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ABSTRACT

An action research project was designed to enhance the creativity and thinking skills of students in a studio art class at the secondary level. The project was conducted between September and December 2002 at a Catholic high school near an urban center. Data were collected using observations, surveys, and document analysis. The targeted population consisted of junior and senior high school students in a Catholic educational community committed to providing a quality liberal arts secondary education for young women. Evidence for existence of a problem included assessment of products created by students, observations of student conversations, their responses to suggestions and questions posed in class, and a review of student self reports of their progress related to problem solving. Students school wide were more vested in maintaining the status quo as opposed to experimenting creatively. The solution strategy selected for the project was focused on building student skills to enhance practical and unique ways for developing problem-solving strategies in the production of work. Through implementation of the new skill-building techniques, the problem context of motivational facets of art production, procrastination, lack of preparation, low self confidence, and the rigidity and negative impact of the school infrastructure were addressed. Based upon presentation and analysis of data designed for enhancing creativity and thinking skills, the students showed a minimal improvement in the development of problem solving skills. Eighteen appendixes contain study-related materials, such as consent forms, a student survey, questions, an observation form, an analysis form, an assessment form, and a growth checklist for creativity. (Contains 4 tables, 8 figures, and 33 references.) (Author/BT)

ENHANCING CREATIVITY AND THINKING SKILLS IN STUDIO ART AT THE SECONDARY LEVEL

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An Action Research Project Submitted to the Graduate Faculty of

The School of Education in Partial Fulfillment of the Requirements for the Degree of

Masters of Arts in Teaching and Leadership

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ABSTRACT

This report describes an action research project designed to enhance the creativity and thinking skills of students in a studio art class at the secondary level. The study was conducted between the period of Septmeber to December 2002 in a Catholic High School on near an urban center. Data were collected using observations, surveys and document analysis of students. The targeted population consisted of junior and senior high school students in a Catholic educational community committed to providing a quality liberal arts secondary education for young women. The school is located on the southwest edge of a major metropolitan area in the Midwest. The student population is from a large urban area, as well as the surrounding suburbs.

Evidence for the existence of the problem included an assessment of products created by students, observations of students' conversations as well as their responses to suggestions and questions posed in class, and a review of students' self-report of their progress related to problem-solving. The problem experienced by students was not unique and existed elsewhere within the site. Students school wide were more vested in maintaining the status quo as opposed to experimenting creatively.

Students were encouraged to express themselves individually and to respond creatively to open-ended questions, to try new modes of expression, experiment and to be willing to make mistakes, turn new directions and be confident enough to believe in their own thoughts. The solution strategy selected for this study was focused on the building of students' skills that would enhance practical and unique ways for developing problem-solving strategies in the production of work. Through the implementation of the new skill building techniques the problem context of motivational facets of art production, procrastination, lack of preparation, low self-confidence, as well as the rigidity and negative impact of the school infrastructure were addressed.

Based upon the presentation and analysis of the data designed for enhancing creativity and thinking skills, the students showed a minimal improvement in the development of problem solving skills. The results of student interaction, were enlightening and eye opening. Outcomes cemented that the essential qualities of thinking and processing to improve student thinking is necessary so that the abilities can reach more depth for their future.

SIGNATURE PAGE

This project was approved by

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ACKNOWLEDGMENT

This study is dedicated to the pursuit and enhancement of creativity. To my father who modeled living images from rock. To my mother who so vibrantly brought an esprit to her expressions and ideas. For my children who continue to elicit the substance and perpetuation of creativity.

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CHAPTER 1

PROBLEM STATEMENT AND CONTEXT

General Statement of the Problem

Students in the targeted high school studio art class exhibit difficulties enhancing their creativity and using creative thinking skills when generating products for various assignments. Evidence for the existence of the problem includes an assessment of products created by students, observations of students' conversations as well as their responses to suggestions and questions posed in class, and a review of students' self-report of their progress related to problem-solving.

Immediate Problem Context

The student target group for this study includes juniors and seniors enrolled in studio art classes. The class is an elective which follows a prerequisite of a drawing and painting class. Students meet daily for 45 minutes throughout the year. The class is located in a departmental wing that was renovated during the summer of 2001.

The school is a Catholic educational community committed to providing a quality liberal arts secondary education for young women. The tradition of the school focuses upon the tenants of the Sisters of Mercy. The students are prepared to live in a complex, dynamic society by teaching them to think critically, communicate effectively, respond compassionately to the needs of their community, and assume roles of Christian leadership. In partnership with parents,

students are empowered to acknowledge their own giftedness and make decisions with a well developed moral conscience.

The enrollment is approximately 1800 girls. The teaching faculty includes 105 people with a ratio is 17.5 students per teacher. Student personnel services include six guidance counselors, one of whom is a college counselor, four deans and a school nurse and one student activities director, and a service director.

The curriculum requires a minimum of 20 and a half credits for graduation which includes, four credits for english and theology, three credits for mathematics and lab science, two credits for foreign language and social science, one credit for physical education and art history, and a one half credit for music. Classes meet for five 45 minute periods per week, 36 weeks each school year.

Profiles of graduates include approximately 99% enrolled in continuing education. Eighty five percent are accepted in a four year college, 83% attend four year colleges, and 16% attend a two year college. The American College Test mean composite is 22.3 compared to the national composite of 21. In addition the school does not rank students. Over 42% of each graduating class receives honors.

The number of faculty with 15 years or more of experience is 31%. Thirty three percent of the present faculty have fewer than five years of experience. The number of faculty with master's degrees and above is 61%, including two doctorates. The racial background of the faculty is 98.4% White, 0.8% African American, and 0.8% Asian.

Student profile enrollment includes 430 freshmen, 456, sophomores, 496 juniors, and 469 seniors for a total of 1,851. Of this number 0.5% are Native American, 1.8% are Asian, 4.9% are Black, 7.9% are Hispanic, 84.4 % are White and l 0.5% are Bi-racial. Ninety three percent of the

student population is Catholic and 6% is non-Catholic. The daily attendance rate and the retention rate of students is 96%.

The Surrounding Community

The school was built in 1957 and is located on the southwest edge of a major metropolitan area in the Midwest. The student population is from a large urban area, as well as the surrounding suburbs.

Fifty three percent of students live in the urban surrounding community and 47% reside in the suburban surrounding communities.

In close proximity stands an all boys Catholic School as well a Catholic University, which was also founded by The Sisters of Mercy.

The local community consists of somewhat diverse population with a wide variety of professional occupations as well as blue collar.

It is generally a residential area with local shopping and a shopping center about three miles west. There are local libraries, good public transportation available and strong law enforcement, fire and medical, trauma centers nearby.

National Context of the Problem

How can educational programs be designed so that they will contribute to creative achievement? Evidence is available that effective instruction is a critical factor in successful problem solving efforts (Mumford, 1993).

According to Brown (1999) art students are obliged by teachers to discover a reality in relation to their own creative abilities. With increasing maturity students begin to realize that their originality is rewarded by the conformity of the traditions of the educational system. How do art students overcome the contradictions implicated in "learning to be creative"? (Brown, 1999). The difficulty of allowing the creative mind to grow and develop in a society that

values these attributes has proposed problems for years. As Bateson (1994) observed "...what an extraordinary thing it is that in a society where we regard the self as central, we are so often engaged in silencing its expression or putting confidence at risk"(p.3).

The learning that children do outside of the class in their families and neighborhoods based upon cultural and societal mores are left at the doorstep of the schools. As Bloom (1999) indicated schools demand conformity and obedience thus contradicting what children learn from society.

Brown (1999) referred to the term creativity as a particular kind of process wherein the properties of creative performance become the products and artifacts from the operation.

Paul (1993) believed that creative and critical thinking often seems to be at polar opposites. On one hand, creativity is invisible and inaccessible and critical thinking is intentional and experiential. Based upon these inferences there is no systematic teaching technique available to generate original thinking. The breadth of "creativity" contains unknowns and mysteries as does "criticality." In spite of this, there are ways to teach both creative and critical thinking in a down to earth sense. This requires a practical everyday approach integrating and overlapping both critical and creative thinking strategies.

Ordinary situations calling for creative thinking are usually complex and involve multiple mental operations. Paul (1993) submitted clear suggestions to determine which creative strategies are appropriate. It is not always straightforward to presume creative techniques are suitable or best for the situation. Consequently, individuals must not only know how to think creatively, but also be motivated to think creatively.

Creativity needs form and structure to guide students toward discovery and inventiveness. Students too must be taught to function within the bounds of structure and organization. In their review of literature (Mumford et al., 1993) examined various process models proposed over the

review of literature (Mumford et al., 1993) examined various process models proposed over the last century. Mumford et al used literature to identify basic practices underlying creative thought and projected a model of these practices based on three central propositions. Mumford et al noted further that structuring and defining goals of the creative process helps with problem solving. He added that creative people must combine, reorganize, or reshape knowledge structures to generate new understandings in order to solve problems. These new understandings must be evaluated and translated into a competence in order to bring creative ideas into being.

Sternberg & Lubart (1991) hold that developing creativity involves the teaching of six resources which include; intelligence, knowledge, intellectual style, personality, motivation and environmental context. Intelligence refers to the ability to define and redefine problems and to think insightfully. Major creative innovations often involve seeing an old problem in a new way. Creative individuals are often acknowledged for posing problems, not just solving them. Knowledge can be divided into two components, knowledge and usable knowledge. Students do much better in learning if they believe that they can use what they learn. Intellectual styles refer to the way in which people choose to use their intelligence and knowledge in day-to-day interactions. Creative people share certain personality attributes. Theses attributes include tolerance of ambiguity, willingness to surmount obstacles and persevere, willingness to grow, willingness to take risks and courage of one's convictions. For the most part schools are environments that are not conducive to the development of these personality attributes.

Intrinsic motivation and the motivation to excel are two types of motivation suggested by Sternberg (1991). Whatever intrinsic motivation children may have when they begin their education, Sternberg added that it may be pounded out of them by a system that rewards extrinsically, for example with grades. Many schools motivate students towards excellence but that kind of distinction does not encourage creativity.

The environmental context once again reiterates that schools provide a context for learning but question whether it provides an atmosphere that stimulates creative thinking.

Annarella (1999) contended that creativity researchers face one particular problem that is not always shared with other investigators of psychological phenomenon. One such problem is the need to emphasize creativity as an educational outcome. When evaluating student products, researchers are generally cautioned to use different types of assessments due to differences in student abilities. Teachers may develop techniques of evaluation that allow students, teachers, and peers to help evaluate products together. Annarella (2000) recommended that student centered learning, where students can express ideas and failures as part of the developmental process, enhances learning. We need to guide and provide risk free environments in which students can experiment with ideas in a non judgmental way. The conventions have been so strictly fashioned so children feel compelled to replace their creativity for social acceptance. In response to this dilemma, we must then teach our children to be creative and different, is to be truly extraordinary and exceptional.

CHAPTER 2

PROBLEM DOCUMENTATION

Problem Evidence

Students having difficulties with creativity, especially creative thinking skills in studio art class was evidenced in a review of the products created, and observations of students' self-report. However, the difficulties experienced by most students is not unique and exists elsewhere within the site. Generally, students school-wide are more vested in maintaining the status quo as opposed to experimenting creatively. Students typically display little initiative when using resources or developing ideas beyond common solutions. Observations of students' behavior also revealed that many lack motivation for problem solving. In addition, students also appear to lack courage or self-confidence and often do not value their ideas. As a result, students become dependent on solutions that are familiar to them. Typically, students do not seek available resources for problem solving when initiating assignments. Students also tend to wait until ideas appear to them before beginning. Students do not have the desire to search for other sources or consider view points that may prove unique ideas.

The goal of this project was to overcome the problem previously observed by encouraging students to express themselves differently and to respond creatively to open-ended questions, to try new modes of expression, experiment and to be willing to make mistakes, turn new directions and be confident enough to believe in their own thoughts. When students enter studio art class, their prerequisite skills are required to be at the very least adequate.

Expectations for art students are that they be at a stage of artistic development to apply skills in creative endeavors independently, without guidance from the teacher. Theoretically, studio art classes require students to hone the knowledge, skills and dispositions for integrating thinking and creativity. Typically, the researcher has observed that students look for the easiest, most common sources when formulating ideas. The researcher has also observed that students neither ask questions nor experiment with novel ideas. Students do not try to find new direction when unsuccessful in their creative actions, instead they stay with the familiar when attempting to clarify and solve problems.

Table 2.1 Frequency of Observed Activities Among Participants in the targeted Studio Art Class Prior to Intervention

Behaviors observed	Frequency of Behaviors Observed								Percent Use Among Participants
	Obs 1	Obs 2	Obs 3	Obs 4	Obs 5	Obs 6	Obs 7	Obs8	
Work begun on time	x	x	x		x	x		x	.75
Amenable environment	x		x	x	x	x	x		.75
Active engagement	x		x	x	x	x	x	x	.88
Responsible use of Supplies	x	x	x	x	x	x	x		.88
Working Independently	x	x		x	x	x			.63
Exchange of Ideas	x		x	x	x	x			.63
Organization of Tasks			x	x	x	x			.63
Completion of Tasks	NA								

N= 8

Prior to intervention, the researcher video taped students' activities within the targeted studio art classroom. In table 2.1, Figure, 2.1 and 2.2 an analysis of the taping involved a specimen records form, which noted the frequency for various activities within a 45-minute period. Results indicated that 75% of the students began work in a timely manner. Since almost 90% of the group was actively engaged in tasks, the researcher concluded that that the classroom environment was amenable to studio art activity. It was also observed in Figure 2.1. and 2.2 that 63% of the students worked independently and consulted with one another about their work. Similarly, 63% of the students appeared to be organized when implementing tasks. Another 87% used supplies responsibly when focused on tasks. The video tape analysis was useful in understanding the classroom dynamics and the frequency of teacher made contact directly with students. However, it was difficult to isolate close up activities for analysis or to span the entire room when taping. Since the videotaping occurred early on in the school year, teacher familiarity with students was minimal; therefore making analysis about the targeted group difficult.

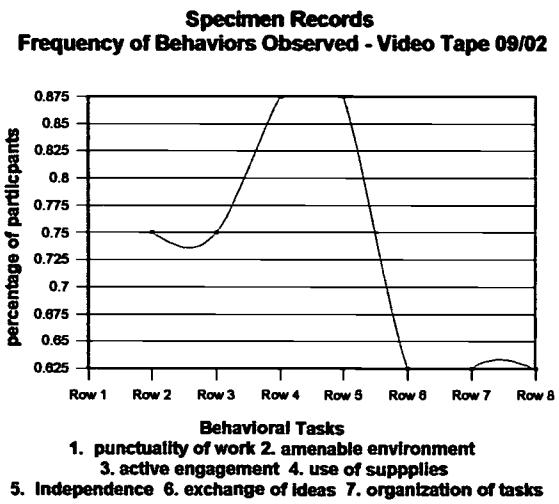


Figure 2.1 Frequency of behavioral tasks observed and percentage of participation during video taping 09/02

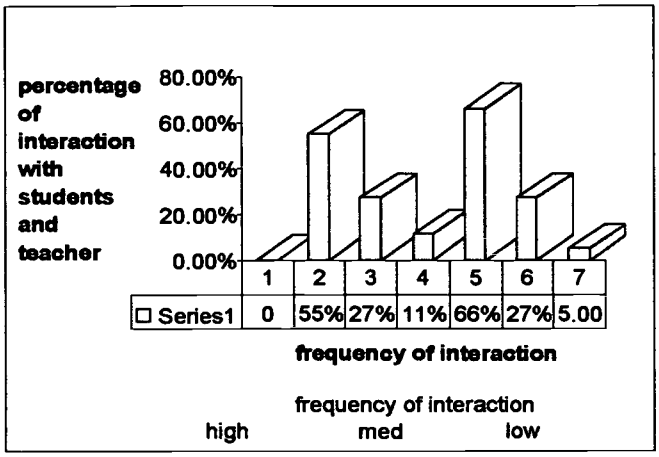


Figure 2.2 Frequency and percentage of interaction with students and teacher

The student survey and teacher observations were employed to demonstrate student ownership of their products. The student survey was used to determine the status of student understanding of their creativity and how they defined the resourcefulness of their creativity. The survey also clarified what students perceived as detriments in the environment for the development of their ideas.

Thus before intervention began, 18 of the 21 targeted studio art students completed a student survey (Appendix E). In reference to student independence versus dependency in favor of creating original products without stimuli, 40% of the students responded to having difficulty initiating original ideas. Forty-four percent of the respondents indicated a need for outside stimuli to generate ideas. Fifty percent added the need for further instruction to help generate their creativity and thinking skills. Use of the sketchbook to help develop ideas was considered fundamental by 61% of the respondents. The classroom environment was amenable to the students in their creative endeavors as cited by 55 to 60% of the targeted group. While 50% of the students indicated that they worked better at home, they added that classroom time was helpful and could be used more constructively. Thirty-eight percent of the participants agreed the use of deadlines stimulated art production.

Fifty-five percent of the students reported that they did not like deadlines and noted that deadlines created stress and tension. Others felt strongly that deadlines served as an incentive when completing tasks assigned. Longer class periods appeared to be ideal as 65 % of students indicated that they lacked the time available in class to complete assignments.

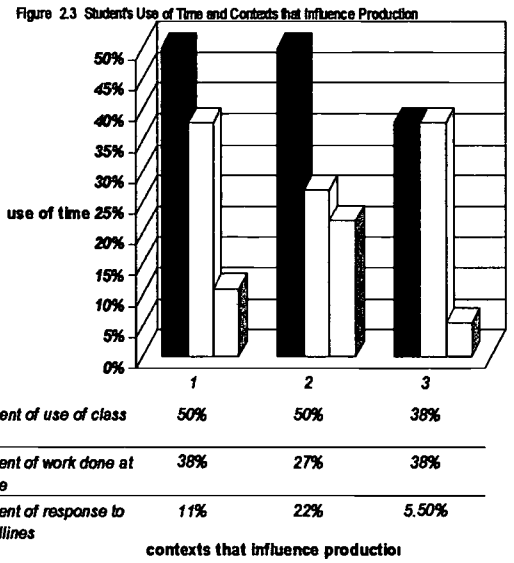


Figure 2.3 Students use of time and contexts that influence production

Results prior to interventions indicated in Figure 2.4 that students experienced greater difficulty being inner directed and focused. Students' ideas did not come from unique sources, nor were products original or elucidating. Generally, students recognized they had weaknesses but could not specify the skills needed to be successful. Students also appeared to lack ability to process information. Time was a critical factor in students' ability to generate appropriate responses. Some students who admitted to procrastination did not know how to overcome this problem.

Overall student's progress with creativity and problem solving fell predictably within the context of the problem evidence. Some students were aware of limitations but chose to work at home, ignore deadlines and made poor use of classroom time or stimuli offered in class for problem solving.

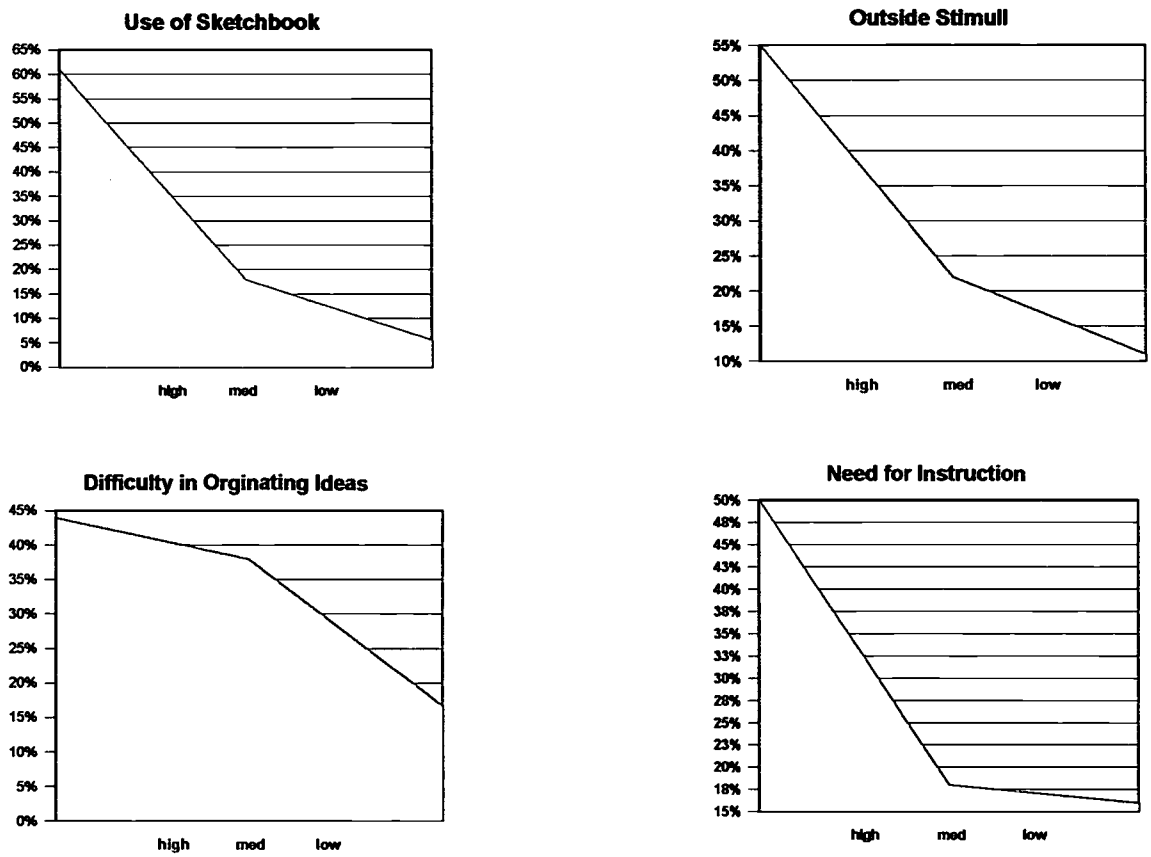


Figure 2.4 Levels of independence versus dependency in thinking skills prior to intervention

When students were asked to suggest methods that could be used to improve creativity, most recognized skills needed, but were unable to propose innovations. One student suggested the use of discipline and brainstorming, both techniques previously implemented in class. Students defined methods to develop creativity and thinking skills as how the teacher provides instruction in skill oriented areas.

Probable Causes

Among the probable causes for the problem context were students having difficulty when confronted with problem solving a task. When students were exposed to a variety of idea generating influences such as multi-media, magazines or their own personal experience, they had difficulty using available resources to germinate original thought. Instead, there was a temptation to imitate and recreate what already exists. Visual distractions of a chaotic world appeared to diminish students' motivation towards creativity. Students who were easily distracted appeared to have little interest in the academic learning environment much less the process required of creativity. Students wanted to complete a task without the forethought of constructing and rising to the challenge. However, students who participated in this study are placed in an educational, societal environment where scheduling of classes, homework, jobs, and extracurricular activities do not allow sufficient time for assignments or using the quality and skills that are required. In contrast, the school environment often creates rigid, artificial restrictions to the natural ebb and flow of a child's thinking process, in which learning is categorized into rigid time blocks. As a result, the time schedule in not set up by the student nor is it geared to the ebb of the cognitive learning process.

Israel (1995) stated that education traditionally has not emphasized the process, which makes creativity possible. Even students who are creative feel restricted to the possibilities of inspiration and respond instead in predictable form. As a result, students are in the habit of imitation, which limits their success and that of others. Students are more likely to be discouraged from experimenting and taking risks. However, when allowed freedom of choice, students are more likely to revert to what they previously found enjoyable and successful (Bartel, 2002).

When students learn by imitation, they become complacent. Creativity influences anxiety and tension given it is not easy to achieve. Students are conservative, preferring what they know. Israel (1995) added that practice in creativity forces both the instructor and student to work on higher-level thinking skills, which both groups are often reluctant to do. Israel also noted that creativity is not a highly regarded commodity. Parents do not encourage students to pursue careers related to the arts, and neither does society value the arts. Similarly, Torrance (1964) argued that parents have little use for creativity in the lives of their children. Torrance observed that adults consider original thinking to be strange or different behavior. In contrast, many adults prefer a more conventional way of approaching problem-solving and have no understanding of paradox (a key element in creative thinking).

Sternberg (1991) noted that schools focus upon the achievement of rewards through grades or class rank not through the work itself. Likewise, Amabile, Hennesy and Grossman (1986) found that student performance in creativity would decrease if the motivation were strictly reward. Sternberg (1991) discovered further that teachers are responsible for creating or stifling the environment for creativity. In response, students learn to overcome potential barriers by choosing to be mundane and uncreative.

Torrance (1964) indicated creative students are seen by the teacher as "less desirable" as pupils, difficult to get to know, more playful and less ambitious (p.131). Torrance added that generally teachers view these attributes negatively. Creative students are viewed as a disturbance in class, making the class more difficult to control and making others uncomfortable. Torrance also observed in that teachers feel threatened and intimidated by creative students. Students are sensitive to the nonverbal and verbal cues and their creativity is often stifled in this context. Teachers may also feel inadequate and unqualified to recognize creativity, especially when they are not prepared to enhance or foster creativity (Israel, 1995).

Conti (1996) supported the statement regarding the inadequacy of teachers to cultivate creativity and observed that teacher preparation does not necessarily promote teaching methods that encourage creative thinking skills. Conti also noted that teachers are not generally prepared to recognize or nurture creativity. As a result, some teachers eventually view creative students as more difficult, intimidating towards students and teacher and threatening to the orderliness of the class, than those who are not as creative. Jones (1990) added that teacher preparation often ignores the significance of a child's creative development. Teachers require preparation so that they can become more aware of ways to encourage creativity.

Traditional forms of education can be problematic in the preparation for understanding creativity and in contrast is not generally included within its contexts. Epstein (1996) suggested that creativity is an important part of the curriculum and has enormous benefit for the student's lives as well as learning the core content of the curriculum, which often have little benefit for their lives.

Tranquilli (1999) stated that learning traditionally generates a rigid daily plan to focus upon individual subjects and learning skills. Daily inflexibility does not stimulate fluidity, but instead creates restrictions that produce distractions that prevent openness required for creative thinking.

Jones (1990) showed that schools/teachers are not prepared to spend time on the development of the right side of the brain. This part of the brain controls imagination and expectations. Instead, it seems easier to stifle creativity than encourage it. In turn, students are reluctant to explore. Schools instill a fear in the student by limiting their intellectual and creative options. Courage is needed for a student to have freedom to make his or her own creative choices.

Guilford (as cited in Getzels & Jackson, 1959) observed that teachers stress convergent thinking which impedes creativity. He stated that divergent thinking is associated more with disobedience rather than growth, weak rather than spirited. Efland (2002) acknowledged the use of imagination in the making of art ranked lower in the scale of attainments and one of the side effects of cognitive thinking has been the lowering of the intellectual status of art education.

Antoinetti (1996) added since thinking skills are usually complex and require multiple operations; traditional programs fail to stimulate creativity. Students need to know how to think creatively in order to respond appropriately to the world around them. This requires the teacher to be trained to employ instructional methods consistent with the complex nature of creativity. Students need to become aware of mental strategies that can used to face new problems.

Lastly, Hiam (1998) indicated nine obstacles to creativity. Among these are failure to ask questions, the failure to record ideas, the failure to revisit ideas, the failure to express ideas, the failure to think in new ways, the failure to wish for more, the failure to be more creative, the failure to keep trying, and the failure to tolerate creative behavior. Students often exhibit these characteristics when working towards a product and being aware of them can aid in overcoming bad habits.

The solution strategy selected for this study will focus upon the building of students' skills that would enhance practical and unique ways for developing problem-solving strategies in the production of work. Through the implementation of the new skill building techniques the problem context of motivational facets of art production, procrastination, lack of preparation, low self-confidence, as well as the rigidity and negative impact of the school infrastructure were addressed. The key lay in the employment of the most appropriate skill-building, problem solving creative enhancement tools.

CHAPTER 3

THE SOLUTION STRATEGY

Literature Review

According to Pace-Marshall, (1997) students require training to become aware of what they are not doing and what they could accomplish if given guidance. Thinking is a natural ability that can be strengthened and improved by training and practice. Skill centered approaches which focus upon techniques of thinking must be developed and deliberately applied. Pace-Marshall added journaling, processing, communicating, self-assessing, and questioning are some of the areas students need to focus upon when they begin think about creative thinking. The goal to help students become autonomous, confident, and self-adjusted is an important part of the structure of the classroom to support and enhance creativity, (Pace-Marshall, 1997).

In order to teach and nurture thinking skills, several conditions need to be met. Thinking skills are important and integral to the educational process. Further, along with skills Starko, (1995) added helping students become confident, independent, and motivated is a fundamental element of structuring a classroom to support and enhance creativity.

Teachers can teach students to work independently. Lessons may be planned and executed with care. Topics may include, use of independent work time, planning time, and what a student could do when they did not understand a task (Starko, 1995). In support of these ideas, Urdan et al (2001) confirmed that some students used self-handicapping strategies as a way to manifest frustrations such as procrastinating, not focusing upon the given task, and not being fully

prepared for the assignment. To overcome these strategies Urdan et al. recommended engaging students in self-assessment of their work.

Assessment allows us to recognize creativity when it occurs. Treffinger (1987) described possible purposes for assessing creativity. Assessment helps to recognize and support strengths of individuals. Assessment aids in the measurement of creativity and intelligence, how they are related and what kinds of tasks best predict creative performance. Various forms of pre and post instruction data can aid in program evaluation. This can include the removal of the creativity from the "realm of mystery and superstitions (Treffinger 1987, p.104)."

According to Baer (1997), teaching-thinking skills include the use of divergence. Fluency is then needed in reference to the number of ideas one can produce, flexibility, the variety of ideas one can generate, originality, and richness of details, which could produce interesting and imaginative ideas. Immediate and long-term goals could include independent thinking skills and student self interest in their activities. While initiating the thinking styles, students and instructor should be aware that extrinsic motivators will influence the completion of the tasks.

Boyd (1999) described the thinking skills needed to be a "good" art student. He pointed out that Getzels and Csikszentmihalyi (1976) viewed a successful art student as one who was able to be a problem finder and use tools such as sketchbooks, brainstorming and journals to process the work.

Conti (1996) added cross task skills contribute to creativity. Factual knowledge, specific skills and talent are considered domain relevant (Amabile, 1986). Creativity relevant skills contribute to creative performance, including cognitive skills, working style and thinking abilities. Although most students come to us with inherent creative abilities and characteristics, traits of highly creative people make the enhancement task more feasible.

Gladwell (1999) explained how idea forming techniques such as brainstorming, is a group processing technique, allowing for the wild, the far-fetched ideas, and prioritizing for later use. Making lists and sketching may be included in the generation of products and material processes.

Kahn (2000) defined creativity as the ability to see a situation and make connections. Ideas are interconnected, so we can grab and run with them. Creativity enables the transformation of one form of knowledge to the next. The ability to generate novel responses to problems and challenges is a basic human ability. Creative thinking is a skill that can be learned. It takes effort, patience and a willingness to change one's views.

Wakefield (1989) acknowledged that in the teaching of the arts as a creative endeavor, reasoning skills are required as a prerequisite and it would be reasonable to state that specialized courses are preferred to develop creative thinking skills. As per Stanish (1997) sequencing and planning is an orderly way of thinking that requires listing, planning or charting logically. It can also include identifying the plan, listing materials needed, and listing steps or sequences that can occur during the planning process.

Smith (1998) observed that idea generating is a process with an indispensable core. Idea generation is vital but inadequately understood. Smith indicated that there are over one hundred and seventy idea generation methods reported and identified in creativity literature.

Problem finding practice occurs when the student has looked from every possible angle suggested and then looks at the problem from a few more viewpoints. Smith (1998) cited that the student then needs to narrow down their ideas to one problem statement.

According to (Eisner, 1996) there are four types of creativity. Boundary pushing is the ability to expand limits that define areas and placing objects into classes from places previously excluded. Inventing brings bits and pieces together in a new way, creating new objects by structuring the known. Inventing can include finding new combinations, product reconstruction,

and purposeful activities as in the creations of Gutenberg, Bell, or Marconi. Boundary breaking is the least common type of creativity. The creator notices problems with existing assumptions and is able to imagine and regenerate solutions by thinking "outside the box" as coined by Eisner (1996). Boundary breaking is the opposite of thinking and gap filling as in the style of Einstein or Copernicus. Aesthetic organizing refers to order and beauty, which comes from chaos. Qualitative organizing is a need to produce order, harmony and unity.

Within the following stages of creativity cited by Eisner (1996), strategies of creative problem solving are employed. The incubation stage focuses upon what refers to the subconscious mind working-the-non-visible "thinking stage". Insight and illumination occurs when there is an expectation of ideas coming to light. The elaboration stage involves the development of ideas using skills and knowledge. The expression stage is the finalization, convincing and authenticating the creation.

Idea finding practice involves many different ways to solve the problem by combining ideas and writing down even the ridiculous solutions. Eisner proposed that idea finding could unleash the most exciting solutions. Solution finding practice requires patience in choosing the problem statement. PMI can be used to choose among competing ideas if there are several ideas to work from. The student asks if there are stages of implementation, what the time line is and how the work will be assessed along the way.

Six steps to creative problem solving, is based upon the Osborne-Parnes (1966) model, (primary inventor of brainstorming). Parnes was the developer of the technique of creative problem solving. As per Baer (1997), the first of the six steps include mess finding, exploring a situation. Data finding can be used to gather information for action finding. "Mess Finding" designated by Baer (1997) requires a free exploration of opportunities, an awareness of what might be worthwhile to work with and a willingness to divide time to discover a better way to

problem find. Data finding requires gathering of information including questions such as who, what, where, when, and how. Idea finding generates possible solutions. Idea finding means the development and listing of wide varieties of possible solutions to the problem statement and then narrowing it down to just a few solutions. The way one thinks about a problem can have a major impact upon the kinds of solutions conceived. Solution finding requires choosing a solution. Solution finding is the goal of problem finding, which is firstly dependant upon how the problem is defined, and whether the chosen problem is truly the one we want to solve. Solution finding requires an evaluation of the promising and interesting ideas found during idea finding.

The difference between solution finding and the evaluative element of idea finding is that in the solution finding, explicit criteria are applied and an optimal solution found. Baer (1997) suggests after generating a list of possible criteria, the most important principles are chosen. Those principles are used to evaluate and lead oneself to the phase of solving the problem.

Efland (2002) suggested that testing determines the quantity of knowledge acquired, not the quality of it. Thus, teachers need to find ways to assess changes in students' ability to handle more complex learning tasks, such as the ability to isolate bits of information into larger contexts.

Amabile (1986) added there is a difference between feedback that is informational and feedback that is controlled. With controlling feedback, the teacher is the sole gage of student success or failure. The teacher is the arbiter of what is successful, unsuccessful, valuable and not valuable. Informational feedback assures students are in charge of organizing and evaluating their own learning. Feedback provides useful information for their guidance. It addresses "What did you learn?" Feedback informs the student about the strengths and weakness of their work and gages student assessment.

Project Objectives and Processes

As a result of instructional emphasis in problem solving and creativity thinking skills during the period from September to December 2002, the participants in the targeted studio art class increased their abilities to think creatively and critically. This was measured by observations, surveys, and a document analysis.

In order to accomplish the project objective, the following processes were necessary; to develop materials and strategies that improve creative thinking skills in the targeted classroom, to implement and instruct students to follow plans, to track student progress with design instruments in the processing of products and to create, distribute and implement student self-assessment and teacher assessment tools.

The researcher utilized a self-assessment technique in the classroom by having each student complete a rubric during an assignment. Students complained of time structure in reference to idea formulating, processing, and completing assignments. Restructuring the schedule using checklists and rubrics (with the constraints of grading periods) were provided so that students stayed on task, maximized their focus and worked within the groundwork of creative spontaneity.

Three major components essential for the production of creative work are (Amabile 1983a, 1983b) domain relevant skills or basic skills that lead to competent performance in a given domain. Included are factual knowledge, special skills and talents. Creativity relevant skills are those that contribute to creative models of creativity performance across domains and can include cognitive style, working style and divergent thinking abilities. Task motivation includes motivational variables that determine an individuals approach to a given task.

Silvano (1977), suggested the following ways to cultivate creativity are aloneness (removal from stimuli), inactivity (give time to do nothing), daydreaming (source of fantasy life),

freethinking (suspension of control), alertness (judgment), and disciplined productivity (commitment to practice skills). The first four are abstract and are reflected in the problem context, (e.g. difficult to judge, assess and measure). There is also the possibility that students use these as excuses, not as thinking strategies. Alertness (judgment) and disciplined productivity were the elements selected to as useful strategies in helping students' problem solve more effectively.

Torrance (1972) concluded that most effective methods of training creativity are those, which give students the opportunity for practice, interaction with teacher and include deliberate teaching of skills and a chance to practice the principles taught. Skills organize knowledge so that problems can be solved. Disposition in contrast emphasizes attitudes, beliefs, and values learned. The behavioral qualities involve the qualities and habits that enable students to take on challenges, learn new ideas and solve novel problems, including the urge to question, wonder, think broadly to be adventurous, reason carefully, organize, plan and devote time and effort to a task.

Teaching skills of independence is inherent in the skill-building arena. Planning time to complete assignments before going on to choice activities is an integral part of change. A student will know what to do if they become stuck or do not understand a task. Students will know how to signal to the teacher for assistance. Material usage is included in the training and skill orientation (Starko, 1995).

Haim's (1998) goal was to help people to think out of the box and find new solutions. This goal should include strategies of asking questions, recording ideas and giving old ideas new chances. Ideas represent activity and the expression of ideas. Visual thinking nurtures speculation for more engagement in creative thinking. Becoming familiar with creative thinking and creative efforts make a difference in learning to acknowledge creative behavior.

The goal of building an art assignment is to problem solve or find and create situations for students to invent and discover structures and principles. Students will develop their own unique ideas. Students will begin to view art as a process of questioning or experimenting. Art assignments should be stated in the form of questions, posing problems, and presenting challenges. Thereby students can learn to seek their own solutions and become more aware of possibilities (Szekely,1988).

Project Action Plan

The action plan was central because it included sources of assistance and resistance. It required a preparation and a timetable for the implementation. The action plan included a method to monitor progress, a way to determine how well the plan was working and whether adjustments were be needed. There were a number of charts and forms that varied from idea generating exercises, to self-evaluations, critiquing, and teacher assessment /evaluations of students, which were implemented for the classroom problem solving, and thinking skills. The exercises initiated strategies according to the suitability of assignments.

The following plan is designed to implement creative thinking skills in the studio art class.

I. Preliminary Procedures

Week One

a. Submit Informed Consent Letter to target participants/parents–Attachment A and B

b. Submit Video Recording Specimen Consent Letter to targeted participants- Attachment C

Week Two

a. Place critical/ creative thinking posters around the room

b. Collect informed consent letter and video taping consent form

II. Administration of Data Collection Tools

a. Administer Specimen Records Videotaping - Attachment D

b. Administer Student Survey - Attachment E

III. Implementation of Action Plan

Week Three

a. Introduce Student planning process

i. Present thinking skills and idea generation techniques

b. Formal Instruction:

i. Introduce first major assignment using creative thinking skills -Memorial

Learning Contract given to target students to complete-Attachment F

Lists of brainstorming techniques given to students to use as source

Week Four

a. Check progress of student creative/critical thinking processes

i. Assign students "What am I learning?" form to complete – Attachment G

ii. Assign Metacognitive questions Attachment H

b. Perform Time Sampling Observation of selected participants –Attachment I

Week Five

IV. Continue work in progress using critical and creative thinking strategies

V. Submit "Types of Creativity and Stages of Creativity for student to read and make use of in problem solving

VI. Interventions

Week Seven

a. Teacher created Tools

i. Administer Idea Evaluation Rubric Grid K

ii. Administer Document Analysis Form – Attachment J

b. Student critiques

Week Eight

a. Perform Time Sample Observation- Attachment I

Week Nine

a. End of quarter grading period

b. Begin cycle of Intervention with new quarterly assignment.

Week Ten - Week Thirteen

VII. Project II- Fashion

a. Administer-Thinking and Planning Skills/Strategies of Creative Problem Solving L

b. Administer Thinking About Your Thinking M

c. Administer Student Product Assessment Form-Assessment N

Week Fourteen-End of Intervention

VIII. Project III-Final Intervention-Storytelling-Printmaking

a. Perform Time Sample Observation

IX. Final Assessment: a. Venn Diagram Response Strategies and Characteristics O

b. Growth Checklist P

c. What Am I Learning Q

d. I am working on: My Evaluation R

Methods of Assessment

Assessment can be divided into two categories: those assessing a process and those assessing products. Assessment designed to evaluate process examines how a student approaches and pursues a task. To document student's creative skills the following methods of assessment will be used: observations, a survey, and a document analysis. Observations will involve maintaining time sampling behavioral checklists to examine student interaction. Observations will also include videotaping of the classroom interactions and using a checklist to analyze students' level of engagement in tasks. A student survey will be administered to students to document students' perceptions and understanding of creative problem solving. Finally, a document analysis of existing school records will be used to assess students' strengths and weakness in using problem-solving techniques.

Assessment designed to evaluate products looks at the results of the students' efforts. Product assessment generally examines complex products produced over a period.

To create an authentic or performance assessment task we begin with the question "What do I want students to do?" Once the researcher has developed a general idea of a task to be accomplished, she must develop specific guidelines for the assessment. Will students be required to construct a 3d product or design a 2d image? What materials will the student be permitted to use? What sources will they use? What time-period will be allotted for the production of the work?

After these questions are considered, the researcher will develop student directions for the task. Student directions will be clear with reference to, what resources are available and how the product will be assessed. Once the task is defined by the inclusion of specified criteria for the assignment, a rubric will be designed. The rubric will include an evaluation of the student plan, the practicality of the plan, how materials are used to create the product in the plan, and whether

the plan uses original or unusual strategies. The rubric will also include identifying variables to be assessed, determinates of the value scale, and setting descriptors for each value.

The rubric will be used as an effective vehicle for feedback. Understanding criteria by which their work is evaluated brings students one-step closer to effective self-evaluation. Developing the ability to assess one's work and learning the importance of an internal locus of evaluation are important factors in creativity (Runco, 1998).

CHAPTER 4

PROJECT RESULTS

Historical Description of the Intervention

The goals and outcomes for this action plan included encouraging the creative potential of students in a studio art class. In order to create a classroom environment that involved risk taking, tolerated paradoxes, explored possibilities, prioritized ideas and that promoted having the courage to value personal ideas. Student participants were required to experiment while learning the problem-solving skills inherent in the creative process. Stages of the creative act had to be recognized and clarified to begin the creative process and problem solving strategies. Perceptive stages focused upon identifying issues whereby students, listened, captured ideas, listed, decided upon limitations, clarified problems, and then proceeded. One objective of the creative problem solving process was to develop the characteristics of an art student developed by (Bartel, 2001) which included self-confidence, flexibility, fluency, skepticism, high energy levels, awareness and sensitivity.

Students in the targeted high school studio art class exhibited difficulties enhancing their creativity and using creative thinking skills when generating products for various assignments. Evidence for the existence of the problem included an assessment of products created by students, observations of students' conversations as well as their responses to suggestions and questions posed in class, and a review of students' self-report of their progress related to problem-solving.

As a result of instructional emphasis in problem solving and creativity thinking skills during the period from September to December 2002, the participants in the targeted studio art class were resolved to increase their abilities to think creatively and critically. Results were assessed by observations (Appendix I), surveys (Appendix E), and a document analysis (Appendix J) of students feasible implementation of planning for the assignments, use of diverse resources for problem solving, advanced knowledge of the subject matter, quality use of time, use of technical skills, achievement of objectives and originality of ideas.

The objective for this study was to target students so that they could develop tools to become better thinkers, decision- makers and responsible citizens. To do this, students brainstormed, took risks, trusted themselves, prioritized activities and practiced being self-starters within the instructional setting.

In order to accomplish the project objective, materials were developed and strategies used to improve students' creative thinking skills in the targeted classroom. Students were instructed to follow specific plans, and their progress was monitored with tools developed for this purpose. Self-assessment tools were created for both student and teacher use. Tools for students use were distributed during the processing and production of classroom assignments.

A slow return of consent forms and signatures was an indication of the future responses to interventions. Students continually lost papers and did not submit documents when requested. Students initially showed reluctance to be involved in the study if it required after school or extra workload. Fear of added commitment was a measure of attitude for future feedback by the targeted group.

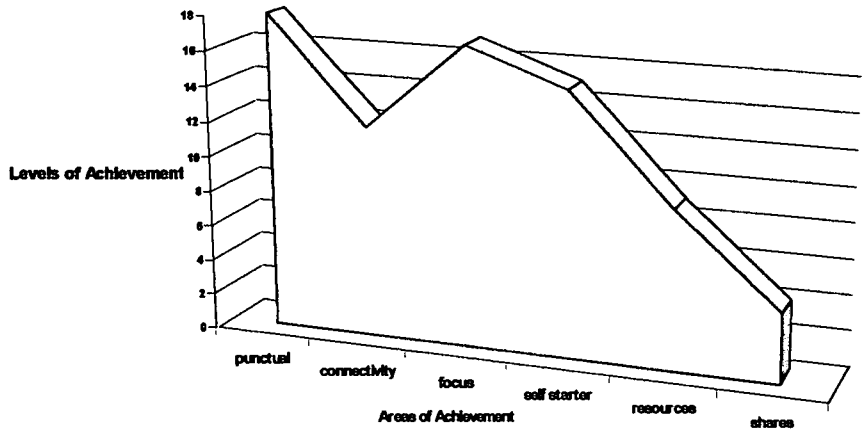
The introduction of metacognitive and processing questions took place after the presentation of information for the first project observed. Students were asked to complete processing questions for idea formulating designed for the initial assignment. Students were also

instructed to complete appropriate process questions, such as the focus of the chosen topic, the purpose and reasons for choosing the topic, and the design structure for approaching the theme. An evaluative portion was also included in the final processing of the questions.

Students were provided a list of brainstorming techniques they could reference when developing ideas for their assignments. Each participant was assigned a folder to organize all papers pertinent to the task. Students were also encouraged to refer to any or all processes presented in class.

Students were asked to complete an independent learning contract that indicated what they expected to learn and how they would investigate information pertaining this project. The contract would reinforce students' commitment to their involvement by sharing, being open to help and having a goal to complete. The contract was to be placed in their folder along with other records of their investigation and personal growth during intervention. By assigning students an individual folder to store assigned papers, the expectation was for the students to complete and place sheets in the folder in a timely manner. Students did not adhere to the plan. Students lost assigned sheets and claimed they never received them. Deadlines were not met by students for completing questionnaires and returning forms for the researcher to make a reasonable evaluation of the use of skills before and during the assignment. The researcher repeatedly requested of students to complete the requirements and place them in their respective folders. Folders remained empty or forms incomplete. Upon completion of the assignment, students were updated with the previously assigned missing forms along with one new form, a self-created rubric specifically for the assessment of their individual work.

Presentation and Analysis of Results



	punctual	connectivity	focus	self starter	resources	shares
Series1	18	12	17	15	9	4

Figure 4.1 Levels and areas of achievement for time sampling observation

During the first assignment, The Time Sampling Observation (Appendix I) of the targeted students showed student punctuality to class being the highest achievement. As illustrated in Figure 4.1. the lowest area of achievement was the sharing of ideas among students. Students were well focused, and high percentages were associated with self-starter characteristics. Students used few resources when preparing for their assignments. Students were asked to apply various types of creativity and to identify the stages of creativity. Students chose techniques from all six stages of the creative act as well as all the types of creativity listed including, boundary pushing, inventing, boundary breaking, and aesthetic organizing. Students cited that they were actively involved in the perceptive stage, incubation stage, insight, and elaboration expression and evaluation stages.

For the duration of the initial assignment, students appeared to be rigid, and were not open to unsolicited advice from the instructor for techniques and handling of materials. Some of the

students were very needy. A number of students did not experience the prerequisite classes that prepare students with the skills for studio art. Throughout this process, the researcher was occupied helping students who seemed to lack the technical skills needed to be successful. Given this, the researcher did not have time to complete the observations at the level desired.

Students continued to procrastinate before getting involved in the assigned task. Problems such as hunger, lack of motivation, being tired and being the last class of the day influenced the student behavior. Behavioral issues such as poor attendance, tardiness and cutting class contributed to the apparent lack of interest in the student involvement of the targeted study. Students were cognizant of instructions when presented with materials but did not respond constructively. Indications of poor response included, incomplete reflections, being distracted in class, poor decision making without written thought processing, weak and little depth in train of thought in the metacognitive process. Students preferred to make changes in their planning without written processing.

Results from the metacognitive questions focused upon students desire to improve the skills they were most interested in as well as effective planning for assignments. A lack of students' verbal response was apparent in the classroom during this process. Students failed to share ideas before they became involved in hands on imaging.

Students also repeated similar responses when they responded to the What Am I Learning Form indicated in Figure 4.2. Skill development and expansion of thinking skills held the highest importance by the students, while the need to improve expression came in second with the interest to improve use of time as the least important criteria. The Learning Contract reflected the need by students to learn thinking skills first, and then make better use of technical skills and time.

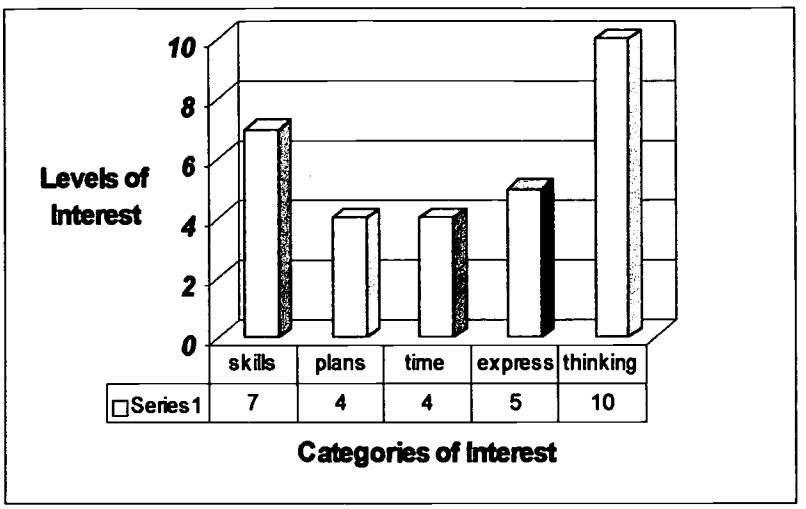


Figure 4.2 Levels and categories of interest in students responses for thinking skills, learning and expression

Students were required to complete a rubric grid for evaluation of the first assignment (Memorial). Students were not certain of the type of criteria that a rubric included. The researcher explained the focus of individual work be highlighted as well as the technical criteria students believed to be significant in the development of the assignment.

Students were finally evaluated upon the finished product which was a culmination the criteria for the problem solving skills. A document analysis (Figure 4.3) followed students' progress for timelines. A small percentage of the targeted group was either excellent or poor in response to the timelines. More students were fair in their attention to the timelines and a slightly smaller number of students did well adhering to the timelines.

None of the students did poorly in following a plan implemented for assignments. A larger number of students had a feasible implementation plan and half that number did not choose to use a plan on a consistent basis throughout the assignment. Use of resources for problem solving by the targeted group was fairly divided between good and fair. Only a small number of

students were excellent and poor when applying resources to topics. Half of the targeted students did well becoming familiar with the subject matter appropriate to individual focuses. Once again, half the students showed evidence for excellent and fair expertise for the topics chosen to problem solve. One student experienced poor association to the topic selected.

Attention to detail was successfully handled by more than half the targeted group. Half of that number employed good detail but only two of the targeted group were highly skilled or excellent in attention to detail. More than half of the targeted group used a variety of technical skills. Only two of the targeted students did a fair job employing technical skills and one quarter of the group were excellent in processing technical skills.

More than half of the students achieved the objective stated in their plan. Almost equal to one another were excellent and fair when following the original objective. The entire targeted group made an effort to stay with a plan implemented within the context of the assignment. Originality was crucial for almost the entire group. Five students were excellent in the creative phase of problem solving. Creativity for seven of the students was considered good while six of the group were only fair with the development of original ideas. One of the students appeared considered lacking in original thinking and creativity.

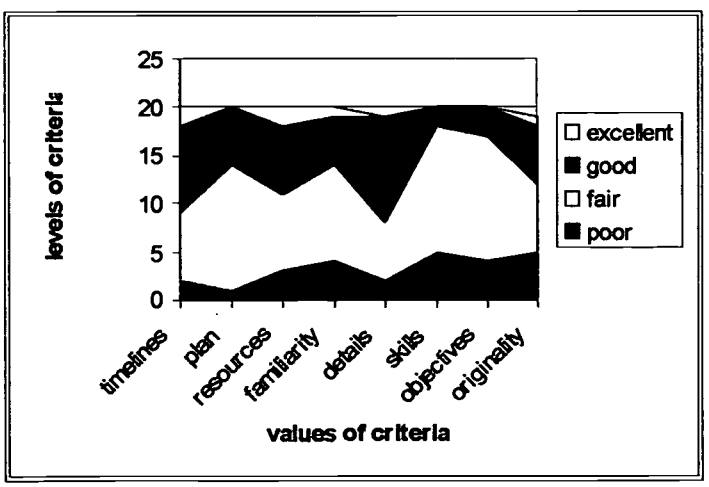


Figure 4.3 Levels and values of criteria for document analysis of memorial assignment

According to the action plan after the eighth week, the second major project was assigned to the targeted studio art class. The second assignment was not as difficult or as in-depth as the first, requiring less profound reflection, allowing for more enjoyment of the topic fashion design, a more appealing subject matter to the age group of female students.

Students were asked to identify a plan or theme, list the material they would need, list the steps in sequence and discuss in short form the problems they may encounter as they processed their plan. As well, students were given strategies to creative solving problem and ways to cultivate creativity. While students worked on the assignment they were asked to indicate on Thinking About Thinking Sheet (Appendix M), what if any strategies they employed in their plan, and if the strategies helped them or not. Students were to specify if any strategy helped to solve problems and if they would use these strategies again. Students were involved with formulating ideas for the new assignment, as they were interested and involved in seeking out images to illustrate.

Similar to the first undertaking, students did not care to articulate their ideas by writing, recording, and processing, other than in their individual thought processes. Any changes in students' plans or strategies were haphazard and did not follow a written formula or plan. In contrast, student responses to problem and solution strategies developed and progressed well. Students did request help from the instructor in order to assist with mechanical and technical, as well creative problem solving. Students were not concerned with "paperwork". Formal methods of problem solving were not observed. Students' submission of forms was still very sporadic. Students' adherence to deadlines and use of time in a consistent manner was not a priority. As long as the work was completed adequately by the end of the deadline students were satisfied with their production. Submission of the idea formulating documents were of little importance or concern to the targeted student group.

As one of the final assessment techniques for the intervention period, A Venn diagram, (Appendix O) evaluating the targeted students' Competence Level, Confidence Level and Commitment Level was administered on the final week of intervention. Characteristics of Group A indicated that 15 % of students' performance exhibited a combination of the confidence, competence and commitment successfully, which endorsed a response of celebration. Group B revealed that 20% of the students displayed competence and commitment but lacked confidence. A response of coaching and nurturing was implemented in order to facilitate a higher level of confidence. Forty five percent of the students targeted in Group C displayed competence and confidence in their daily operations but students lacked greatly commitment. The results for Group C is a strong indicator that motivational planning was still a major requirement for the students. Only 10% of the targeted Group D lacked competence but demonstrated confidence and commitment in their efforts. There was a 15% indication of commitment and lower concentration in confidence for a final Group E.

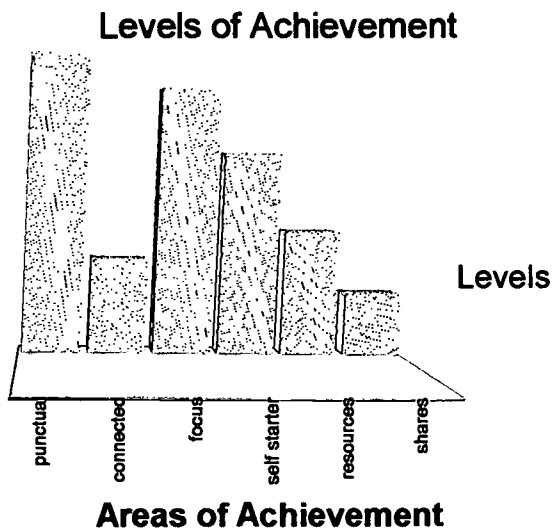


Figure 4.4 Levels and areas of achievement for time sampling observation

A final observation of class activity took place towards the end of the third major assignment in printmaking. As shown in Figure 4.4 students continued to be punctual to class as well as highly focused in their class performance. The majority of students were able to work independently due to the demands of the hands-on approach to printmaking. Many students were self-starting and highly motivated in the details and stages of this assignment. The assignment required students to use a story source to illustrate their print. Some students were satisfied with the choices given them or chose to find their own story to illustrate. Researching an idea for this assignment went smoothly and was successful. Students were inspired with visualizations. Students required technical assistance occasionally to assess the quality of the final carving for the printmaking process. The connectivity and sharing process was less than previous assignments. The inner focus and self-involvement by students was higher in level for the final assignment of the intervention.

As a final analysis of students' performance, a growth chart was administered for each of the targeted students. The chart aided the researcher in making conclusions regarding the intervention and its effects upon the student achievement. Categories of good, average or needs work were utilized to evaluate the progress of student growth, creativity, ability to fulfill requirements in assignments and taking care in tasks. The ability to co-operate with students and teacher was observed. Finally, skill implementation and work habits were studied and interpreted for progression of student insight.

Forty-four percent of the students achieved a good rating for their originality in creativity. Sixty-six percent of the students demonstrated an improvement from the past in their originating of ideas. Students showed average improvement from previous work and 55% of the group performed within the average range regarding their feeling and self-expression used in the final task. Noticeably more thought was implicated in the production of the last assignment. Students averaged a 66% change from their past performance. Problem solving was well achieved in the average column at 72% while 27% and 33% of the problem solving techniques were within the standing of good. Areas that need additional work were high in the consistency of performance as well as communication of ideas with peers and the instructor.

Aspects that continued to create difficulties for students when performing tasks were distractions in the classroom, such as boredom in content area and creative blocks beginning in developing ideas. Students did not have motivation to overcome negative stimuli. Students would not make constructive use of class time toaster their convictions. A final response by students to the questions clarified some of the intervention strategies. Students enumerated several items they planned to facilitate with their learning including resources administered during intervention. Students stipulated that being more focused and having more confidence in themselves and their ideas were vital in their future learning and cognition for the performance of tasks in studio art class.

As a consequence of poor feedback with written responses and negativity to paper work, the researcher limited the number of written requirements into the final weeks of intervention.

In Table 4.1, the column labeled average maintained the majority of the targeted students progress for fourteen of the sixteen categories listed. Key areas of development fell within the category of creativity.

Table 4.1 Categories and Percent of Students Assessed at Each Rating Level for The Growth Checklist on Creativity

Category	Description	Good	Average	Needs Work
Growth	Compare to previous work	.38	.61	.05
	Feeling and expression	.33	.55	.16
	More thought	.55	.33	.16
	More Skill	.22	.44	.22
Creativity	Originality	.44	.33	.22
	Change from past	.33	.66	.22
Fulfills Assignment	Problem Solving	.27	.72	.01
	Variations	.33	.72	.01
Care	Style	.33	.55	.22
	Consistency	.16	.55	.27
Helpful	Co-operation	.33	.50	.33
	Questioning	.27	.44	.33
Work Habits	Focus	.27	.50	.27
	Communication	.16	.66	.16
Composition And Design	Elements and Principles	.22	.66	.01
	Unity	.16	.50	.22

N = 18

Conclusions and Recommendations

Based upon the presentation and analysis of the data designed for enhancing creativity and thinking skills, students in the targeted class showed a minimal improvement in the development of problem solving skills.

Above and beyond the academic concerns, daily concerns with students' personal matters and behavioral issues required attention, so that the formalities of classroom business could occur. Students' fluctuation in mood, hunger, sleeplessness or time of day affected the working conditions and concentration. Attention to skill-centered concerns took time from the researcher in the matter of observations and analysis. Students were also placed in the studio art class without the prerequisite proficiencies, which affected their ability to be successful with course content. The researcher spent time instructing students in this case who lacked particular hands-on skills instead of focusing upon the intervention.

Students were encouraged to take risks by valuing their own ideas, prioritize ideas and show a willingness to experiment. Students enjoyed and struggled less with resolving problems for less sophisticated assignments. The initial assignment of the memorial required research and thought provoking imagery before students could commence the physical work. Sketching was applied as an idea formulating strategy. Nevertheless, students were generally anxious to begin the final plan and proceeded in haste. Latter assignments were less demanding in depth of thought and produced a more focused and engaged classroom environment.

Project critiquing obliged students to respond to reflective questions such as "after looking at... appraise your work in regards to what you like, what you dislike," Assess your work from what is good to poor," "What can you improve?", "Construct how you put this work together," "How does one process lead to another," "Does it work?", "Were solutions to

problems adequate?", "Describe how you feel about the work", "What are problems and solutions?""Recognize and state differences between (similarities)". Students responded to the inquiry in varying proportions. Some details were inadequate; others included enough information to express their general feelings. Students had a propensity for short undescript answers. Once again, students exhibited a dislike for verbal expression in the written form. Although the researcher had explained the effectiveness of critiquing as a learning process and experience for future art related expression, students' responses were not reflective of future transfer. Some students indicated that they were not planning to pursue art and would not make use of this technique. Few students used their written format in the verbal discussion, instead it was easier to use terms such as the work is really good, or cool.

As a final student self-report, post-intervention participants were asked to respond to what am I learning and I am working on, as a final account of self-evaluation. Questions in the self-report required students to state what they were doing well, what they were working on improving, what was causing difficulties, and what they planned to use to help with their learning. The majority of students indicated they were doing well with the improvement of skills. Thinking on various levels was the next developmental area of improvement students selected. Inducement for enhancing creativity became evident when students specified the areas they were focused upon improving, which included creativity, focus, patience, time factors as well as skills.

Implementation of the study may have achieved a better result if a formalized component of the course work and curriculum were included. Students had little experience with problem solving methodology and did not comprehend the fundamentals required to use these strategies successfully. Students demonstrated reticence when initially asked to participate in the study. The poor response to formal written strategies indicated several possibilities. For example,

students favored using problem-solving strategies mentally or as they progress in work, instead of formal written format. Lack of experience with written reflection and processing, especially in the realm of hands on art classes resulted in students spending little time pre-planning in a written format.

As indicated in Chapter 2 the difficulty of students lacking problem-solving skills is a school-wide phenomenon and needs to be addressed early in their education or as part of the curriculum strategies. The educational system for the targeted school does not adequately include the processing techniques into the curriculum so that students can understand the value of using problem–solving methods. As a result, when students were requested to take action informally they respond negatively. Students demonstrated their lack of concern by not returning forms,or answering questions with care.

The researcher may have been able to handle and understand students' feedback with more clarity if she had been acquainted earlier with the targeted group. Thus, the researcher might have made improved choices for the types of problem-solving strategies used.

Future implications for changing the classroom practice of the researcher may lie in cultivating students' planning and reflection as a core part of the studio art curriculum. More structure in the implementation for enhancing creativity and thinking skills would be highly suggested for attainable goals. Goals would include a deeper understanding for students in the reflective processing of their ideas and how this contributes to overall productivity and creative products. The nature of teaching would still require analysis of students' behavior and the classroom environment so that the researcher could make appropriate decisions regarding the applicable strategies to be employed by students and make allowances for pre-conceived ideas, habits, attitudes and personalities among students.

Overall students created unique and innovative products. A school-wide problem indicates a lack of processing by some students but not a lack of talent and openness to new processes, creative or giftedness.

The researcher realized the presentation of material and the method of presentation to the targeted group was vital in the implementation of the study. Stricter adherence and enforcement of student involvement with the problem-solving practice was required in order for a deeper enrichment to take place. Any impasse laid in the implementation of the study not the content. The content of the study was legitimate and when employed repeatedly and consistently early in the education system, I believe the students will benefit and enjoy using strategies for problem solving.

Professionally, the researcher intends on rereading the results of student feedback from strategies used in intervention. The researcher will study the areas of success and those that provided insight into problematic activity. Application of strategies that students responded to positively will be implemented. Design of strategies will be administered in keeping with inclusion of the core curriculum and classroom environment.

In conclusion, the results of student interaction, although frustrating in nuance were enlightening and eye opening. The discoveries of the intervention cements that the essential qualities of thinking and processing to improve student thinking is necessary so that the abilities can reach more depth for their future.

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Appendices

Appendix A

Consent to Participate in a Research Study
ENHANCING CREATIVITY AND THINKING SKILLS IN STUDIO ART AT THE SECONDARY SCHOOL LEVEL

Dear Parent or Guardian,

I am currently enrolled in a master's degree program at Saint Xavier University. This program requires me to design and implement a project on an issue that directly affects my instruction. I have chosen to examine Enhancing Creativity and Thinking Skills in Studio Art at the Secondary Level.

The purpose of this project is to increase the students' abilities to think creatively and critically. It will help your student create products using creative problem solving skills. I will be conducting my project from September 3 to December 20, 2002. The activities related to the project will take place during regular instructional delivery. The gathering of information for my project during these activities offers no risks of any kind to your child.

Your permission allows me to include your student in the reporting of information for my project. All information gathered will be kept completely confidential, and information included in the project report will be grouped so that no individual can be identified. The report will be used to share what I have learned as a result of this project with other professionals in the field of education.

Participation in this study is completely voluntary. You may choose to withdraw from the study at any time. If you choose not to participate, information gathered about your student will not be included in the report.

If you have any questions or would like further information about my project, please contact me at Mother McAuley High School, at 773-881-6500 ext.6303.

If you agree to have your student participate in the project, please sign the attached statement and return it to me. I will be happy to provide you with a copy of the statement if you wish.

Sincerely,

Mrs. Ruth Harper

PLEASE RETURN THE ATTACHED STATEMENT TO ME BY September 6, 2002.

Consent to Participate in a Research Study
ENHANCING CREATIVITY AND THINKING SKILLS IN STUDIO ART AT THE SECONDARY SCHOOL LEVEL

I, _____, the parent/legal guardian of the minor named below, acknowledge that the researcher has explained to me the purpose of this research, identified any risks 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 all information gathered during this project will be completely confidential. I also understand that I may keep a copy of this consent form for my own information.

NAME OF MINOR:_____

_____

Signature of Parent/Legal Guardian Date

Appendix B

Consent to Participate in a Research Study
ENHANCING CREATIVITY AND THINKING SKILLS IN STUDIO ART AT THE SECONDARY SCHOOL LEVEL

Dear Student,

I am currently enrolled in a master's degree program at Saint Xavier University. This program requires me to design and implement a project on an issue that directly affects my instruction. I have chosen to examine Enhancing Creativity and Thinking Skills in Studio Art at the Secondary Level.

The purpose of this project is to increase the students' abilities to think creatively and critically. It will help you create products using creative problem solving skills.

I will be conducting my project from September 3 to December 20, 2002. The activities related to the project will take place during regular instructional delivery. The gathering of information for my project during these activities offers no risks of any kind to you.

Your permission allows me to include your student in the reporting of information for my project. All information gathered will be kept completely confidential, and information included in the project report will be grouped so that no individual can be identified. The report will be used to share what I have learned as a result of this project with other professionals in the field of education.

Participation in this study is completely voluntary. You may choose to withdraw from the study at any time. If you choose not to participate, information gathered about you will not be included in the report.

If you have any questions or would like further information about my project, please contact me at in my class.

If you agree to have your student participate in the project, please sign the attached statement and return it to me. I will be happy to provide you with a copy of the statement if you wish.

Sincerely,

Mrs. Ruth Harper

PLEASE RETURN THE ATTACHED STATEMENT TO ME BY Septmeber 6, 2002.

SAINT·XAVIER·UNIVERSITY

Institutional Review Board

Consent to Participate in a Research Study
ENHANCING CREATIVITY AND THINKING SKILLS IN STUDIO ART AT THE SECONDARY SCHOOL LEVEL

I, _____, acknowledge that the researcher has explained to me the purpose of this research, identified any risks involved, and offered to answer any questions I may have about the nature of my participation. I freely and voluntarily consent to my participation in this project. I understand all information gathered during this project will be completely confidential. I also understand that I may keep a copy of this consent form for my own information.

NAME OF PARTICIPANT:_____

_____ _____

Signature of Participant Date

3700 West 103rd Street ◦ Chicago, Illinois ◦ (773) 298-3000 ◦ FAX (773) 779-9061

Appendix C

Consent to participate in the Videotaping Portion of the Research Study ENHANCING CREATIVITY AND THINKING SKILLS IN STUDIO ART AT THE SECONDARY SCHOOL LEVEL

Dear Parent or Guardian,

As part of the degree program at Saint Xavier University, teacher observations will occur throughout the study and focus on students' classroom interactions related to their responses demonstrating creative thinking skills and problem solving when creating products

I will be conducting videotaping observation before, during and after the study. This activity related to the project will take place during regular instructional delivery. The gathering of information for my project during this activity offers no risks of any kind to your child.

Your permission allows me to include your student in the reporting of information for my project. All information gathered will be kept completely confidential, and information included in the project report will be grouped so that no individual can be identified. The report will be used to share what I have learned as a result of this project with other professionals in the field of education.

Participation in this portion of the study is voluntary. You may choose to withdraw from the video –taping portion of the study at any time. If you choose not to participate, information gathered about your student will not be included in the report.

If you agree to have your student participate in the project, please sign the attached statement and return it to me. I will be happy to provide you with a copy of the statement if you wish.

Sincerely,

Mrs. Ruth Harper

PLEASE RETURN THE ATTACHED STATEMENT TO ME BY Sept. 6, 2002.

SAINT·XAVIER·UNIVERSITY

Institutional Review Board

Consent to Participate in Videotaping Portion of the Research Study
ENHANCING CREATIVITY AND THINKING SKILLS IN STUDIO ART AT THE SECONDARY SCHOOL LEVEL

I, _____, the parent/legal guardian of the minor named below, acknowledge that the researcher has explained to me the purpose of this research, identified any risks 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 the videotaping portion of this study. I understand all information gathered during this project will be completely confidential. I also understand that I may keep a copy of this consent form for my own information.

NAME OF MINOR:_____

_____

Signature of Parent/Legal Guardian Date

3700 West 103rd Street ∘ Chicago, Illinois ∘ (773) 298-3000 ∘ FAX (773) 779-9061

Appendix D

Specimen Records Form

Date _____

Class _____

Participant	1	2	3	4	5	6	7	8
1. Students begin work in a timely manner								
2. Classroom environment is amenable to the Studio Art activity								
3. Students are actively engaged in tasks								
4. Students use supplies responsibly								
5. Students work independently								
6. Students consult one another for exchange of ideas								
7. Students are organized in implementation of tasks								
8. Students complete assignment in class period								

Appendix E

Date_____

Student Survey

Circle one response for each of the following ten items

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. Students have no difficulty initiating original ideas for assignments.	1	2	3	4
2. Students depend upon outside stimuli to generate ideas.	1	2	3	4
3. Students like to share with one another to develop ideas.	1	2	3	4
4. The classroom environment helps the student in their creative thinking.	1	2	3	4
5. Deadlines stimulate art production.	1	2	3	4
6. Students use their sketchbook to develop ideas.	1	2	3	4
7. The classroom environment aids in idea generation.	1	2	3	4
8. Students work better at home than in the classroom.	1	2	3	4
9. Students need instruction to help generate creativity and thinking skills.	1	2	3	4
10. Students need to use their time class time more constructively.	1	2	3	4

Appendix F

Independent Learning Contract

I will learn _____

The questions I will ask are _____

I will investigate by _____

I will share what I learn by _____

If I need help I will _____

I will complete my investigation by _____

_____
Student Signature

_____
Teacher Signature

Independent Learning Contract

Appendix G

What am I Learning?

This sheet will help you think about what you are learning now and what you will learn during the school year. Think abut the things you are learning in the studio art now and the answer the following questions.

What things are you doing well?

What things are you working on improving?

What things are causing difficulties for you?

What do you plan to help with your learning?

What things are you not using in studio art now that would be interesting to include in your work?

Self evaluation

Appendix H

METACOGNITIVE QUESTIONS

QUESTIONS	PROCESS
1. What am I doing?	1. Create a focus (access short-term memory)
2. Why am I doing it?	2. Establish a purpose
3. Why is it important?	3. Create reason(s) for doing it
4. How/Where does it fit in with what I already know?	4. Recognize appropriate context or interrelationships or analogous situations
5. What questions do I have?	5. Discover what is still unknown
6. Do I need a specific plan to understand or learn about this?	6. Design a possible structure or method of approaching the topic
7. How may I use this information in other areas of my life?	7. Consider application to other situations (further connect into long-term memory)
8. How effective have I been in this process?	8. Evaluate progress
9. Do I need to do more?	9. Monitor need for further action

Appendix I

A Time Sampling Observation Form

Date_____
Class_____

Participant #	1	2	3	4	5	6	7	8
1.Comes to class on time								
2. Is connected to classroom activity								
3. Works on task for a period of time								
4. Demonstrated self starter characteristics								
5. Uses stimuli to generate ideas								
6. Generates and shares ideas with other students								

Appendix J

Document Analysis Form

Date_____
Class_____

Participant #_____
Product (Title or Brief Description) _____
Time Period worked on Assignment_____

Criteria	Excellent	Good	Fair	Poor
1. Followed timelines for assignment				
2. Followed a feasible implementation plan for assignment				
3. Used a diversity of resources for problem solving				
4. Advanced familiarity with topic/subject matter				
5.Used time well with attention to detail				
6. Used a variety of technical skills				
7. Achieved objectives stated in plan				
8. Originality of ideas				

Appendix K

Idea Evaluation Grid

Evaluation Criteria	Creative Ideas				
1.					
2.					
3.					
4.					
5.					
Total Points					

Rating Scale:

5 points	Excellent idea.
4 points	Good idea.
3 points	Average idea.
2 points	Below average idea.
1 point	Poor idea.

Appendix L

Thinking Skills

These thinking skills are:
I. CAUSE AND EFFECT
II. CLASSIFICATION AND RELATIONSHIP~
III. SEQUENCING AND PLANNING
IV. MAKING DECISIONS
V. ENRICHING VOCABULARY
VI. GENERATING QUESTIONS

I-Generate effects
logically_____
_____
_____

II- Categorizing

_____
_____
_____

III- Orderly way of thinking

_____
_____
_____

Planning should include:

identifying what it is you will plan
listing the materials needed
listing the steps or sequencing
thinking of the problems that can happen, so you
can avoid them by adding to the materials or the steps

Appendix M

Thinking About Your Thinking

Think about how you solved a problem today. Which did you do?

_____ **I didn't try any of the strategies for the list**

_____ **I tried one strategy**
____ The strategy helped me solve the problem successfully
____ The strategy did not help me

_____ **I tried more than one strategy**
____ The strategies helped me solve the problem successfully
____ The strategies did not help me

_____ **I tired a strategy that was not suggested. It was_____**
____ My strategy helped me solve the problem
____ My strategy did not help me

I used these Strategies

_____
_____
_____

Next timer you have a problem what will you do?

_____
___ _____
___ _____
___

Self evaluation

Appendix N

Student Product Assesment Form

Name_____ Date_____

Class_____

Product (Brief Description of Assignment)

Number of weeks Students worked on Product_____

FACTORS	RATING	NOT APPLICABLE
Early Statement of Purpose.....	_____	_____
Problem Solving	_____	_____
Level of Resources.....	_____	_____
Diversity of Resources	_____	_____
Appropriateness of Resources.....	_____	_____
Logic: Sequence and Transition.....	_____	_____
Action.....	_____	_____
Overall Assessment		
Originality of Idea.....		_____
Achieved Objectives Stated in Plan..	_____	_____
Advanced familiarity with subject...	_____	_____
Above average quality.....	_____	_____
Care, attention to detail.....	_____	_____
Time, effort, energy.....	_____	_____
Original contribution.....	_____	_____

Comments:

Rating Scale Factors 1-7

5 -To a great extent
3 - Somewhat
1 - To a limited extent

Factors 8A - 8G

5 – Outstanding
4 - Above Average
3 - Average
2 - Below Average
1 - Poor

Appendix O

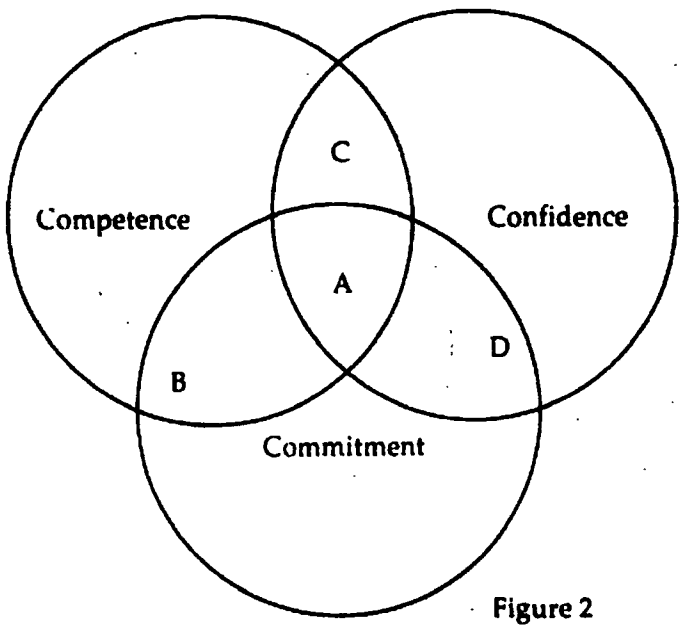

Figure 2

A = Student demonstrates comptence, confidence, and commitment.

B = Student demonstrates comptence and commitment, but lacks cofidence

C = Student demonstrates comptence and confidence, but lacks commitment.

D = Student demonstrates confidence and commitment but lacks competence.

Characteristics	Response Strategies
A Competence, Confidence, and Commitment	CELEBRATION!
B Competence and Commitment **but lacking Confidence**	Coaching and Nurturing
C Competence and Confidence **but lacking Commitment**	Motivational and Planning
D Confidence and Commitment **but lacking Competence**	Knowledge and Skill Building

Appendix P

Category	Your name _____ Artist's name _____ Description	✓Check & comment here		
		Good	Average	Needs work
Growth	How does this work compare to previous work by same person?			
	Does it show more feeling and expressiveness?			
	Does it show more thought?			
	Does it show more skill?			
Creativity	How original, innovative, and daring is the work?			
	Does it extend or change from past work done by same student?			
Fulfills Assignment	How well does the work solve the problems outlined in this assignment?			
	Are the variations from the assignment made for a valid reason?			
Care	Is the making of the work appropriate for the style of art being made?			
	Didn't rush to get it done, but paid attention to consistency in the work.			
Helpful	Was the student cooperative & generous in discussions & in helping others without doing it for them?			
	Were good questions asked?			
Work Habits	Did the student stay on the job?			
	Were conversations with classmates about the artwork, not other topics?			
Composition And Design	How are principles of design and composition used to make the visual elements work well?			
	Is it free from mistakes that distract from the unity and effectiveness of the whole?			

Appendix Q

What am I Learning?

This sheet will help you think about what you are learning now and what you will learn during the school year. Think abut the things you are learning in the studio art now and the answer the following questions.

What things are you doing well?

What things are you working on improving?

What things are causing difficulties for you?

What do you plan to help with your learning?

What things are you not using in studio art now that would be interesting to include in your work?

Self evaluation

I am working on:	My Evaluation		
	Not Yet	**Improving**	**Well Done**

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