assessment is that it should illustrate progress before, during, and after instruction (Popham, 1999). It is important for teachers to understand what the student has learned as well as how far the student can go. Assignments should present students with “a full array of tasks that mirror the priorities and challenges of the instructional materials” (Wiggins, 1990, p. 1). In addition, Wiggins (1990) adds that authentic assessment forces students to justify their answers. By forcing students to justify their answers, they are more likely to attain a level of critical thinking in which they will retain the knowledge and excel in a specific task.
Another authentic assessment technique that helps students excel is that they know in advance how they will be graded. According to Keenan-Tagaki, students will “progress steadily and surely when you make your expectations clear to them” (2000, p. 46). Hickey adds, “When students work with rubrics, grades do not surprise them or leave them without feedback as is the case with apparently arbitrary letter grades” (1999, p. 32). Authentic assessment also helps teachers prove what students actually learned in class (Chiodo, 2001).

One of the problems with traditional grading methods in fine arts classes is that there are no specific criteria in which to measure student knowledge. Fogarty (1997) stated:

Traditional grades include number or letter grades for daily work, homework, quizzes, tests, and for class participation.
While they are considered objective measures, often they are actually subjectively based on individual teacher standards.
(p. 210)

Barr insists that “the biggest single impediment to improve teaching and learning is the way in which we evaluate student achievement” (Barr, 2000, p. 22). It is important for teachers to know “we cannot test our way to better schools” (Neill, 1998, p. 45). An important component of authentic assessment is the ability to clarify the learning process. According to Asmus, “assessment is not an add-on instruction. Rather, it is an integral part of the instructional process, and it can inform both the teacher and the learner” (Asmus, 1999, p.19). Learning should not be a perplexing experience but rather a building project where students can collect knowledge and make links to connect knowledge with real life experiences and situations. Authentic assessment, in practical terms, means that students are allowed adequate time to plan, to complete the work, to self-assess, to revise, and to consult with others.

Authentic assessment is an asset in the fine arts classroom because standards and benchmarks are very broad and general. For example, arts and music standards can be accomplished in several different ways depending on how the teacher interprets the standard. Many school districts across the United States have begun to revise music
and art curriculums based on new National Standards. Unfortunately, although the standards provide educators a valuable resource to guide the development of curriculum, “There is no clear procedure for turning them into a grade-by-grade curriculum. This process, however, will become increasingly important if the standards are to have a meaningful impact in the classroom” (Wells, 1997, p. 34).

**Appropriate Assessment Strategies**

Authentic assessments are essential to learning (Hast, 1994). This kind of assessment is both educational and engaging, reflecting real-life, interdisciplinary challenges. The assessment recognizes and values “students' multiple abilities, varied learning styles, and diverse backgrounds” (McAlpine, 2000, p. 3). It presents students with tasks that integrate knowledge and skills and it often culminates in student products or performances. Authentic assessment is “standard setting, pointing students toward higher, richer levels of knowing” (McAlpine, 2000, p. 3).

Authentic assessment is the process of gathering evidence and documenting student learning and growth in an authentic context. Authentic assessment is “the multiple ways of evaluating student’s learning, achievements, motivation, and attitudes that are consistent with classroom goals, curricula, and instructional methods” (Paris & Ayers, 1994/1999, p. 165). Authentic assessment proves superior to other testing methods (Armstrong, 2000). Armstrong identifies a list of strengths for authentic assessment: (a) it gives the teacher a sense of the child’s unique experiences as a learner, (b) it provides interesting and exciting experiences, (c) it creates a classroom in which every student has the opportunity to be successful, (d) it allows teachers to develop meaningful curricula and assess within the context of that program, (e) it assesses on an ongoing basis in a way that provides a more accurate picture of a student’s achievement, and (f) it puts the emphasis on a student’s strengths.

Furthermore, authentic assessment shows what students can do and what they are trying to do, provides multiple sources of evaluation that give a more accurate view of a student’s progress, treats each student as a unique human being, provides a culture-fair assessment of a student’s performance, gives everyone an equal chance to succeed, provides information that is useful to the learning process, and regards assessment and teaching as two sides of the same coin (Armstrong, 2000). Authentic
assessment engages the student in a continual process of self-reflection, mediated learning, and revision. In addition, it compares students to their own past performances.

Another important component to authentic assessment is the ability to clarify the learning process. According to Asmus (1999), “assessment is not an add-on instruction. Rather, it is an integral part of the instructional process, and it can inform both the teacher and the learner” (p. 19). Learning should not be a perplexing experience but rather a building project where students can collect knowledge and form links to connect knowledge to real life experiences and situations.

Afflerbach (1994) provided classroom examples of four reasons why authentic assessment is the most appropriate assessment strategy in art (Paris & Ayers, 1994/1999). (a) Authentic assessment is relevant to the educational experiences. (b) Authentic assessment collects diverse evidence of students’ learning from multiple activities. (c) Authentic assessment is functional, pragmatic, and beneficial. And (d), authentic assessment reflects local values and standards.

**Authentic Assessment versus Traditional Assessment**

Authentic assessments differ from standardized assessments in that they include real-life decisions and behaviors and they are performance based. Armstrong (1994) characterized authentic assessments as legitimate in that they are intellectually challenging and responsive to the student and the school. Authentic assessment focuses on the ability to use relevant knowledge, skills, and processes for solving open-ended problems during meaningful tasks. In addition, it provides opportunities for students to integrate many different kinds of learning.

Traditional assessment tests usually focus on incremental skills that can be graded objectively. The tests are often multiple choice and standardized. Standardized testing reduces children’s experiences to a collection of scores, percentiles, or grades (Armstrong, 2000). These tests create stresses that negatively affect student performance. They also create a mythical standard or norm, which requires that a certain percentage fail. In addition, standardized testing pressures teachers to narrow their curriculum to only what is tested on an exam. This kind of testing emphasizes one-time exams that assess knowledge residing in a single mind at a single moment in time. Standardized testing tends to place the focus of interpretation on errors and mistakes.
These tests focus too much importance on single sets of data (i.e., test scores) in making educational decisions. Standardized testing treats all students in a uniform way and additionally discriminates against some of them because of cultural background or learning style. This kind of testing judges the child without providing suggestions for improvement. Standardized testing regards testing and instruction as separate activities. Answers for these tests are final; students rarely receive an opportunity to revise, reflect, or redo a testing experience. Furthermore, these tests provide results that can be fully understood only by a trained professional and produce scoring materials that students often never see again. Standardized testing focuses on “the right answer” and usually focuses on lower-order learning skills. These tests encourage extrinsic learning (e.g., learning to pass a test or to get a good score). The testing has time limits that constrain many pupils’ thinking processes and is generally limited to reading, listening, and marking on a piece of paper. Standardized testing generally forbids students to interact and promotes unhelpful comparisons between them.

Lipman (1987) explained that standardized achievement tests are not effective in measuring divergent thinking and complex problem solving skills. Resnick and Resnick (1989) explained that standardized assessments feature short, choppy, superficial readings. Student responses are non-reflective, filling in pre-selected responses to other people’s questions. Archbald and Newmann (1988) explained that scores on standardized achievement tests do not correlate well with first year college performance or performance of tasks that require disciplined inquiry, integration of knowledge, or the ability to deal with new and unusual problems. Barth and Mitchell (1992) maintained that multiple-choice, norm-referenced testing gives the impression that answers are always right or wrong, makes students passive because they select answers instead of constructing them, and encourages memorization. Mislevy (1989) explained that students gain knowledge by reconfiguring their knowledge structures, not by accumulating new facts and skills. He identified the fact that the educational system is facing a crisis because the “view of human abilities implicit in standard test theory …is incompatible with the view rapidly emerging from cognitive and educational psychology” (Mislevy, 1989, p.1). Wiggins (1989) argued that a standard achievement test is:
Disrespectful because mass testing as we know it treats students as objects—as if their education and thought processes were similar and as if the reasons for their answers were irrelevant...To gauge understanding, we must explore a student's answers; there must be some possibility of dialogue between the assessor and the assessed to insure that the student is fully examined...Consider, too, that the bell-shaped curve is the intended result in designing a means of scoring a test, not some coincidental statistical result of a mass testing. Norm-referenced tests, be they locally or nationally normed, operate under the assumption that teachers have no effect—or a random effect—on the student. (p. 708)

**Portfolio Assessment**

There are numerous advantages for the use of portfolios in fine arts classes for students, teachers, and even parents. In 1998, Hebert pointed out that “traditional testing addressed the question, ‘Which child knows more?’ whereas portfolios addressed the question, ‘What does my child know?’” (Hebert, 1998, p. 25). Portfolios allow students to reflect on their progress as well as their strengths and weaknesses. They also facilitate student understanding of the relationships that exist across the curriculum. Portfolios help students develop a collaborative climate in the classroom using peer critiques and cooperative work. They also provide students an opportunity to assume responsibility for their own learning and their own independence. Portfolios provide “more complex outcomes and provide holistic and comprehensive pictures of students by emphasizing what students know and can do in response to real world tasks” (Wolfe, 1999, p. 29). Advantages for teachers include having a more meaningful picture of student growth and gaining data that can be useful to aid in instructional decision-making. Portfolios also allow for the integration of assessment and instruction as well as provide a wide range of information for both formative and summative
evaluations of multiple abilities, talents, and skills of students. Portfolios allow art educators to actually view student progress. “Periodically the teacher reviews portfolio work with the student individually and discusses the student’s learning, progress, and aspirations in art” (Hurwitz & Day, 1995, p. 41).

The California Art Education Association conducted a portfolio assessment in a pilot project to provide visual art educators with examples of classroom practice to serve as the foundation for further development of performance/portfolio assessment (Taylor, 1991). Key issues addressed during this project included the purposes of assessment portfolios for students. The project stated that a portfolio that is assessed regularly offers students the opportunity to learn about learning, engages them in self-reflection, and allows them to value their own work and themselves as learners. The results of the survey showed that both students and teachers benefit from using assessment portfolios.

There are four main learning benefits for students using portfolios. These positive features include the following: (a) the opportunity for student autonomy and learning choices, (b) the promotion of metacognitive skills and self-reflection, (c) the opportunity to present multiple sources of evidence to document learning, and (d) the opportunity for the learner to convey the learning context.

Portfolios allow learners to become more autonomous and more oriented toward themselves as learners (Camp, 1990; Farr & Trumbull, 1996). Students using portfolios are empowered with a range of opportunities to set goals, analyze their work, determine and articulate what their work demonstrates, participate in the establishment of evaluation criteria, and reflect on how they learn. These features, according to Adams and Hamm (1992), encourage personal autonomy and responsibility for learning. The ongoing process of collaboration between the instructor and the learner results in greater sensitivity to learners’ personal learning style and preferences (Lucas, 1992). Geocaris and Ross (1999) also pointed out that portfolios allow a student to express knowledge in ways that meet individual learning styles and intelligences. Portfolios promote high-order thinking skills, engage the learner in cognitively complex activities, provide opportunities for self-reflection and self-assessment, and are culturally responsive, allowing for variation in language, and in cognitive and communicative style.
Portfolios are considered a form of authentic assessment because over time they examine student performance in naturalistic settings. Portfolios have the flexibility to include learning evidence from a number of sources. The evidence of learning incorporates not only intellectual development of children but social and emotional development as well (Farr & Trumball, 1996). Student writing, student dictations to teachers, photographs, videotapes, drawings and other sources of evidence are all becoming accepted as sources of evidence. Martin (1999) cited more than 30 potential sources of evidence including (a) autobiographies; (b) personality/learning style rating scales/analysis; (c) learning logs containing learner reflections; (d) student success plans and short-term goal setting strategies; and (e) photographs of the student in action or of work produced by the learner.

Several projects use or have used the models congruent with the fundamental principle of portfolio assessment. Under the direction of Howard Gardner and his colleagues at Harvard University’s Project Zero, projects have been initiated that include curriculum for preschool through the high school level. Project Spectrum, Key Learning Community, PIFS (Practical Intelligence for School), and Arts PROPEL are four examples created nationwide.

Project Spectrum is a preschool program piloted at the Eliot Pearson Children’s School at Tufts University in Medford, Massachusetts. The program, which has rich and engaging activities, uses art portfolios and observations as the means of assessment for the bodily-kinesthetic/musical, logical-mathematical, and spatial/linguistic experiences. The Key Learning Community is part of the Indianapolis Public School System in which the learning projects are videotaped extensively in the assessment of the learning process. These video portfolios accompany a student from kindergarten through high school. PIFS is a middle school program designed to develop metacognitive skills and understandings in school-related activities. The assessment for units are contextually rich, performance-based programs. Unit projects may include “Finding the Right Mathematical Tools,” “Choosing a Project,” and “Why Go to School?” A fourth example of a program based on an assessment model according to Gardner’s
The focus of this five-year high school art project piloted in the Pittsburgh Public Schools in Pennsylvania included two elements: the domain projects and the “processfolios.” The domain projects include a series of exercises, activities, and productions in visual arts, music, and creative writing designed to develop student sensitivity to compositional features. The ongoing collection of students’ artistic productions is the “processfolio.” This evaluation procedure includes self-assessments requiring student reflection.

Portfolios have the potential to be a meaningful and valid form of assessment and instruction because they reflect the context of student learning and classroom instruction (Farr & Trumbull, 1996). Theorists have maintained that the portfolio process is flexible enough to encourage, accommodate, and incorporate culturally diverse interests, experiences, and ways of learning in the classroom (Ball, 1993). Portfolios provide evidence for locally relevant goals and criteria not for norm-referenced standards. There is a link between student outcomes and classroom curricular objectives (Sewell, Marczak, & Horn, 1999). Significant evidence/information in a portfolio encompasses concepts gained (cognitions), knowledge acquired (contexts, form and structure, processes), skills demonstrated (technical, perceptual, and expressive), and attitudes developed (affective domain) (Smith-Shank & Hausman, 1994).

Why should the Assessment involve Portfolio Assessment?

Portfolio assessment collects diverse evidence of student learning from multiple activities representing a selection of performances. The technique involves gathering evidence over time from many different activities rather than relying on single tests or narrow samples of student knowledge. The most obvious goal of portfolio assessment is to enable students to benefit from instruction. Portfolio assessment is an instructional approach emphasizing the processes as a means to enhance learning. The objective is to enable all students to become strategic, self-reliant, flexible, and productive in their learning endeavors.

As American educational policy appears to be shifting from learning outcomes to learning processes, the emphasis in education is upon the individual student. An important strength of portfolio assessment is that it focuses on individual learners, rather than products. If properly devised, it becomes an extension of the learning process,
thereby helping students become reflective about their learning. Belfiore and Hornyak (1998) suggest that portfolios are one of the practices that foster self-reflection in a way that learners are able to develop both a competency and an improved self-regulated learning ability. Portfolio assessment “provides the opportunity for students to take an active role in their learning, have concrete educational experiences, and examine their own cultural experiences and beliefs” (Zimmerman, 1990, p. 1). Furthermore, portfolios provide an opportunity to collect, document, and evaluate student artwork. As an instructional tool, portfolios provide the opportunity for easier customization of individual learning experiences that match individual learning styles (Arter, 1995).

Portfolio assessment is a meaningful and valid form of assessment and instruction reflecting the context of student learning and classroom instruction (Farr & Trumbull, 1996). Zimmerman (1991) explains this concept by identifying two criteria developed by Archbald and Newmann (1988) and Wiggins (1989): attending to both processes and products of teaching and learning, and educating students to access their own achievements. This assessment involves an examination of the processes of teaching as well as the products of learning as students have opportunities to engage in activities that are integrated, complex, and challenging. Work habits and learning abilities, art knowledge and skills, and desire and interest are assessable through a profile of behavior using portfolio assessment.

According to Beattie (1997), there are three scoring approaches applicable to portfolio evaluation: holistic, analytic, and modified holistic. Whatever approach art educators choose, portfolio evaluation utilizes a variety of assessment and scoring and judging strategies, such as checklists; rating scales; questionnaires; teacher, peer, parent, and other interviews; and student self-assessments. When the portfolio has been evaluated, the results need to be interpreted. Beyond a score or grade, the teacher determines what the portfolio really says about student learning, as individuals and as a class; the effectiveness of the curriculum; and the learning environment.

Performance assessment provides teachers with a better understanding of what students know, a method of evaluation that is more relevant to students than other assessment methods, and an efficient way to evaluate students in a standards-based educational system. Performance assessment provides students with a more interesting
and engaging way of learning, with more information about what they are expected to know and be able to do, than with multiple-choice questions.

**Performance Assessment Strategies**

Beattie (1997) explains there are seven performance assessment strategies: (a) portfolios; (b) journals, diaries, logs; (c) integrated performances; (d) group discussions; (e) exhibitions; (f) audio tapes and videotapes; and (g) computers.

Because of the breadth, depth of content, and amenability to diverse reviewing and assessing techniques, portfolios offer a wealth of multi-layered information about student learning. Portfolios reveal students in both maximum and typical performance postures, and, for this reason, serve in both summative and formative assessment roles. In exploring various structural options for performance assessment, there are three scale-design type options: checklist, holistic rubric scale, and primary trait rubrics. The checklist is the simplest design and is used when the performance is defined by a series of procedural steps or a set of specific components. Checklists are limited because they cannot contain items that infer grades of quality. The holistic rubric scale functions to capture performance that reflects the level of the quality of that performance, or product, on an ascending scale from lowest to highest. This type of scale is best for assessing performances and products that require an interpretation of quality and represent the whole performance (which is essentially greater than the sum of its parts). The primary trait scale is best for performances, processes, and/or products that have a complex series of traits and/or components. If these traits or components cannot be reduced to one holistic entity, then a scale that contains separate traits must be used.

Journals, diaries, and logs are written and visual records of student ideas, reflections, experiences, explorations, notes, studies, replies to teacher’s questions, and statements on goals and objectives. As both teaching and assessing tools, student journals are useful in all four visual arts disciplines. Journal entries can be reviewed and assessed using a variety of different techniques such as: checklists; rating scales; teacher, peer, parent, and other interviews; and student assessment. Content, development of ideas, and artistry are criteria used as a guide for assessing journals. As a performance strategy, the journal used in combination with a student self-assessment tool produces a vast amount of information about the students’ work. The journal
contains exercises or studies of art techniques; sketches of ideas; descriptions of thinking and working processes; rough drafts of writing assignments; information gained from class critiques, written assignments, class notes, definitions, and explanations; questions, personal beliefs, thoughts, and responses to works of art, artists, art issues, teacher questions; doodles and drawings of images to remember; and other pertinent art images. Used as a notebook of information, the journal is important for the student as a tool that can provide support for portfolio assessment, it would, however, be difficult to have the journal as the only performance assessment tool.

Integrated performances combine learning about a topic and being assessed on those learning outcomes all within a single performance task. Integrated performances demand careful crafting to ensure that discipline content, discipline processes, and at least one cognitive process or one metacognitive process are evident in the performance activity. This performance also demands careful judging and score constructing. Developing an appropriate and reliable scoring strategy can be difficult. In addition, integrated performances introduce validity problems of performance task use, as well as the resulting score use and interpretation.

Group discussions are group demonstration tasks limited to one response mode--oral. Even though discussions are treated as both instructional and assessment strategies, an art educator would find it prohibitively difficult to simultaneously score/record and facilitate the discussion.

Having students exhibit their work can also be a performance assessment strategy. Even though students could mount brief didactic notes that explain their interpretations of and reflections about the product and process, it would be difficult to assess the dimensions of student growth.

Audio and videotapes can be used as assessments for student performance, but they would need to be used in conjunction with portfolios, class discussions, integrated performances, or other assessments.

Computer-based portfolios enable students to scan in their artworks, create written entries, and reflect on their works in a file that is accessible to both teachers and students. Advantages include direct presentation of material, instant and accurate feedback and scoring, and easy transmission of results.
The art portfolio motivates and challenges students, promotes learning through reflection and self-assessment, encourages student-teacher collaboration, validates different learning styles and approaches, and encourages the research, resolution, and communication of ideas.

Summary

The review of the literature identifies the art learning process as cognitive in nature. An effective constructive learning environment gives the student the opportunity to be cognitively active and involved in the knowledge construction process. To encourage self-directed deliberate practice, students need tools that promote self-regulation. Paris and Ayers (1994/1999) distinguish four characteristics of ongoing assessments that promote self-regulated learning. First, the activities are meaningful, authentic learning activities that stimulate student curiosity and imagination. Second, student reflections are metacognitive because they are engaged in appraising their own ways of knowing. Third, students are stimulated to reflect on their growth because they access progress over time. Fourth, students notice their own strengths and weaknesses.

The role played by metacognitive skills in the development of autonomous learners is determined by considering the use of student cognitive profiles. A cognitive profile is considered to consist of the measures of an individual’s cognitive style, learning style, and personality. Student awareness of the learning process has become increasingly relevant with the shift of emphasis toward active learning. A review of learning styles supports self-directed learners because students have different abilities to construct meaning. Subsequently, the teacher will have a deeper understanding of the type of metacognitive skill that will fit the student's learning style.

Learning is a process of discovering and constructing meaning from information and experience, filtered through the learner's unique perceptions, thoughts, and feelings to pursue personally meaningful goals (Paris & Ayers, 1994/1999). Metacognition is the ability to control one’s cognitive processes (self-regulation).

This literature review reveals that even though there are studies that investigate self-regulated learning and academic achievement, these studies do not address the
use of self-regulated learning in portfolio assessment for art education. Although the rationale for the portfolio as a tool in the authentic assessment movement has been provided, fostering student involvement in assessing their own learning needs to be studied by teachers in art education. Improved understanding about how learners self-reflect through the portfolio process and how self-reflection in turn leads to more self-regulating behavior is essential for improving instructional design and enriching classroom application.

The next chapter describes the methodology used to design the study for identifying self-reflective prompts as a strategy for teaching students to be self-regulated learners.
CHAPTER III

METHODOLOGY

Introduction

The procedures used in this study are presented to identify the methodology the researcher designed to conduct this study and to answer the research questions developed after a review of the literature was made on relevant topics. The purpose of the study was to assess improvement on art performance. The following research questions were presented to specify the problems and interest of the study.

1. Is there a significant difference between pretest and posttest "reflecting about art" scores in students who receive a self-regulated learning strategy?
2. Is there a significant difference in the art performance scores between eighth grade students who use a self-regulated learning strategy and those who receive regular instruction only?
3. Is there a significant relationship between intrapersonal intelligence and the metacognitive awareness scores among students receiving a self-regulated learning strategy?
4. Is there a significant difference in the art performance scores of students receiving a self-regulated learning strategy who have a visual preference of learning as compared to students who have a verbal learning style?

Problem Statement

In academic subjects, researchers conclude that instructional strategies that teach students to practice metacognitive skills while learning course content increases
metacognitive awareness and improves the use and awareness of these skills, as well as performance (Hacker, Dunlosky, & Graesser, 1998). As researchers became interested in explaining academic self-regulation, experiments and intervention studies (Schunk & Zimmerman, 1998) reported results of improving students’ academic functioning. However, a study to test the effectiveness of developing self-regulated learners in art education has not been included in educational theory and practice.

Boekaerts, Pintrich, and Zeidner (2000) explain that it is necessary to identify situations where self-regulation may interfere with the achievement of goals:

Say we want to foster a creative and spontaneous learning or work environment. Excessive self-regulation may take people out of the flow of behavior, causing them to resist the affordances of the spontaneous and creative environment; thus, the effect of self-regulation is violated. (p. 768)

For learners and learning in the Arts, does using a self-reflective learning strategy increase art performance?

**Research Hypotheses**

Hypothesis 1: There is a significant difference between the pretest and posttest in the “reflecting about art” scores among students who practice a self-regulated learning strategy.

This hypothesis was designed to identify whether self-regulated learners increased their ability to self-reflect through a self-regulated learning strategy. A metacognitive experience is most likely to occur whenever the situation explicitly demands it (Weinert & Kluwe, 1987). The metacognitive experience may be more apt to occur when the cognition situation is somewhere between novel and completely familiar. Furthermore, the experiences are likely to occur in situations where it is important to make inferences, judgments, and decisions; or whenever one’s cognitive enterprise seems to be in trouble. The rationale for this hypothesis was to determine if the practice
of reflection through writing is an effective way for students to identify not only what they did, but also what they learned.

Hypothesis 2: There is a significant difference in the art performance scores between eighth-grade art students who use a self-reflective learning strategy and those who receive regular instruction only.

Hypothesis 2 was designed to determine whether self-regulated learners increased their art performance more than students who were not self-regulated learners. Shin (1998) suggested three reasons for teaching self-reflection: (1) learning ability can be increased through training, (2) metacognitive skills can be practiced and results become incidentally developed, and (3) the strategies developed through training can be transferred to other learning situations. Belfiore and Hornyak (1998) suggested that portfolios are one of the practices that foster self-reflection in a way that students are able to develop both a competency and improved self-regulated learning ability. This researcher designed the hypothesis to investigate the notion that one can teach self-reflective practice to a student.

Zimmerman (1998) suggested that self-reflection is conceptualized as both a process and a skill. If self-reflection is in actuality not only a process but also a desirable skill (outcome), then instruction should focus on helping students reflect throughout the learning process. In this process, students reflect on the requirements of a task, the type of learning that is desired, the appropriate strategy that will help accomplish the goal, and identify if the strategy helped accomplish the task (Shin, 1998). The rationale for this hypothesis was to determine if the practice in self-reflective learning would provide the skills necessary to improve art achievement.

Hypothesis 3: There is a significant relationship between intrapersonal intelligence and the metacognitive awareness scores among students receiving a self-regulated learning strategy.
Hypothesis 3 was designed to determine whether students who have an aptitude for intrapersonal intelligence score better than students who do not have an aptitude for intrapersonal intelligence on the metacognitive awareness inventory. The rationale for the hypothesis was to determine if factual (declarative) knowledge about cognitive activities and capabilities provides metacognitive knowledge that can influence behavior. Do students who perceive themselves as having skills in intrapersonal intelligence score better than students who do not identify themselves with this same aptitude?

Hypothesis 4: There is a significant difference in the art performance scores of students receiving self-regulated learning strategies who have a visual preference of learning compared to students who have a verbal learning style.

Hypothesis 4 was formulated to identify if self-regulated learners who have a visual preference for learning score higher in art performance than those students who have a verbal preference for learning. The rationale for the hypothesis is to determine how students with a specific preference of learning would be affected by participating in a self-reflective learning strategy that was primarily a verbal/linguistic teaching strategy.

**Design of the Study**

This was a quasi-experimental design comprising the “Nonequivalent Control Group Design.” This design is like a pretest-posttest control group design but the nonequivalent control group design involves random assessment of intact groups to treatments, not random assignment of individuals. In this design, both groups have an art performance pretest (Portfolio 1) and posttest (Portfolio 2), but only the experimental group receives the treatment.

**Population**
In this study, twenty-five students participated in the experimental group and twenty-five students participated in the control group. Of the 50 subjects who participated in the study, 58% were female (42% male) and 72% were white (28% black). In the experimental group, 64% of the students were female and 36% of the students were male. In the control group, 52% of the students were female and 48% of the students were male. In the experimental group, 80% of the students were white and 20% of the students were black. In the control group, 64% of the students were white and 36% of the students were black.

Procedural Details

During the 2003-school summer term, a letter (Appendix A) soliciting permission to complete the research study was sent to the Superintendent of the Schley County Board of Education. After receiving a response granting the request (Appendix K), a meeting was set up with the school principal to discuss the approved procedure. Letters explaining the purpose and procedures of the study, as well as student and parent consent forms were given to students during the pre-school session of the 2003-2004-school term (Appendix B). The researcher secured the permission of the Human Subjects Committee of the Florida State University (Appendix J).

Human subjects must be allowed to determine if and how they will be involved in research. The researcher/teacher indicated to the students that participation in this project was voluntary, and had no bearing on their final grade in the course. Students interested in participating were asked to sign a consent form and obtain a signature from their parent/guardian. Students were informed verbally and on the consent form itself that they were free to withdraw from the project anytime, that their participation in the research would be confidential, and they would be given pseudonyms in the research report to protect their confidentiality if they chose to participate. The research for this study began when the researcher/teacher received approval from the school superintendent and Board of Education, the school principal, a parent or guardian of the student, and the student.
The population for this study included two intact eighth grade middle school classes of art students in a Georgia public school system. The classes selected for this study were two groups of students assigned to two eighth grade homeroom classes at Schley County Middle/High School. The study began with 27 students in the experimental group and 26 students in the control group. Two students in the experimental group moved out of the school system in December and one student in the control group was not given permission to participate in the study.

The major objective of this research was to understand the effect of student self-regulated learning on art performance. To begin the course, the researcher/teacher outlined the lessons and explained the art room rules and procedures. In both classes, for the first lesson, students created a personality poster using the letters of their name as the center of interest for the composition in their drawing. As students worked on the project, the teacher/researcher presented and discussed several artworks from the ArtTalk text. From this point on, even though each lesson was presented to the students in the same way, everything else changed. At the end of the first lesson, students in the experimental group took the “reflecting about art” pretest.

In the control group, students began Lesson Two. They selected a master artwork and did an interpretation of it as a mixed-media collage; when most of the students had finished, the teacher/researcher introduced Lesson Three. In this activity, students designed their favorite room with one vantage point. After working on this watercolor painting for several lessons, some students were ready to move on to Lesson Four. In Lesson Four, students were asked to use Matisse’s “Red Studio” as a guide to plan a composition for a painting that represented their own space. The instructions were for them to interpret their favorite master artworks to use as artwork in their own studio space.

When students in the control group completed lessons one through four, most of the students in the experimental group were still working to finish Lesson Two or Three. The researcher/teacher decided not to have the students in the control group work on any other artwork related to the ArtTalk projects until the students in the experimental group were ready to begin Lesson Five. The researcher/teacher presented fill-in
activities that gave students the opportunity to design posters for an art contest and decorate the art room before the semester ended.

As stated previously, the experimental class was not working at the same pace as the control group; it took about twice the time for the students in the experimental group to complete the lessons compared to the students in the control group. For example, in the experimental group, before the second lesson could begin the students had to take the multiple intelligence test and the learning style test. Each student took the test on the computer and was instructed to read the interpretation of their report printed from the online testing services. The researcher/teacher gave students a guide to interpret the scores of both the learning style and multiple intelligence tests. Then students wrote a summary of the interpretations of their multiple intelligence and their learning styles to construct their learning profile.

In the next lesson, the teacher/researcher explained to the students in the experimental class the significance of completing the “reflecting about art” pretest and the procedure for completing the written reflection activities about the artwork after each studio lesson was completed. Then students were taught the procedure for having their work photographed when it was completed. The artwork was taken to the photo lab to make a digital photograph on a floppy disk. For easy reference and accessibility, the students kept this floppy as documentation of the work they made during the school year.

When class resumed for the next lesson, the researcher/teacher presented the portfolio box and art folders to the students in the experimental class. The portfolio for this study was assembled for the specific purpose of assessing instruction, and to present evidence of growth, skill development, improvement, achievement, and reflection. A smaller folder was used to hold all written work pertaining to the portfolio. It was also the storage place for the floppy disk used in the digital camera.

It was important that students submit their work throughout the duration of the course, instead of only at the end. This was crucial because the study employed an emergent design where the data was analyzed and adapted if the data lead to new information. After the instructions were presented for Lesson Two, students in the experimental group began a mixed-media collage. Students worked on this project for
several weeks and then completed the written reflections for Lesson Two. Classes continued as planned; students began Lesson Three and then Lesson Four, completing the writing reflections for each lesson.

As the end of the 18 week-semester approached, the researcher/teacher expected that all the students would finish four works of art. Three students did not meet the scheduled deadline. After the second semester started, the teacher/researcher let these students work to finish their art as instructions were being given for the next lesson. The teacher/researcher decided it was best to let one student turn in his work unfinished because he continued to get even further behind in his work.

During the 2nd semester, students in both the experimental and the control group continued the art lessons working on lessons five through eight. As Lesson Eight was completed, students in the experimental group completed the writing posttest. Both the experimental and the control group turned in two portfolios of four works each for the art performance scoring.

In order to access the effects of the planned intervention, the students in the experimental and the control group were given the metacognitive awareness inventory during the last art session.

**Instructional Content**

Students in the experimental group completed both pretest and posttest portfolios. The treatment for the experimental group was instruction and practice in reflection, planning, and evaluation of their artwork through written assessment. For this study, the teacher’s function undergoes a metamorphosis from teacher-directed cognition to self-regulated learning. Metacognition and reflection are actively and cognitively intertwined in the process of learning. Imagine this metaphor: Think of yourself as a student on a field trip to a learning space separated by doors. Metacognition is the awareness of the desire to pass through the door to the next learning space while reflection is turning the handle to the door. Reflective learners are able to proceed quickly from room to room, using their own key to open the doors between each room.

Self-reflection is a process by which a learner’s actions are improved; and as a skill that the learner employs to set goals, identify the source of problems or successes,
and adapt their learning (Zimmerman, 1996/2002). My philosophy for effective learning and teaching is based on; course design, prior knowledge and conceptual understanding, instructional strategies, assessments, and the learning environment (National Science Foundation, 2002). In the “course design,” the teacher explains the expectations, goals, responsibilities, and assessment methods and the student takes responsibility for their own learning. Through “prior knowledge and conceptual understanding,” the teacher helps students build on previous experiences and the student uses metacognitive strategies in assessing what they know and what they need to know. Through “instructional strategies,” the teacher allows students time to reflect, encourages student input, and incorporates a variety of strategies that match student learning styles. The student exchanges ideas with peers. Through “assessment,” the teacher aligns assessments to match learning goals and encourages students to explain their understanding of concepts. The student uses “assessment” to reflect on and evaluate their progress and differentiates between what they do and do not understand. Through the “learning environment,” the teacher provides time for students to reflect, provides opportunity for transfer and application, addresses multiple learning styles, actively listens to students, and promotes an environment that supports risk taking. The student demonstrates self-motivation, uses metacognitive strategies, and takes risk in exploring new ideas.

As students participate in the art making process, many things influence their development. Wang, et al (1993/94) explains that there are 28 influences on learning. These six major areas include student aptitude, instruction and climate, context, program design, institutional organization, and state-level policies. Student aptitude includes gender, academic history, and a variety of social, behavioral, motivational, cognitive, and affective characteristics. Classroom instruction and climate include classroom management, monitoring of student progress, and quality and quantity of instruction. The context includes community demographics, peer culture, and family support and involvement. The program design is the physical and organizational arrangements for instructional delivery. The instructional organization involves culture, climate, policies, and practices. The state-level policies include governance and
administration, which includes standardized testing and statewide assessment programs that initiated the need for this study.

Of the 28 influences, the top three are identified as classroom management in which the teacher maintains active participation by the students; metacognitive processes that involve planning, monitoring, and evaluating learning strategies; and cognitive processes that include general intelligence and prior knowledge. In this art experience, students in the experimental class designed their own learning profile during the first week of class. This profile was based on the content and process of learning. Multiple intelligence is what is in the box, so to speak, and learning styles are what make the cogs turn.

To develop a profile, students took two on-line surveys. One survey was to identify how they were intelligent, and the second to identify their preferred learning style. The on-line services provided printouts with the results for each survey. The results of the Soloman-Felder learning styles report provided to students indicated the score showing the preference for being active or reflective, sensing or intuitive, visual or verbal, and sequential or global. In the copy of the multiple intelligence report, students received their aptitude score in the range of scores from one to one hundred and an explanation was given to identify each category. For example, the linguistic score for one student was 46, the logical-mathematical score was 48, and the visual-spatial score was 97. The report explained each intelligence area.

To develop a learning profile, the students identified how they were smart (intelligent) and their preferred learning style. Students recorded their profile information in their art journal so that they could have it to use throughout the school year. To explain the importance of the learning profile activity, the teacher showed master artwork created by artists who were labeled as predominate in the spatial intelligence area with four different learning styles (Silver, Strong, & Perini, 2000). Ansel Adams, who has an aptitude for spatial intelligence, was labeled with an intuitive-feeling or self-expressive learning style. Escher was labeled with a sensing-feeling, interpersonal learning style. Norman Rockwell was identified as being a sensing-thinking or mastery learner. Pablo Picasso was identified as being an intuitive-thinking or understanding learner. These four learning styles, depicted in Figure 2, were designed by Silver and
Hanson (1998). Research shows numerous correlations between what is called "styles of cognition" and multiple intelligences.

![The Four Learning Styles Diagram]

**Figure 2  Model of learning styles**

To explain the concept to the students, a simple chart was presented as a handout to show them what they are strong in, what they like to do, and how they learn best (Silver, Strong, & Perini, 2000). For example in the spatial intelligence area, students are strong in visualization. These students like to design and draw and they learn best through working with pictures and colors. Verbal/linguistic learners are strong in reading and writing, these students like to read, write, tell stories, talk, and memorize. They learn best through reading, hearing and seeing words, speaking, writing, discussing and debating. In the math/logical area, students are strong in math, reasoning, and problem solving; these students like to solve problems and experiment;
and they learn best through working with patterns and relationships, and working with the abstract. In the bodily/kinesthetic area, the students are strong in acting and making crafts, and these students like to move around; they learn best through touching or moving. In the musical intelligence area, the students are strong in singing and picking up sounds, they like to sing and listen to music, and they learn best through listening to music and melodies. In the interpersonal intelligence, the student is strong in understanding people, they like to talk to people, and they learn best through sharing and comparing. In the intrapersonal intelligence, the student is strong in understanding the self, they like to work alone, reflect, and pursue interests. These students learn best through doing self-paced projects and reflecting.

A metacognitive environment encourages awareness of thinking and provides opportunities for developing metacognitive strategies. In a studio art class, there must be a variety of activities. For example, in a lesson to teach students about Van Dyck’s painting (Tipper, 2003), “Sampson and Delilah,” linguistic learners could chose one of these activities: (1) describe the scene depicted by the painting in exactly 100 words, (2) write a poem about Samson’s strength, (3) write a newspaper article with a headline about Delilah’s betrayal of Samson, or (4) compare and contrast Samson with a modern day fictional hero like Spider Man or Luke Skywalker. For the logical mathematical learners, students could chose to (1) experiment with different pigments to create the colors used in the painting – and figure what mixtures were used or (2) research how many other paintings Van Dyck painted. Visual spatial learners could chose to (1) paint their own version of the masterpiece or (2) pick one of the characters for the painting and sketch them. Musical learners could (1) identify what pieces of classical music the mood of this painting would convey, (2) find a record in the charts that could describe the scene, (3) pick a pop star to represent each of the characters in the painting and decide which of their songs would be most appropriate, or (4) write a rap depicting the Samson and Delilah story. The bodily/kinesthetic learner could (1) practice communicating without words, since the body language depicted in the picture expresses how each character is feeling and thinking; (2) using just hands, communicate different emotions and feelings; (3) play charades using some famous paintings and/or artists as the subject; or (4) using mime, tell the story of Samson and
Delilah. The interpersonal learner could (1) talk about the painting in terms of the use of light and shade and describe the visual story being portrayed, (2) hold a debate about the moral issues raised by the story of Samson and Delilah, (3) discuss the role that each character plays in the scene, (4) describe the scene to someone who has never seen the painting, or (5) discuss the use of symbolism. The intrapersonal learner could (1) explore personal feelings about the painting – what emotions are stirred up inside, (2) imagine one’s self as each of the characters and explore what one might be feeling and/or saying to ones self at that moment in the scene, (3) compare and contrast oneself with both Samson and Delilah, or (4) explore how one feels about different types of art.

The teacher presented content then provided instructional activities so that the students could develop metacognitive behaviors (Blakey & Spence, 1990). These behaviors include: (1) identifying what students know and what students do not know, (2) talking about thinking, (3) keeping a thinking journal, (4) planning and self-regulation, (5) debriefing the thinking process, and (6) self-evaluation. As learners put their ideas into words, they learn differently; they learn more meaningfully. Activities causing reflection foster personal reactions inside the students mind and cause them to think about their own learning. That personal reflection is embedded in the metacognitive processing of the training environment in which students both look back and over their progress (Fogarty, 1994). In this study, students used the model of self-regulated learning developed by Zimmerman (1996/2002) as a guide to direct their self-regulated learning process.

From this model depicted in Figure 3, the teacher designed four prompts for students to answer about each artwork made during the study: (1) Did I achieve the goals I set for this artwork? (2) How have I improved this work in comparison with my previous artwork? (3) What things do I still need to work on to improve my artwork? (4) What do I plan to do to improve my next artwork? Metacognitive prompting is the teacher’s role in helping students to reflect.
Self-evaluation and monitoring occur when students judge their personal effectiveness, often from observations and recordings of prior performances and outcomes (Zimmerman, 1996/2002). Goal setting and strategic planning occur when students analyze the learning task, set specific learning goals, and plan or refine the strategy to attain the goal. Strategy-implementation monitoring occurs when students try to execute a strategy in structured contexts and to monitor their accuracy in implementing it. Strategic-outcome monitoring occurs when students focus their attention on links between learning outcomes and strategic processes to determine effectiveness.

As students answered these questions, they were instructed to use the rubric designed for the evaluation, the rubric designed for a painting lesson. For evaluation, the student would use these six categories to assess their work. To exceed expectations for the project, the following would apply: the drawing is highly expressive and detailed.
Line quality, shapes, patterns, and textures are used to enhance image. The composition demonstrates a highly developed sense of composition and space.

Self-reflection through portfolio assessment is active participation in authentic assessment as depicted in Figure 4 (Paris & Ayers, 1994/1999). There are many benefits of authentic assessment. It supports class instruction, collects evidence from multiple activities, reflects local values and standards, and promotes learning and teaching. This kind of ongoing assessment is meaningful, metacognitive, motivational, self-reflective, and multidimensional. Figure 5 depicts the characteristics of assessment that promote self-regulation (Paris & Ayers, 1994/1999).

---

**Figure 4  Features of authentic assessment**

```
Features of Authentic Classroom Assessment

Authentic Assessment

- Supports Classroom Instruction
- Reflects local Values, standards And controls
- Collects evidence From multiple activities
- Promotes learning And teaching among The participants

Figure 4  Features of authentic assessment
```
After each self-reflection activity, students took a digital photograph of their artwork and filed the work in their portfolio. Each student had two portfolios of work. Portfolio number 1 contained the first four artworks made in the class called the pretest. Portfolio number 2 had the last four artworks made in the course called the posttest. Student art performance was based on the score of their portfolio. In order to determine the results of the study, at the end of the school year, three independent raters judged the artwork of each student’s portfolio. Each portfolio of work was judged holistically. Raters judged the four works of art in the portfolio. A score sheet was completed for each survey and used to determine the results by the researcher.

The study variables included art pretest and posttest scores for the experimental group. In addition, the experimental group included the self-reflection pretest and posttest scores and the metacognitive awareness inventory score.

\textit{Figure 5 Characteristics of assessments that promote self-regulation}
Description of Instruments

Holistic Rubric for Standards Based Assessment in the Visual Arts

The Holistic Rubric for Standards Based Assessment in the Visual Arts (Dorn, Madeja, & Sabol, 2004) (Appendix F) was used as a guide to score the portfolio of artwork for the eighth grade students. It was designed in 1997 and field-tested in three Florida school districts from 1998 to 2000. Its design was implemented as a result of the Models for Assessing Art Performance (MAAP) project funded by NEA to assess K-12 student learning through art teacher assessment of student portfolios. The study participants included 70 K-12 art teachers and 1,000 students in 11 school districts in Florida, Indiana, and Illinois. The study investigators included art education faculty from Florida State University, Northern Illinois University, and Purdue University.

The rubric specifies four performance levels: excellent (score of 4), very good (score of 3), satisfactory (score of 2), and inadequate (score of 1). The rubric descriptors reflect age-appropriate sequentially organized cognitive, aesthetic, and technical skills. They were designed to measure performance content specified in the Florida Sunshine Standards A and B that, like the national standards, specified content in (1) understanding and applying media techniques and processes and (2) using knowledge of structures and functions. Dorn (Dorn, Madeja, & Sabol, 2004) describes the sources of the performances.

This holistic rubric has two particular virtues that are important to this study. It communicates how the work appears in the context of other works and provides a scoring system that is easy to learn and use. Holistic scoring uses a general assessment of a group of works looked at as a whole, producing a single score based on a 4-point scale. The rubric uses four sets of established criteria for scoring student portfolios. It describes the four levels of performance a student might be expected to attain relative to a desired standard achievement. It also provides a benchmark, which indicates to the evaluator what characteristics to look for in students' work and how to place that work on a 4-point scale.

The evaluators use all four scoring levels in their assessment, including at least a few "ones" (low) and "fours" (high). A portfolio of works of outstanding quality receives a
score of four and a portfolio of works of low quality receives a one. A score of three is
given to works that would be on the high side but are not as strong as a four. A score of
two is given to works that are on the low side, but are not as weak as a one.

“Reflecting about art” test

In the "reflecting about art" test, students answered four questions about their
artwork immediately after each project was completed (Appendix H). The questions
were based on Zimmerman’s self-regulated learning model (Zimmerman, 1996/2002).
1) Did I achieve the goals I set for this artwork? (Self-evaluation, the student compares
his/her efforts with some sort of standard or goal). (2) How have I improved this work in
comparison with my previous artwork? (Attributions about why the student achieved the
results he/she did). (3) What things do I still need to work on to improve my artwork?
(Self-reaction and identification of the source of learning errors). (4) What do I plan to do
to improve my next artwork? (Adaptation, the student improves his/her learning
process-using strategies that work best for him/her).

The rubric (Appendix G) designed by the teacher specifies four performance
levels used for the evaluation: excellent (score of 4), very good (score of 3), satisfactory
(score of 2), and inadequate (score of 1). The rubric descriptors reflect age-appropriate
cognitive, aesthetic, and technical skills sequentially organized. Performance standards
for self-reflective prompts were cognitive and affective knowledge, personal application,
and skill development. Cognitive and affective knowledge included communication
reflecting skill components in critical understanding of concept and skill; personal
application included communication reflecting skill components of self-awareness,
behavioral analysis, and self-assessment; and skill development included
communication reflecting skill components of self-improvement goal setting, skill
practice, and self-monitoring.

Metacognitive Awareness Inventory

The Metacognitive Awareness Inventory (MAI), designed and tested by Schraw
and Dennison (1994), provided a reliable test of metacognitive awareness (Appendix I).
The survey has 52 statements, which participants reacted to by using a Likert type scale
with numbers from zero (never true) to seven (always true). The statements represent
two component categories of metacognition: knowledge and regulation. Within the
knowledge component are statements of declarative knowledge (knowledge about self and strategies), procedural knowledge (knowledge about how to use strategies), and conditional knowledge (knowledge about when and why to use strategies). The regulation component covered planning (goal setting), information management (organizing), monitoring (assessment of one’s learning and strategy), debugging (strategies used to correct errors), and evaluation (analysis of performance and strategy effectiveness after a learning episode).

As depicted, metacognition serves as a mediator to learning. Metacognition is a series of learned behaviors. The vast majority of current metacognitive measures are self-reports (Gay, 1999). According to Gay (1999), self-reports are necessary until the time behavioral measures become more readily available to record the interaction between cognition, metacognition, knowledge, and ability, and can be recorded “on-line” through unobtrusive mechanical means. Verbal reports are another way of assessing metacognition. This method is to ask students directly about what they know or what they do. This kind of report is subject to many constraints and limitations. Asking students to tell the information may reflect not what the student knows or does not know, but rather what the student can or cannot tell the interviewer. Metacognition is cognitive in nature rather than behavioral, so consequently, self-report inventories are the least problematic technique to measure metacognitive ability (Sperling, Howard, Miller & Murphy, 2002).

**Soloman-Felder Index Learning Styles Test**

The Soloman-Felder Index Learning Styles Test (Felder & Soloman, 2002) called The Index of Learning Styles (ILS) is an on-line instrument used to assess preferences on four dimensions (active/reflective, sensing/intuitive, visual/verbal, and sequential/global) of a learning style model formulated by Richard M. Felder and Linda K. Silverman. Richard M. Felder and Barbara A. Soloman of North Carolina State University developed the instrument. The ILS may be used at no cost for non-commercial purposes by individuals who wish to determine their own learning style profile and by educators who wish to use it for teaching, advising, or research. The ILS results provide an indication of an individual's learning preferences and an even better indication of the preference profile of a group of students (e.g. a class). Student learning
style profiles provide an indication of possible strengths, as well as possible tendencies or habits that might lead to difficulty in academic settings.

**Multiple Intelligence Test**

A Multiple Intelligence Test was given to students in the experimental group to determine the students’ potential (aptitude) for different kinds of intelligence. The test was an on-line instrument that would score the eight intelligences including verbal/linguistic, logical/mathematical, visual/spatial, interpersonal, intrapersonal, bodily/kinesthetic, musical, and naturalist. The inventory is adapted from Howard Gardener’s (1999) work on multiple intelligences and is provided by the Learning Disabilities Resource Community. After students completed the inventory, the results were scored and students printed their results.

**Data Collection**

The instruments used for this study include the Holistic Rubric for Standards Based Assessment in the Visual Arts, “Reflecting about Art” Test, the Metacognitive Awareness Inventory, a Learning Style Test, and a Multiple Intelligence Test.

The Holistic Rubric for Standards Based Assessment in the Visual Arts provided art performance data. The “Reflecting about Art” test measured the quality of the students’ written reflection about their own artwork. The Metacognitive Awareness Inventory measured the students’ knowledge of and regulation of cognition. The Learning Style Test identified students’ preferred style for learning. The Multiple Intelligence Test identified students’ potential for particular intelligences.

**Scoring of the Data**

During the summer session, after the school term ended, three judges rated the artwork of each portfolio for students in the experimental and control group. The artwork was rated based on a holistic rubric. The rubric specifies four performance levels: excellent (score of 4), very good (score of 3), satisfactory (score of 2), and inadequate (score of 1). The rubric is a guide for the adjudication process. The assessment was applied holistically, judging four works as a whole, giving a single score guided by the
benchmark, an intuitive understanding of expressive forming, and knowledge of art performances of eighth-grade students. This assessment was used in order to assess the expressive quality of the four works as a whole, rather than applying a reductionist scoring method that evaluates elements, principles, and techniques.

The "reflecting about art" test was scored using a rubric (Appendix G) designed by the teacher that specifies four performance levels to be used in the evaluation: excellent (score of 4), very good (score of 3), satisfactory (score of 2), and inadequate (score of 1).

Student digital portfolios were used to investigate the effects of self-reflective learning strategies on student art performance using art portfolios. Data was gathered in order to identify the quality of written reflection about their art performance using a "reflecting about art" test. Data was also collected from the Multiple Intelligence Test and the Learning Style Inventory to identify the personality profile of the students in the experimental group. Data from each were analyzed by using the statistical analysis program, Statistical Package for the Social Sciences (SPSS).

Summary

The methodology presented in this study was designed to answer research questions for determining the effect of a self-reflective learning strategy on art performance. Research in academic subjects suggests that instructional strategies that teach students to practice metacognitive skills while learning course content increases metacognitive awareness and improves their use and awareness of these skills, as well as their performance. This research was conducted because of the need to address the effects of self-regulation in a creative environment on art performance.

The data was collected using a portfolio, a "reflecting about art" writing assessment, and a metacognitive awareness inventory. Secondary data was collected from a multiple intelligence self-report test and a learning style preference survey. The multiple intelligence test and the learning style test were both given to students in the experimental group before the first lesson was presented. The reflective writing pretest was given to the experimental group immediately after the first lesson was taught. The
first and second portfolio was collected from the students in the experimental group and the control group immediately after Lesson Eight was completed during the last week of school. The metacognition awareness inventory and the reflective writing posttest were given to students in the experimental group after the last art project was completed.

The results are described in the following chapter.
CHAPTER IV

ANALYSIS OF THE DATA

Reporting of the Data

Art performance scores, metacognitive awareness scores, and reflecting on art scores are identified in the reporting of the data (Table 1).

The Holistic Rubric for Standards-Based Assessment in the Visual Arts was used to assess student art performances: two portfolios of four artworks each for every student, one collected at the beginning of the year and a second compiled at the end of the course for students in both the experimental and the control group. The art pretest had a range from 1.00 to 3.67 for the experimental group (M= 2.12, SD = .86) (Appendix L). The art posttest had a range from 1.33 to 3.67 for the experimental group (M= 2.41, SD=.78) (Appendix M). The art pretest had a range from 1.00 to 2.67 for the control group (M= 1.77, SD= .47) (Appendix N). The art posttest had a range from 1.00 to 3.33 for the control group (M= 1.99, SD = .58) (Appendix O).

The Metacognitive Awareness Inventory (MAI) (Schraw & Dennison, 1994) was used as a posttest to determine the two components of metacognition, knowledge and regulation. It was administered to the experimental group in week 36 of the study. The MAI posttest had a range from 120 to 344 for the experimental group, (M= 242.48, SD = 50.64).

The “reflecting about art” test was given as a pretest and posttest to the students in the experimental group. The questions were designed to determine the quality of the students’ reflecting about their artwork. It was administered to the experimental group the first time in the second week of the study and a second time in week 36 of the study. The self-reflective pretest had a range from 1.00 to 2.33 for the experimental group.
The self-reflective posttest had a range from 1.00 to 4.00 for the experimental group (M= 2.49, SD=.88).

Table 1  
Study Variables

<table>
<thead>
<tr>
<th>Group Statistics</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Art pretest</td>
<td>25</td>
<td>1.00</td>
<td>2.67</td>
<td>1.77</td>
<td>.47</td>
</tr>
<tr>
<td>Art posttest</td>
<td>25</td>
<td>1.00</td>
<td>3.33</td>
<td>1.99</td>
<td>.58</td>
</tr>
<tr>
<td>Experimental</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAI</td>
<td>25</td>
<td>120.00</td>
<td>344.00</td>
<td>242.48</td>
<td>50.64</td>
</tr>
<tr>
<td>Art pretest</td>
<td>25</td>
<td>1.00</td>
<td>3.67</td>
<td>2.12</td>
<td>.86</td>
</tr>
<tr>
<td>Art posttest</td>
<td>25</td>
<td>1.33</td>
<td>3.67</td>
<td>2.41</td>
<td>.78</td>
</tr>
<tr>
<td>Reflecting pretest</td>
<td>25</td>
<td>1.00</td>
<td>2.33</td>
<td>1.31</td>
<td>.42</td>
</tr>
<tr>
<td>Reflecting posttest</td>
<td>25</td>
<td>1.00</td>
<td>4.00</td>
<td>2.49</td>
<td>.88</td>
</tr>
</tbody>
</table>

Learning Style Test Results

In the experimental group, the learning style test revealed that six students were identified as reflective learners while 19 were identified as active learners. Six students were identified as visual learners while 19 were identified as verbal learners, 16 students were global learners while nine were sequential learners, five students were intuitive learners while 20 were sensing learners.

Multiple Intelligence Test Results

In the experimental group, the Multiple Intelligence Test reflects students’ potential (aptitude) for a particular intelligence. Four students scored as being linguistic, 11 scored as being logical-mathematical, six scored as being visual-spatial, 11 as being
musical, nine as being bodily-kinesthetic, 12 as being interpersonal, six as being intrapersonal, and four as being naturalists.

**Inter-rater reliability**

To examine whether the inter-rater reliability was acceptable for both the control and experimental group in the pretest and posttest for the art portfolio, the scores were assessed using Cronbach’s Alphas. For the three judges, the art performance (portfolio) pre-test alpha was .86 and the art performance (portfolio) posttest alpha was .80, both of which are qualitatively “acceptable.”

To examine whether the inter-rater reliability was acceptable for the experimental group in the pretest and posttest for the writing test, the scores were assessed using Cronbach’s Alphas. For the three judges, the writing pre-test alpha was .78, and the writing post-test alpha was .88, qualitatively “acceptable.”

**Hypotheses Results**

**Hypothesis 1: There is a significant difference between pretest and posttest in the “Reflecting about Art” scores among students who receive self-regulated learning strategies.**

Research Question 1 examines whether there is a significant difference in the scores in reflecting about art after receiving self-regulated learning strategies. The “Reflecting about Art” pretest verses posttest as depicted in Figure 6 resulted in a statistical difference, $t (24) = -6.65, p< .001$. Therefore, the conclusion is that the self-regulated learning strategy intervention was significantly related to an increase in “reflecting about art.”
Figure 6  Reflecting about Art

Hypothesis 2: There is a significant difference in the art performance scores between eighth-grade art students who use a self-reflective learning strategy and those students who receive regular instruction only.

Research Question 2 examines whether there is a significant difference in the art performance scores between eighth-grade art students who use self-reflective learning strategies and those who receive regular instruction only. An ANCOVA on Post-Art scores by group (experimental vs. control), using Pre-Art scores as a covariate was conducted (Table 2). The results indicate there was no significant difference in posttest scores between groups (F=1.959, df=1, 47; P=.168). The conclusion is that self-reflected learning did not significantly influence art performance.
Table 2  ANCOVA on Post-Art scores by Group (experimental vs. control), using Pre-Art Scores as a Covariate

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>M</th>
<th>SD</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>2.12</td>
<td>.86</td>
<td>2.41</td>
<td>.78</td>
</tr>
<tr>
<td>Posttest</td>
<td>1.77</td>
<td>.47</td>
<td>1.99</td>
<td>.58</td>
</tr>
<tr>
<td>Group</td>
<td>1.959</td>
<td></td>
<td>1.68</td>
<td></td>
</tr>
<tr>
<td>Covariate</td>
<td>13.90</td>
<td>.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Error</td>
<td>3.359</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Hypothesis 3: There is a significant relationship between intrapersonal intelligence and the metacognitive awareness scores among students receiving a self-regulated learning strategy.

Research Question 3 examined whether there is a significant relationship between intrapersonal intelligence and the metacognitive awareness scores among students who received a self-regulated learning strategy. The Pearson correlation was not statistically significant, $r(25) = .22$, ns as depicted in Figure 7. Therefore, the conclusion is that there was no relationship between intrapersonal intelligence and metacognitive awareness scores among students receiving a self-regulated learning strategy.
Hypothesis 4: There is a significant difference in the art performance scores of students receiving a self-regulated learning strategy who have a visual preference of learning as compared to students who have a verbal preference of learning style.

Research Question 4 examined whether there is a difference in the art performance scores of students receiving self-regulated learning strategies who have a visual preference for learning as compared to students who have a verbal learning style. Two t-tests showed that the differences between pretest and posttest of both groups

Figure 7  Scatter plot of Intrapersonal Intelligence and MAI
could have occurred by chance factors alone (Table 3). Therefore, the conclusion is that preferences were not related to art performance.

Table 3 Dependent Sample t-test on Pre-art and Post-art Scores for “Verbal” Learners

<table>
<thead>
<tr>
<th></th>
<th>Pre-art M</th>
<th>Pre-art SD</th>
<th>Post-art M</th>
<th>Post-art SD</th>
<th>ES</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual Learners</td>
<td>2.38</td>
<td>0.89</td>
<td>2.53</td>
<td>0.81</td>
<td>.24</td>
<td>.349</td>
<td>.741</td>
</tr>
<tr>
<td>(n=5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbal Learners</td>
<td>1.50</td>
<td>0.35</td>
<td>2.06</td>
<td>0.61</td>
<td>1.17</td>
<td>1.94</td>
<td>.068</td>
</tr>
<tr>
<td>(n=21)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 8 Visual/verbal learners in the experimental group in art performance

Summary
Middle school students in the eighth grade art class in the experimental group had higher “reflecting about art” scores after practicing self-reflected learning strategies. Some strategies that promoted metacognition in this study included (1) modeling thinking aloud, (2) posing open-ended questions, (3) providing opportunities for students to articulate their thinking, (4) providing learning experiences that help students reflect on how they value knowledge and perspectives within and across a range of cultures, (5) providing opportunities for students to identify their own learning processes, (6) encouraging students to reflect on what has been done and how they have learned, (7) enabling students to share their thinking and learning strategies, (8) enabling students to capitalize on their strengths as learners, and (9) providing opportunities for students to work metaphorically, abstractly and conceptually (The Office of the Queensland Curriculum Council, 2002).

However, these students had about the same art performance results as students in the control group at posttest. In this study, results showed that students in this experimental group who had an aptitude for intrapersonal intelligence did not show significantly higher in metacognitive awareness than those not having the same aptitude. Furthermore, students in the experimental group who had a visual preference for learning did not score higher in art performance than students who had a verbal preference for learning.
CHAPTER V

RESULTS OF THE STUDY

Introduction

This chapter reports the results of the hypotheses tested in this study. After these results are reported, the researcher explains what each conclusion means for the art teacher in the classroom. The implications for the art education field are then stated. Following this information, the researcher identifies the need for further study. To conclude the chapter, the limitations are presented.

Results of the hypotheses

Hypothesis 1: There is a significant difference between pretest and posttest in the “reflecting about art” scores in students who receive self-regulated learning strategies.

Conclusion for Hypothesis 1: The researcher accepts Hypothesis 1. Students using a self-regulated learning strategy had significantly higher scores in “reflecting about art” in the posttest than in the pretest. In the reflective assessment process, reflective learners recorded observations, ideas, and thoughts; established cause and effect relationships; compared and contrasted work; made connections between ideas; acknowledged challenges; and described similarities and differences. Performance standards for self-reflective prompts were cognitive and affective knowledge, personal application, and skill development. Cognitive and affective knowledge included communication reflecting skill components in critical understanding of concept and skill;
personal application included communication reflecting skill components of self-awareness, behavioral analysis, and self-assessment; and skill development included communication reflecting skill components of self-improvement goal setting, skill practice, and self-monitoring.

Self-regulated strategy development has been used to support students in a variety of academic areas—including reading, spelling, math, and writing. Writing using the process-oriented approach including goal-setting, self-instructions, self-monitoring and self-assessment, and self-reinforcement has validated powerful strategies for planning, writing, revising, editing, and managing in the teaching of writing (Harris & Graham, 1992). The researcher in this study concludes that students using the self-reflective learning strategy to self-assess their own artwork had better self-reflection skills as a result of practicing reflection.

**Hypothesis 2:** There is a significant difference in the art performance scores between eighth-grade art students who use self-reflective learning strategies and those students who receive regular instruction only.

Conclusion for Hypothesis 2: The researcher rejects Hypothesis 2. Students in the experimental group who practiced a self-reflected learning strategy scored about the same on the art performance posttest as students in the control group at the posttest. In this study, the question is raised, “Why did students who participated in a self-reflective learning process, score about the same score on art performance as students who did not practice self-reflection?”

Self-regulated learning has properties of an aptitude and an event (Winne, 1997). When SRL is measured as an aptitude, a single measurement is used to characterize the set of those events generated as the response. This measure of SRL is used to predict whether a student will or will not, can or cannot, act on an SRL-related cognition. This measurement can be independent of other measurements. When SRL is measured as an event, there are three complex levels: occurrence, contingency, and patterned contingency. The occurrence of SRL as an event is observed when there is a transition from a first state to a second state is present. For example, a student may
think aloud, “Wow, this is hard.” When this happens, the occurrence may not be directly measured but the student’s report is interpreted as indirect evidence that did occur. SRL as a contingency is the next step when the student takes out the pen and makes note acknowledging that the task is hard. Now there are two measures—one of metacognitive monitoring of the difficulty of the task and the second of metacognitive control made as the student made the note. SRL as a patterned contingency assembles several singular if-then contingencies into a structured ensemble (Corno, 1992; Winne, 1997). For example, in phase one, the student must define the task. Cognition in phase two is setting goals and planning how to reach them. Phase 3 involves applying tactics and strategies to solve the task. Phase four, adapting metacognition, may be accomplished if the student restructures the cognitive conditions, tactics, or strategies to create very different approaches to addressing tasks (Winne, 1997).

In this study, the students’ had difficulty in each phase. These students as a class in general, defined their goals in art as “making a ‘good’ grade,” “being a ‘good’ art student,” or “making something ‘good’ that everyone would like.” This “limited” definition of the goal was a difficult starting place to begin a process of reflection. As assignments were given by the teacher to make a work of art, the environment was filled with busy workers ready to complete the task. In the beginning, students followed the instructor’s directions to create a graphic design and then evaluated it based on objectives given for assessment. For each student, the teacher did a practice scoring, modeling the activity by saying the “thoughts” out-loud to explain each set of criteria presented on the rubric. Afterwards, the students mocked the activity, actually scoring the results. Then, as questions were presented to prompt reflection, it was expected that students would set goals to increase their art performance; but the goals and strategies were limited to “finishing an assignment,” “using more effort,” “spending more time on the project,” or “drawing better.” When it was time to apply the tactics and strategies, the teacher lead a group session to show how to look at a work critically and identify possibilities for improvement. Students wrote comments and ideas in their journal to use for the next project. After two art projects were completed, students were asked to make a comparison of the two works to identify progress and set new goals. After a third work of
art was completed, students repeated all the steps and, in addition, completed a peer evaluation of another work of art.

As students approached upcoming projects, the comments made on the prompts and in the journals were driven by desire to be good at the technical aspects of drawing and painting. (After all, the lessons were designed for students to practice how to mix colors, how to blend colors, how to design a composition, and the like). As students continued to be reflective, in the sense they were answering questions about their artwork, personal goals were changing to “skill and procedure” goals. At first glance, their comments appeared to be the making of a strategy to improve process. However, as other projects were assigned, completed, and self-assessed, the artworks were becoming the ‘expected’ product based on ‘desired’ results. Students’ problem-solving activities were no longer needed to make what the student perceived as successful artwork. Students, in this study, did not identify the tasks in art production as a problem-solving activity. Ertmer and Newby (1996) presented a model in which reflection serves as the link between metacognitive skill and self-regulation. According to them, effective self-reflection requires learners’ involvement in a number of activities. First, the involvement is in characterizing a problem. Second, the involvement is in analyzing knowledge of (a) one’s self as a learner, (b) the nature of the task, and (c) strategies for learning. Third, it involves reorganizing one’s available resources (cognitive strengths, weaknesses, motivation, ability, and attitude). Fourth, it involves managing the progress of learning through a continuous process of planning, monitoring, and evaluating (Ertmer & Newby, 1996). The researcher speculates that students in the experimental group became too familiar with the requirements of making art and did not use metacognitive strategies to define a problem. One of the characteristics of an “elegant” problem involves a problem worthy to be solved.

Hypothesis 3: There is a significant relationship between intrapersonal intelligence and the metacognitive awareness scores among students receiving a self-regulated learning strategy.
Conclusion for Hypothesis 3: The researcher rejects Hypothesis 3. Students using a self-regulated learning strategy who had a potential for intrapersonal intelligence did not achieve a higher metacognitive awareness score than students who did not have an aptitude for intrapersonal intelligence. Boekaerts, Pintrich, and Zeidner (2000) explain that self-regulation is currently seen as involving a number of integrated micro processes, including goal setting, strategic planning, use of effective strategies to organize, code, and store information, monitoring and metacognition, action and volitional control, managing time effectively, self-motivational beliefs (self-efficacy, outcome expectations, intrinsic interest, and goal orientation, etc.), evaluation and self-reflection, experiencing pride and satisfaction with one’s efforts, and establishing a congenial environment. One major problem is in determining the relationship between self-regulation and the individual constructs. Another problem is understanding the relationship between self-regulation and other variables, such as intelligence, extroversion, openness to experience, or conscientiousness.

Boekaerts, Pintrich, and Zeidner explain that if what interests us is how self-regulation and another variable, say intelligence, interact to impact on a third variable, such as art performance; “the effects of both factors on the third variable are greater than the sum of each” (2000, p. 756). In this study, the researcher thought students receiving self-regulated learning strategies who had an aptitude for intrapersonal intelligence would have significantly higher metacognitive scores than students who did not have an aptitude for intrapersonal intelligence. This was not the result because a self-reflective learning strategy provided students who did not have the potential for intrapersonal intelligence the awareness needed to perform as well as those who had the aptitude.

As a result of becoming more metacognitively aware of individual cognitive profiles, students developed learning skills and strategies in which the effects provided the knowledge needed to compensate personal resources. Therefore, the researcher suggests that using self-reflection provides the opportunity for students who do not have an aptitude for being self-reflective to learn how to be reflective and increase their metacognitive awareness.
Hypothesis 4: There is a significant difference in the art performance scores of students receiving self-regulated learning strategies who have a visual preference of learning as compared to students who have a verbal learning style.

Conclusion for Hypothesis 4: The researcher rejects Hypothesis 4. Students using self-regulated learning strategies who had a potential for visual intelligence did not have a higher art performance level than students who had an aptitude for verbal intelligence. According to Wang (1993/94), 28 categories influence learning in the classroom. These 28 categories are grouped into six areas: student aptitude, classroom instruction and climate, context, program design, institutional organization, and state-level polices. The top seven influences include classroom management, metacognitive processes, cognitive processes, home environment, student/teacher interaction, social/behavioral attributes, and motivational affective attributes. The teaching style primarily used to present the self-regulated learning strategy to students in this study was verbal/linguistic. This teaching style matched the learning style preference of the majority of the students in the class. The verbal/linguistic learners are strong in reading and writing, and these students like to read, write, tell stories, talk, and memorize. These students learn best through reading, hearing and seeing words, speaking, writing, discussing and debating. The researcher suggests that the “reflecting about art” writing activity matched the learning style preference of these students so specifically that these learners were successful in reflecting about their artwork and consequently their art performance. Conversely, the visual learners who learn best through working with pictures and colors did not score higher than the verbal learners did. The researcher suggests that the verbal/linguistic teaching style may have prevented the visual learners from having the opportunity to use their spatial intelligence to assess their artwork because they were required to write the answers down.
Limitations and Speculations

Limitations in this study included the size of the classes, the urban-rural setting, using intact classes, having a volunteer teacher, and using two classes labeled as the “A” group (representing high academic performance level). Since only two intact groups participated in this study, the results should not be generalized to all grades, specifically, because all of the participants were students recognized for being better than average in academic standards and motivated to perform for high scores.

Different test groups are needed in this study to provide a larger population of middle school students who do not have preexisting thoughts of having high levels of metacognitive awareness. Elementary and high school students should also be considered as test groups to compare the difference between the maturity of students and their ability to successfully participate in using self-reflective learning strategies. This study should be replicated in other schools and with other populations.

The time limit for the art schedule may not have been significant for the study. Even though the art students participated in the study the entire school year, the situation only allowed time for six self-reflected learning activities. The treatment time may not have been long enough to produce significant results in art performance. Students had only enough time to make eight works of art during the school year.

It took twice as long for students in the experimental group than for the students in the control group to complete the art lesson for this study. The planning and implementation of a self-regulated learning strategy may need to include outside class work for writing and planning.

Different instruments for testing metacognitive awareness may be needed to obtain self-report data on students’ general metacognitive activities during the learning and transfer task. The Metacognitive Awareness Inventory used in this study had 52 items that provided ample data, but the length of the questionnaire may need to be modified for 8th grade students in order to shorten the time and effort needed to complete the task. There may also be concern for fake “good” answers marked on the test by students driven by high grading scores.
For this study, the instructional component included the use of portfolios for evaluating student work. Two distinct steps in portfolio development as a self-regulatory evaluation are collecting and selecting. As students collect the artwork, according to Burke (1999), they must then reflect on the final selections, including some while rejecting others. In the selection and rejection process, the student can analyze and evaluate their work. Collecting, selecting, and reflecting is the reflective stage of a self-reflective strategy that makes the portfolio meaningful as a metacognitive tool. In this study, the instruction did not allow for the rejection and justification phase of the portfolio process. It is speculated that art instruction through portfolio assessment using both the collecting and the selecting component would create better art performance.

**Implications of the Study for Research**

Presently, there are seven theories of SRL (Zimmerman & Schunk, 2001): Operant, Phenomenological, Information processing, Social cognitive, Volitional, Vygotskian, and Constructivist. There are strengths and controversies associated with each major theory. To identify how each theory defines SRL metacognitively, motivationally, and behaviorally, five issues are addressed: motivation, self-awareness, key processes, social and physical environment, and acquiring capacity. These models place focus on how students activate, alter, and sustain specific learning practices. In constructing theories, identities, and actions, three questions were used to establish the goals and functions of SRL: Why regulate ones’ actions? How do students acquire regulative strategies? In addition, what are the consequences of being a self-regulated learner?

Why regulate students’ actions? Direct learning to a specific end; improve performance. How do students acquire regulative strategies? Invention and instruction. What are the consequences of being a self-regulated learner? A better learner. The results of this study suggest the need for future research on SRL through interventions and applications of self-regulation to link self-regulation within these educational practices: instructional components, self-regulation in content areas, transfer of self-regulation processes, and self-reflective practice.
In the transfer of self-regulation processes, the important point is to be able to observe behavioral changes in a students' response to a learning task. Teaching for transfer means that teachers must create conditions that promote the transfer of knowledge across changing contexts. As the students in this study were taught how to be self-reflective learners, they reflected on their accomplishments, evaluated their work, planned revisions, set goals, and developed self-perceptions of their competence. To have the opportunity to see the changes in student art performance, the student must move beyond achievement to self-efficacy. Academic self-regulation is mostly identified as a self-generated thought, feeling, or action intended to attain specific goals such as analyzing a reading assignment, preparing to take a test, or writing a paper. Because control over the learning process by students in this study was practiced through increasing their reflection skills, the transfer of learning did not present itself in the art production.

In addressing self-reflective practice, research still needs to identify whether the effectiveness of self-reflection varies as a function of setting. Is the practice of self-reflection more important when external evaluation is infrequent or when students encounter difficulties learning? Students, in this study, did not identify the tasks in art production as a problem-solving activity. Sternberg and Wagner (1982) explain that when students experience the need for problem-solving strategies, induce their own, discuss them, and practice them to the degree that they become spontaneous and unconscious, their metacognition seems to improve. Yet, what happens when strategies of problem solving are imposed rather than generated by the students themselves; their performance may be impaired. The researcher speculates that students planned their goals based only on the art project goals set up as the teacher’s evaluation tool for the work. Therefore, in the process of monitoring and evaluating the work for performance, the students gained an initial feeling of success or accomplishment that prevented them from having metacognitive experiences. It seemed that the students felt there was no need for adjustments because the product was predetermined as being accomplished. A reason for continuing the research on art performance would be to identify how to teach students to discover the problem and then find a solution to solve it.
Implications of the Study for Practice

First, art students who engaged in self-regulated learning improved their ability to reflect about their artwork; however, these students achieved at about the same level in art performance as those students who received regular instruction only. The researcher understands that this study shows only the onset of the activities that prompt and support reflective thinking. Characteristics of the learning environment to promote student reflection must include enough wait-time for students to reflect when responding to inquires, emotional support encouraging reevaluation of conclusions, and explanations to guide students’ thought processes during exploration (Blakey & Spence, 1990). In addition, the teacher should demonstrate flexibility and endurance in pacing instruction to fit student requests (Stuessy, 2002). The teacher should provide time for learners to reflect on their understanding of information. The teacher should model metacognitive strategies. The teacher should provide opportunities for transfer and application. The teacher should address multiple learning styles of students and actively listen to respect students’ ideas. The teacher should uphold a learning environment that supports students taking risks using their ideas; and combine what students know and recognize into the development of new ideas and ways of thinking. The teacher should assist in the development of group process skills and encourage the exchange of ideas, and build a sense of community to enhance learning and teaching. The teacher must create a climate in the classroom that encourages students to activate strategy use in the construction of further knowledge. If the environment is conductive to learning, and the tasks are challenging and fun, the student will become motivated to further inquire and discover the process at a more advanced level. These activities must be open-ended, have a variety, diversity, allow students to make choices, and provide for meaningful experiences. Intrinsic value must be linked to the goal. Strategies that include motivation and gaining a feeling of self-efficacy are an affective aspect that should be included with the declarative, procedural, and conditional knowledge.

Furthermore, students need social-learning environments to be able to see other points of view; and most importantly, students need a less-structured learning environment that prompts them to explore creativity. Boekaerts, Pintrich, and Zeidner
(2000) explain that it is necessary to identify situations where self-regulation may interfere with the achievement of goals:

Say we want to foster a creative and spontaneous learning or work environment. Excessive self-regulation may take people out of the flow of behavior, causing them to resist the affordances of the spontaneous and creative environment; thus, the effect of self-regulation is violated. (p. 768)

**Conclusion**

How does a self-regulated learning strategy affect learning in the art classroom? This study was planned and designed to use a self-reflective learning prompt through portfolio assessment to determine the effects on art performance. The results from this study indicated the potential value of having teachers use this teaching strategy in the classroom to increase awareness of the thinking process, recording ideas and thoughts, establishing cause and effect, evaluating, planning, and brainstorming ideas. However, the researcher acknowledges that in order to use a self-regulated learning strategy that will create an increase in art performance, the student must have a creative and spontaneous learning or work environment. The student must define the task, and identify the problem (problem finding). The student must seek information and locate resources (fact finding). The student must put all the information together (solution finding). The student must look for things that can be improved (evaluation).
APPENDIX A:

Letter to the Board

April 11, 2005

Schley County Board Of Education

Dear Sir:

This is a request for permission to do research using the artworks and the writings (about the artwork) of students in the Schley County School System. This project will involve collecting data to determine how art performance changes among each student. During this project, students will participate in a portfolio assessment process using self-reflection activities.

The population for this study will be middle school students enrolled in the regularly scheduled art class. The results of the study will not disclose the identity of any student. The research is being conducted to study the effectiveness of using an art portfolio as the assessment tool in the art education program. As a doctorial student at Florida State University, I would like to use students as subjects for a study called, “The Effects of a Self-Reflective Learning Process on Student Art Performance.”

I would like to collect data during the 2003-2004-school term.

Sincerely,

Shawn Bland
Art Specialist

150 SALEM WOODS • AMERICUS, GA 31709
Phone: 229-924-7262 • Fax: 229-924-7262
APPENDIX B:

Informed Consent Form

Parental Consent Letter
For Florida State University Arts Assessment Field Test

Dear Parent:

I am a professor of Art Education in the College of Visual Arts and Dance at Florida State University. I am conducting a research study to assess teaching in Art, Music, Dance, and Theatre in the Schley County elementary and secondary schools. Your child’s participation will involve arts teachers in Schley County evaluating the students’ performance either through the review of a visual art portfolio or observation of a student’s art performance normally done as part of the student’s regularly assigned work. The assessment will require no more than a one time five or ten minute performance review or, as in visual art, no use of class time. In the case of Music, Theatre, and Dance, the arts performance may be videotaped. These videotapes will be viewed only by the assessment team and the researcher. The tapes will be kept confidential to the extent allowed by the law, in a locked filing cabinet and will be destroyed on July 31, 2004. Your participation, as well as that of your child, in this study is voluntary. The results of the research study may be published, but your child’s name will not be used.

Although there may be no direct benefit to your child, the possible benefit of your child’s participation will help the Schley County schools to assess and improve its arts program.

If you have any questions concerning this research study or your child’s participation in the study, please call me at 850-644-2158 or by fax at 850-644-5067.

Sincerely,

Charles M. Dorn
I give consent for my child ________________________________ to participate in the above study.

Parent’s Name: _________________________________________

Parent’s Signature _________________________Date _________________

If you have any questions about your rights as a subject/participant in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects Committee, Institutional Review Board, through the Vice President for the Office of Research at 850-644-8633.
APPENDIX C:

Florida State University Institutional Review

Board Consent to Participate In a Research Study

I, ______________________________________, the parent/legal guardian of the minor named below, acknowledge that the researcher has explained to me the purpose of this research, identified that no risk were involved, and offered to answer any questions I may have about the nature of my child’s participation. I freely and voluntarily consent to my child’s participation in this project. I understand that all information gathered during this project will be completely confidential. I also understand that I may keep a copy of this consent for my own information.

NAME OF MINOR ___________________________________

__________________________________________________
Signature of Parent/Legal Guardian          Date
Appendix D:

Learning Style Inventory

Select either "a" or "b" to indicate your answer. Please choose only one answer for each question. If both "a" and "b" seem to apply to you, choose the one that applies more frequently.

1. I understand something better after I
   (a) try it out.   (b) think it through.
2. I would rather be considered
   (a) realistic.  (b) innovative.
3. When I think about what I did yesterday, I am most likely to get
   (a) a picture.  (b) words.
4. I tend to
   (a) understand details of a subject but may be fuzzy about its overall structure.
   b) understand the overall structure but may be fuzzy about details.
5. When I am learning something new, it helps me to
   (a) talk about it.   (b) think about it.
6. If I were a teacher, I would rather teach a course
   (a) that deals with facts and real life situations.  (b) that deals with ideas and theories
7. I prefer to get new information in
   (a) pictures, diagrams, graphs, or maps.  (b) written directions or verbal information.
8. Once I understand
   (a) all the parts, I understand the whole thing.  (b) the whole thing, I see how the parts fit.
9. In a study group working on difficult material, I am more likely to
   (a) jump in and contribute ideas.  (b) sit back and listen.
10. I find it easier
    (a) to learn facts.  (b) to learn concepts.
11. In a book with lots of pictures and charts, I am likely to
    (a) look over the pictures and charts carefully.  (b) focus on the written text.
12. When I solve math problems
    (a) I usually work my way to the solutions one step at a time.
    (b) I often just see the solutions but then have to struggle to figure out the steps to get to them.
13. In classes I have taken
    (a) I have usually gotten to know many of the students.  (b) I have rarely gotten to know many of the students.
14. In reading nonfiction, I prefer
    (a) something that teaches me new facts or tells me how to do something.
    (b) something that gives me new ideas to think about.
15. I like teachers
    (a) who put a lot of diagrams on the board.  (b) who spend a lot of time explaining.
16. When I'm analyzing a story or a novel
    (a) I think of the incidents and try to put them together to figure out the themes.
    (b) I just know what the themes are when I finish reading and then I have to go back and find the incidents that demonstrate them.
17. When I start a homework problem, I am more likely to
    (a) start working on the solution immediately.  (b) try to fully understand the problem first.
18. I prefer the idea of
   (a) certainty.  (b) theory.
19. I remember best
   (a) what I see.  (b) what I hear.
20. It is more important to me that an instructor
   (a) lay out the material in clear sequential steps. (b) give me an overall picture and relate the material
to other subjects.
21. I prefer to study
   (a) in a study group.  (b) alone.
22. I am more likely to be considered
   (a) careful about the details of my work.  (b) creative about how to do my work.
23. When I get directions to a new place, I prefer
   (a) a map.  (b) written instructions.
24. I learn
   (a) at a fairly regular pace. If I study hard, I'll "get it."  (b) in fits and starts. I'll be totally confused and then
   suddenly it all "clicks."
25. I would rather first
   (a) try things out.  (b) think about how I'm going to do it.
26. When I am reading for enjoyment, I like writers to
   (a) clearly say what they mean.  (b) say things in creative, interesting ways.
27. When I see a diagram or sketch in class, I am most likely to remember
   (a) the picture.  (b) what the instructor said about it.
28. When considering a body of information, I am more likely to
   (a) focus on details and miss the big picture.  (b) try to understand the big picture before getting into the
details.
29. I more easily remember
   (a) something I have done.  (b) something I have thought a lot about.
30. When I have to perform a task, I prefer to
   (a) master one way of doing it.  (b) come up with new ways of doing it.
31. When someone is showing me data, I prefer
   (a) charts or graphs.  (b) text summarizing the results.
32. When writing a paper, I am more likely to
   (a) work on (think about or write) the beginning of the paper and progress forward.
   (b) work on (think about or write) different parts of the paper and then order them.
33. When I have to work on a group project, I first want to
   (a) have "group brainstorming" where everyone contributes ideas.
   (b) brainstorm individually and then come together as a group to compare ideas.
34. I consider it higher praise to call someone
   (a) sensible.  (b) imaginative.
35. When I meet people at a party, I am more likely to remember
   (a) what they looked like.  (b) what they said about themselves.
36. When I am learning a new subject, I prefer to
   (a) stay focused on that subject, learning as much about it as I can.
   (b) try to make connections between that subject and related subjects.
37. I am more likely to be considered
   (a) outgoing.  (b) reserved.
38. I prefer courses that emphasize
   (a) concrete material (facts, data).  (b) abstract material (concepts, theories).
39. For entertainment, I would rather
   (a) watch television.  (b) read a book.
40. Some teachers start their lectures with an outline of what they will cover. Such outlines are
   (a) somewhat helpful to me.  (b) very helpful to me.
41. The idea of doing homework in groups, with one grade for the entire group,
   (a) appeals to me.  (b) does not appeal to me.
42. When I am doing long calculations,
   (a) I tend to repeat all my steps and check my work carefully.
   (b) I find checking my work tiresome and have to force myself to do it.
43. I tend to picture places I have been
   (a) easily and fairly accurately. (b) with difficulty and without much detail.
44. When solving problems in a group, I would be more likely to
   (a) think of the steps in the solution process.
   (b) think of possible consequences or applications of the solution in a wide range of areas.
The following questions ask about the way you study and learn. Please take a moment to respond to these questions. **Remember there are no right or wrong answers; just answer as accurately as possible.** Use the scale below to answer the questions. If you think the statement is very true of you, circle 7; if it is not at all true of you, circle 1. If the statement is more or less true of you, find and circle the number between 1 and 7 that best describes you.

<table>
<thead>
<tr>
<th>Question</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I ask myself periodically if I am meeting my goals. (M)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I consider several alternatives to a problem before I begin the project. (M)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I try to use strategies that have worked in the past. (PK)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. I pace myself while learning in order to have enough time. (P)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I understand my intellectual strengths and weaknesses. (DK)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. I think about what I really need to learn before I begin a task. (P)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. I know how well I did once I finish the artwork. (E)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. I set specific goals before I begin creating the project. (P)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. I slow down when I encounter important information. (IMS)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. I know what kind of information is most important when I learn. (DK)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. I ask myself if I have considered all options when solving a problem. (M)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. I am good at organizing information. (DK)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. I consciously focus my attention on important information. (IMS)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. I have a specific purpose for each strategy I use. (PK)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. I learn best when I know something about the topic. (CK)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
16. I know what the teacher expects me to learn. (DK) 1 2 3 4 5 6 7
17. I am good at remembering information. (DK) 1 2 3 4 5 6 7
18. I use different learning strategies depending on the project. (CK) 1 2 3 4 5 6 7
19. I ask myself if there was an easier way to do things after I finish a task. (E) 1 2 3 4 5 6 7
20. I have control over how well I learn. (DK) 1 2 3 4 5 6 7
21. I periodically review to help me understand important relationships. (M) 1 2 3 4 5 6 7
22. I ask myself questions about the material before I begin the project. (P) 1 2 3 4 5 6 7
23. I think of several ways to solve a problem and choose the best one. (P) 1 2 3 4 5 6 7
24. I summarize what I’ve learned after I finish. (E) 1 2 3 4 5 6 7
25. I ask others for help when I don’t understand something. (DS) 1 2 3 4 5 6 7
26. I can motivate myself to learn when I need to. (CK) 1 2 3 4 5 6 7
27. I am aware of what strategies I use when I create art. (PK) 1 2 3 4 5 6 7
28. I find myself analyzing the usefulness of strategies while I create art. (M) 1 2 3 4 5 6 7
29. I use my intellectual strengths to compensate for my weaknesses. (CK) 1 2 3 4 5 6 7
30. I focus on the meaning and significance of new information. (IMS) 1 2 3 4 5 6 7
31. I create my own examples to make information more meaningful. (IMS) 1 2 3 4 5 6 7
32. I am a good judge of how well I understand something. (DK) 1 2 3 4 5 6 7
33. I find myself using helpful learning strategies automatically. (PK) 1 2 3 4 5 6 7
34. I find myself pausing regularly to check my understanding. (M) 1 2 3 4 5 6 7
35. I know when each strategy I use will be most effective. (CK) 1 2 3 4 5 6 7
36. I ask myself how well I accomplished my goals once I’m finished. (E) 1 2 3 4 5 6 7
37. I draw pictures or diagrams to help me understand while learning. (IMS) 1 2 3 4 5 6 7
38. I ask myself if I have considered all options after I solve a problem. (E) 1 2 3 4 5 6 7
39. I try to translate new information from one project to the next. (IMS) 1 2 3 4 5 6 7
40. I change strategies when I fail to understand. (DS) 1 2 3 4 5 6 7
41. I use the organizational structure of the lesson to help me create art. 1 2 3 4 5 6 7
42. I read instructions carefully before I begin a project. (P) 1 2 3 4 5 6 7
43. I ask myself if what I'm learning is related to what I already know. (IMS) 1 2 3 4 5 6 7
44. I re-evaluate my assumptions when I get confused. (DS) 1 2 3 4 5 6 7
45. I organize my time to best accomplish my goals. (P) 1 2 3 4 5 6 7
46. I learn more when I am interested in the topic. (DK) 1 2 3 4 5 6 7
47. I try to break big projects down into smaller steps. (IMS) 1 2 3 4 5 6 7
48. I focus on overall meaning rather than specifics. (IMS) 1 2 3 4 5 6 7
49. I ask myself questions about how well I am doing while I am learning something new. (M) 1 2 3 4 5 6 7
50. I ask myself if I learned as much as I could have once I finish a project. (E) 1 2 3 4 5 6 7
51. I stop and go back over new information that is not clear. (DS) 1 2 3 4 5 6 7
52. I stop and think when I get confused. (DS) 1 2 3 4 5 6 7
OPERATIONAL DEFINITIONS OF COMPONENT CATEGORIES

Knowledge of cognition

1. **(dk)**-declarative knowledge: knowledge about one’s skills, intellectual resources, and abilities as a learner.
2. **(pk)**-procedural knowledge: knowledge about how to implement learning strategies.
3. **(ck)**-conditional knowledge: knowledge about “when” and “why” to use learning procedures.

Regulation of cognition

1. **(p)**-planning: planning, goal setting, and allocating resources prior to learning
2. **(ims)**-information management: skills and strategy sequences used to process information more efficiently
3. **(m)**-monitoring: assessment of one’s learning or strategy use
4. **(ds)**-debugging: strategies used to correct comprehension and performance errors.
5. **(E)**-evaluation: analysis of performance and strategy effectiveness after a learning episode.
APPENDIX F:
Holistic Rubric for Standards Based Assessment in the Visual Arts

| Effectively uses elements and principles | EXCELLENT |
| Shows control over media | LEVEL 4 |
| Reveals self-direction and inspiration | | |
| Uses observation, imagination, and personal feelings | | |
| Work shows both depth and scope | | |

| Frequent use of elements and principles | VERY GOOD |
| Generally effective, in use or media | LEVEL 3 |
| Most often shows self-direction and inspiration | | |
| Generally employs observation, imagination, and personal feelings | | |
| Most work shows depth and scope | | |

| Sometime uses elements and principles | SATISFACTORY |
| Sometimes effectively uses media | LEVEL 2 |
| Shows some self-direction and inspiration | | |
| Sometimes communicates | | |
| Shows some involvement in the work | | |

| Little or no use of elements and principles | INADEQUATE |
| Little or no control of media | LEVEL 1 |
| Little or no self-direction and inspiration | | |
| Little or no communication | | |
| Little or no involvement | | |
APPENDIX G:

Analytic Rubric for Writing

| Writer effectively writes about elements and principles of design (lines, shapes, colors, textures, form) (variety, unity, balance, repetition) | EXCELLENT |
| Writer refers to specific experience about specific media [pencil drawing, acrylic/tempera/ watercolor painting, mixed-media collage] | LEVEL 4 |
| Writer reveals self-direction and inspiration | |
| Writer employs observation, imagination, and personal feelings | |
| Writer shows both depth and scope | |

| Writer is effective in writing about media | VERY GOOD |
| Writer most often communicates the importance of making good grades and being a good student | LEVEL 3 |
| Writer employs observation and personal feelings about making artwork “look” good | |
| Writer reveals involvement in the artwork | |

| Writer sometimes writes about media | SATISFACTORY |
| Writer shows interest in following teacher’s directions | LEVEL 2 |
| Writer sometimes communicates feelings about the need to complete the assignment | |

| No use of elements and principles | INADEQUATE |
| Little or no control of media | LEVEL 1 |
| Little or no self-direction and inspiration | |
| Little or no communication | |
| Little or no involvement | |
APPENDIX H:

Prompt one (Pretest)

What did I want to achieve in my artwork?
Did I achieve what I wanted to in this artwork? How did I do that?
What do I plan to accomplish in this art class?
What do I need to do in order to reach my goals? What are my plans for the next artworks that I make?

Prompt 2, 3, and 4,5,6,7 (Self-Reflection Survey)

Did I achieve the goals I set for this artwork? (Self-evaluation, where the student compares his/her efforts with some sort of standard or goal)
How have I improved this work in comparison with my previous artwork? (Attributions about why the student achieved the results he/she did)
What things do I still need to work on to improve my artwork? (Self-reaction and identification of the source of learning errors)
What do I plan to do to improve my next artwork? (Adaptation, where the student improves his/her learning process using strategies that work best for him/her)

Prompt eight (Posttest)

What did I want to achieve in this artwork?
Did I achieve what I wanted to in this artwork? How did I do that?
What pleases me most about this work over my past artworks?
Did I achieve the goals that I wanted to for this art class? What are my plans for the next artworks I make?
APPENDIX I:

150 Salem Woods
Americus, Georgia 31709
July 2, 2004

Dear Dr. Schraw:

I am completing a dissertation at Florida State University entitled “The Effects of a Self-Reflective Learning Process on Student Art Performance.” I would like your permission to reprint in my dissertation the inventory printed in the *Contemporary Educational Psychology* (1994) called “Metacognitive Awareness Inventory.”

The requested permission extends to any future revisions and editions of my dissertation, including non-exclusive world rights in all languages. These rights will in no way restrict republication of the material in any other form by you or by others authorized by you. This authorization is extended to University Microfilms International, Ann Arbor, Michigan, for the purpose of reproducing and distributing copies of this dissertation. Your signing this letter will also confirm that you (or you company) own(s) the copyright to the above-described material.

If these arrangements meet with your approval, please sign this letter where indicated below and return it to me. Thank you very much.

Sincerely,

Lisa Shawn Bland

[Signature]

PERMISSION GRANTED FOR THE USE REQUESTED ABOVE

[Signature]

Gregory Schraw

Date: July 6, 2004
APPENDIX J:

PARENTAL CONSENT LETTER
For Florida State University Arts Assessment Field Test

Dear Parent:

I am a professor of Art Education in the College of Visual Arts and Dance at Florida State University. I am conducting a research study to assess teaching in Art, Music, Dance and Theatre in the Americus, Georgia elementary and secondary schools. Your child’s participation will involve arts teachers in Americus, Georgia evaluating the students’ performance either through the review of a visual art portfolio or observation of a student’s art performance normally done as part of the student’s regularly assigned work. The assessment will require no more than a one time five or ten minute performance review or, as in visual art, no use of class time. In the case of Music, Theatre and Dance, the arts performance may be videotaped. These video tapes will be viewed only by the assessment team and the researcher. The tapes will be kept confidential to the extent allowed by the law, in a locked filing cabinet and will be destroyed on July 31, 2005. Your participation, as well as that of your child, in this study is voluntary. The results of the research study may be published, but your child’s name will not be used.

Although there may be no direct benefit to your child, the possible benefit of your child’s participation will help the Americus, Georgia schools to assess and improve its arts program.

If you have any questions concerning this research study or your child’s participation in the study, please call me at 850-644-2158 or by fax at 850-644-5067.

Sincerely,

Charles M. Dorn

I give consent for my child ___________________________ to participate in the above study.

Parent’s Name: __________________________________________

Parent’s Signature ___________________ Date ____________

If you have any questions about your rights as a subject/participant in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects Committee, Institutional Review Board, through the Vice President for the Office of Research at 850-644-8633.
APPENDIX K:

SCHLEY COUNTY BOARD OF EDUCATION
204 PERRY DRIVE—P.O. BOX 66—ELLAVILLE, GEORGIA 31806
PHONE (229)937-2405—FAX(229)937-5180
William C. Johnson—Superintendent
David L. Byrd, Sr. Chairman—Robert L. Pileher, III Vice-Chairman
Gordon Battle—Joan Perkins—Eddie Watson

July 15, 2003

Ms. Shawn Bland
Schley County High School
Ellaville, GA 31806

Dear Ms. Bland,

Your request for permission to do research using the artworks and the writings (about the artwork) of students in the Schley County School System is approved. I understand this project will involve collecting data to determine how art achievement changes among each student. During this project, students will participate in a portfolio assessment process using self-reflection activities.

I understand that the results of the study will not disclose the identity of any student. The research is being conducted to study the effectiveness of using an art portfolio as the assessment tool in the art education program. This data will be collected for a study called, “The Effects of Self-Reflective Learning on Student Performance Through Portfolio Assessment in Art Education” and the data will be collected during the 2003-2004 school term.

Sincerely,

William C. Johnson
Superintendent
APPENDIX L:

Table 4  *Experimental Group Art Performance Pretest Raw Scores*

<table>
<thead>
<tr>
<th>Judge</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>2.</td>
<td>3</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>3.</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>4.</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>5.</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>6.</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>7.</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8.</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>9.</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>10.</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>11.</td>
<td>4</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>12.</td>
<td>3</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>13.</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>14.</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>15.</td>
<td>3</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>16.</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>17.</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>18.</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>19.</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>20.</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>21.</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>22.</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>23.</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>24.</td>
<td>4</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>25.</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
APPENDIX M:

Table 5  *Experimental Group Art Performance Posttest Raw Scores*

<table>
<thead>
<tr>
<th>Judge 1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3.</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4.</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>5.</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>6.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>7.</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>8.</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>10.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>11.</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>12.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>13.</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>14.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>15.</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>16.</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>17.</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>18.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>19.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>20.</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>21.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>22.</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>23.</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>24.</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>25.</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>
APPENDIX N:

Table 6  Control Group Art Performance Pretest Raw Score

<table>
<thead>
<tr>
<th>Judge</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>4.</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5.</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>6.</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>7.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>8.</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>9.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>10.</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>11.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>12.</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>13.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>14.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>15.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>16.</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>17.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>18.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>19.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>20.</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>21.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>22.</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>23.</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>24.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>25.</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
APPENDIX O:

Table 7  
Control Group Posttest Art Performance Raw Score

<table>
<thead>
<tr>
<th>Judge 1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>2.</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>3.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>4.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>5.</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>6.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>7.</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8.</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>9.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>10.</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>11.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>12.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>13.</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>14.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>15.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>16.</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>17.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>18.</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>19.</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>20.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>21.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>22.</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>23.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>24.</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>25.</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>
REFERENCES


National Science Foundation (2002). TXCETP *Vision for effective learning and teaching: An instrument for reflection*. Austin, Texas: TXCETP.


BIOGRAPHICAL SKETCH

Lisa Shawn Bland

### Academic Credentials

**Bachelor's Degree**
- **Degree Type**: B.S. in Education
- **Institution Name**: Georgia Southwestern State University
- **Date Graduated**: 06/86
- **GPA**: 3.89
- **Major**: Art
- **Minor**: Photography

**Master's Degree**
- **Degree Type**: M.Ed.
- **Institution Name**: Columbus State University
- **Date Graduated**: 12/99
- **GPA**: 4.0
- **Major**: Art
- **Minor**: Painting

**Doctor's Degree**
- **Degree Type**: PhD
- **Institution Name**: Florida State University
- **Date Graduated**: 04/05
- **GPA**: 4.0
- **Major**: Art Education

### Student Teaching Experience

- **System**: Sumter County Schools
- **Supervising Teacher/Principal**: Bonnie Lewis
- **Subject Area**: Art
- **Grade Level**: 6-8
- **Location**: Staley Middle School
- **Address**: 912 Lee Street
- **City, State - Zip Code**: Americus, GA - 31709
- **Phone**: 912-924-3168
- **Start Date**: 03/86
- **End Date**: 06/86

### Adjunct Teaching Experience

- **System**: Georgia Southwestern State University
- **Supervising Teacher/Principal**: Dr. Doug Hatch
- **Subject Area**: Creative Arts
- **Grade Level**: College
- **Location**: Georgia Southwestern State University
- **Address**: 800 Wheatly Street
City, State - Zip Code  Americus, Georgia, 31709
Phone  800-338-0082
Start Date  08/98

Georgia Certification

Certificate 1
Certificate Type  Performance-Based T
Certificate Level  7
Grade Levels  P-12
Field(s)  Art
Expiration Date  06/30/06

Certificate 2
Certificate Type  Service
Certificate Level  5
Grade Levels  P-12
Field(s)  Data Collection
Expiration Date  06/30/06

Certificate 3
Certificate Type  Service
Certificate Level  5
Grade Levels  P-12
Field(s)  Teacher Support Specialist
Expiration Date  06/30/06

Additional Skills / Experience

Activity  Description of Activity
School Sponsor  Art Day Director, planning annual festival, which includes about 50 guest artists, serving a student population of 1000 students annually (15 years, Sumter County Schools)

School Sponsor  Yearbook Director (10 years, Sumter County Schools)
Mentor Teacher  Teacher Support Specialist (10 years Sumter County Schools)
Department Chair  Exploratory Team Leader (8 years, Sumter County Schools)
Art Teacher  After-School Art Program Teacher (4 years, Sumter County Schools)
School Sponsor  Art Club Director (5 years, Sumter County Schools)
Art Teacher

120
**Art Teacher**

Youth Detention Center After-School Program Teacher (2 years, VSA arts of Georgia)

Methodist Children’s Home Teacher (1 summer session, Americus, Georgia)

### Professional Positions /Public School

#### Most Recent Employer

<table>
<thead>
<tr>
<th>Name</th>
<th>Schley County Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>Hwy 19</td>
</tr>
<tr>
<td>City, State Zip</td>
<td>Ellaville, GA 31806</td>
</tr>
<tr>
<td>Phone</td>
<td>229 937 0540</td>
</tr>
<tr>
<td>Position Held</td>
<td>Art Specialist</td>
</tr>
<tr>
<td>Supervisor</td>
<td>Larry Stubbs</td>
</tr>
<tr>
<td>Reason For Leaving</td>
<td></td>
</tr>
<tr>
<td>Beginning Date</td>
<td>07/23/02</td>
</tr>
<tr>
<td>End Date</td>
<td>Current</td>
</tr>
</tbody>
</table>

#### Next Most Recent Employer

<table>
<thead>
<tr>
<th>Name</th>
<th>Sumter County Board of Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>210 Industrial Way</td>
</tr>
<tr>
<td>City, State Zip</td>
<td>Americus, GA 31709</td>
</tr>
<tr>
<td>Employer's Phone</td>
<td>912-931-2613</td>
</tr>
<tr>
<td>Position Held</td>
<td>Art Specialist</td>
</tr>
<tr>
<td>Supervisor</td>
<td>Carolyn Hamilton</td>
</tr>
<tr>
<td>Reason For Leaving</td>
<td>To teach high school students</td>
</tr>
<tr>
<td>Beginning Date</td>
<td>08/20/84</td>
</tr>
<tr>
<td>End Date</td>
<td>07/22/02</td>
</tr>
</tbody>
</table>

#### Third Most Recent Employer

<table>
<thead>
<tr>
<th>Name</th>
<th>Wayne County Board of Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>555 Sunset Blvd</td>
</tr>
<tr>
<td>City, State Zip</td>
<td>Jesup, GA 31545</td>
</tr>
<tr>
<td>Employer's Phone</td>
<td>912-427-1000</td>
</tr>
<tr>
<td>Position Held</td>
<td>Teacher's Paraprofessional &amp; Computer Operator</td>
</tr>
<tr>
<td>Supervisor</td>
<td>Glynn Keebler</td>
</tr>
<tr>
<td>Reason For Leaving</td>
<td>To continue education</td>
</tr>
<tr>
<td>Beginning Date</td>
<td>10/01/79</td>
</tr>
<tr>
<td>End Date</td>
<td>08/20/84</td>
</tr>
</tbody>
</table>

### Membership in Professional Associations

- National Art Educators Association: District President
- Professional Association of Georgia Educators: Member