Effects of choice restriction on the intrinsic motivation to produce creative products

Karen M. Suloff
Rowan University

Follow this and additional works at: https://rdw.rowan.edu/etd

Part of the Pre-Elementary, Early Childhood, Kindergarten Teacher Education Commons

Let us know how access to this document benefits you - share your thoughts on our feedback form.

Recommended Citation

This Thesis is brought to you for free and open access by Rowan Digital Works. It has been accepted for inclusion in Theses and Dissertations by an authorized administrator of Rowan Digital Works. For more information, please contact LibraryTheses@rowan.edu.
Effects of choice restriction on the
intrinsic motivation to produce
creative products

By
Karen M. Suloff

A Thesis
Submitted in partial fulfillment of the requirements of the
Master of Science in Teaching in the Graduate
Division of Rowan University
July 3, 1997

Approved by

Date
July 3, 1997
ABSTRACT


The purpose of this study was to assess whether choice restriction decreased intrinsic motivation for a task resulting in a less creative product. The study focused on two kindergarten classes in a half-day school setting. The students were to make collages. The students were either given choice or no choice of materials when making their collage. The morning class was given choice of materials. They were allowed to freely choose what they wanted from the boxes of materials. The afternoon class was given no choice of materials. They were given materials chosen by the experimenter. Two weeks later the experiment was conducted again. The morning class had no choice in materials. The afternoon class had choice in materials. The collages were independently rated for creativity by six artists. The scores were analyzed using an Analysis of Variance (AOV) statistical procedure. The collages made by the children in the choice condition were judged significantly higher in creativity than the collages made by the children in the no choice condition. There was no significance in time of day. The results support the hypothesis and suggest that children develop an intrinsic motivation for a task when they are given choice in materials and they will produce a more creative product than children whose choice is constricted.

The purpose of this study was to assess whether choice restriction decreased intrinsic motivation for a task resulting in a less creative product. Kindergarten students either had choice or no choice in materials when creating collages. The collages were judged for creativity by six artists. The collages made in the choice condition had significantly higher levels of creativity than the collages made in the no choice condition. These results support the hypothesis and suggest that choice restriction can inhibit intrinsic motivation which may undermine creativity, whereas no choice restrictions can increase intrinsic motivation to produce more creative products.
Acknowledgements

The writer is indebted to the following people who played an invaluable role in the completion of this thesis:

Dr. Randall Robinson, Graduate Advisor, Rowan University, whose expert guidance and advice contributed significantly to the completion of this thesis.

Mrs. Benay Birch, Cooperating Teacher, who cheerfully and willingly assisted with the procedure portion of the study.

Dr. Kapal, Dean of Education, Rowan University and Dr. Loigman, Psychology Professor, Rowan University, whose expert help was invaluable to the completion of this project.

The six judges of creativity who gave of their free time and expertise in evaluating the collages which was critical to the outcome of the study.

Jonathan Steliga, my fiance, whose patience, love and support was greatly appreciated during the difficult times of writing this thesis.

My family and friends, whose love and support gave me the strength to complete this project.
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>ii</td>
</tr>
<tr>
<td>LIST OF TABLES AND FIGURES</td>
<td>v</td>
</tr>
<tr>
<td><strong>CHAPTER</strong></td>
<td></td>
</tr>
<tr>
<td>I. SCOPE OF THE STUDY</td>
<td>1</td>
</tr>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Significance of the Study</td>
<td>2</td>
</tr>
<tr>
<td>Statement of the Problem</td>
<td>4</td>
</tr>
<tr>
<td>Statement of Hypothesis</td>
<td>4</td>
</tr>
<tr>
<td>Limitations of the Study</td>
<td>4</td>
</tr>
<tr>
<td>Definition of Terms</td>
<td>5</td>
</tr>
<tr>
<td>II. REVIEW OF RELATED LITERATURE</td>
<td>7</td>
</tr>
<tr>
<td>Introduction</td>
<td>7</td>
</tr>
<tr>
<td>Nature of Creativity</td>
<td>7</td>
</tr>
<tr>
<td>Assessing Creativity</td>
<td>9</td>
</tr>
<tr>
<td>Creative Process and Content</td>
<td>9</td>
</tr>
<tr>
<td>Intrinsic Motivation</td>
<td>11</td>
</tr>
<tr>
<td>Extrinsic Motivation</td>
<td>12</td>
</tr>
<tr>
<td>Convergent and Divergent Thinking</td>
<td>14</td>
</tr>
<tr>
<td>Educational Environment's Influence on Creativity</td>
<td>16</td>
</tr>
<tr>
<td>Characteristics of Kindergarten Students</td>
<td>18</td>
</tr>
<tr>
<td>III. PROCEDURE AND DESIGN OF THE STUDY</td>
<td>23</td>
</tr>
<tr>
<td>Introduction</td>
<td>23</td>
</tr>
<tr>
<td>Subjects</td>
<td>23</td>
</tr>
<tr>
<td>Procedure</td>
<td>23</td>
</tr>
<tr>
<td>Design</td>
<td>23</td>
</tr>
<tr>
<td>IV. ANALYSIS OF FINDINGS</td>
<td>29</td>
</tr>
<tr>
<td>Introduction</td>
<td>29</td>
</tr>
<tr>
<td>Tabulation of Means and Standard Deviations</td>
<td>29</td>
</tr>
<tr>
<td>Analysis of Variance</td>
<td>31</td>
</tr>
</tbody>
</table>
LIST OF TABLES AND FIGURES

Table | Page
--- | ---
1. Means and Standard Deviations of Choice and No Choice A.M. and P.M. | 33
2. Morning and Afternoon Choice and No Choice | 35
3. Morning Class Choice and No Choice | 36
4. Afternoon Class Choice and No Choice | 37
5. Teacher Ratings | 38

Figure

1. Mean Results of Choice and No Choice A.M. and P.M. | 31
2. Standard Deviation Results of Choice/No Choice A.M./P.M. | 32
3. Results of Choice vs. No Choice | 33
4. Results of A.M. Class | 34
5. Results of P.M. Class | 35
6. Results of Teacher Rating | 36
Chapter 1

Scope of the Study

Introduction

This study questioned the affect of choice restriction on students and whether this restriction would undermine their intrinsic motivation and adversely affect their creativity. This effect was seen in a similar study presented by Theresa Amabile in 1984. The hypothesis stated that if intrinsic motivation is undermined by choice restriction the students would produce a less creative product than if their choice was not restricted.

Creativity involves flexibility of dynamic thought and is a special type of problem solving. It involves solving problems for which typical or popular responses do not work or problems that have no easy answers. Therefore, flexibility of thought may define children who come up with creative or original ideas (Tegano, 1991).

It is important to think of creativity as a developmental process which is subject to the unique traits emerging in each child. For young children creativity may be looked upon as creative potential. Teachers can recognize the potential in each child for the expression of later creativity just as they can recognize the potential for children to learn to read (Tegano, 1991).

All children are not equally intelligent or creative. But just as all children show behaviors that indicate intelligence from birth, they also exhibit behaviors that indicate the potential for creativity. However, the environment can be constructed in different ways to encourage or discourage the expression of creativity. In order to foster creativity, the framework of the curricula should be based upon free expression in all
areas of study. If teachers increase their understanding of how this creativity can be nurtured, they will be better able to utilize it in the classroom (Tegano, 1991).

To understand creativity the concept of creativity must be differentiated from intelligence and talent (Tegano, 1991). People frequently use the word "creative" as a synonym for gifted. What they mean is the child has a unique talent or is very intelligent. However, studies have shown that creativity can exist independently from intelligence (Amabile, 1989). Creativity researchers have argued that intelligence and creativity exist independently of each other; a highly intelligent child may or may not be creative (Tegano, 1991).

The creative process is affected by other influences. These influences are called motivations. There are two types of motivation. Intrinsic motivation is an internal motivation. These individuals undertake a task for its own sake. They have an interest in the task that is not influenced by the outside world. Completion of the task is their goal (Hennessey, 1987). Extrinsic motivation is an outside motivation such as a reward or an evaluation. Extrinsicly motivated individuals will undertake a task because they view it as a means to some external goal. It is this approach, this orientation to environmental constraints outside the task itself, that undermines creativity (Hennessey, 1987).

Only if you have intrinsic interest in the activity itself, and only if your social environment allows you to retain that intrinsic focus, will you be able to discover a truly creative solution (Hennessey, p.16).

**Significance of the Study**

Environmental studies of social and environmental influences on creativity have had very limited consideration in psychological journals over the years. Between
1975 and 1980, there were approximately six articles in the Journal of Personality and Social Psychology and the Journal of Experimental Social Psychology that examined the effects of social and environmental influences on creativity. Research in creativity has focused primarily on personality as a creative factor. Studies on the description and identification of creative personality and cognitive style have predominated. Researchers have mainly focused on how the individual's personality and their intelligence influences their creativity, not how society influences the individual. Development of a social psychology of creativity, which refers to how society influences creativity, could have a significant impact upon the study of personality, social psychology and creativity (Amabile, 1982).

Within creativity research, the creative personality has been the primary focus. A determination of the types of social variables that could influence creative performance either positively or negatively would aide in the understanding of the development of the creative personality. Social psychology researchers have recently explored the effects of social factors on various aspects of cognitive and motor performance. Creativity is an aspect that has been virtually ignored in these studies. Therefore creativity should be integrated into social psychological theories of motivation and cognition. Although cognitive and personality determinants of creativity do deserve research attention, theories of the creative process will be incomplete without an accounting of social influences as well (Amabile, 1982).

This study attempted to discover how choice restriction inhibits intrinsic motivation and therefore decreases creativity in children. Although this area of study had been approached in the past, this body of research attempted to strengthen evidence by testing this hypothesis with the expectation that it will yield significant
information about creativity, its importance to society and how environmental input may cultivate or thwart it.

Statement of the Problem

Does the extrinsic constraint of choice restriction imposed on students undermine the students' intrinsic motivation for the activity, therefore adversely affecting their creativity?

Statement of Hypothesis

It was hypothesized that kindergarten students whose choices were restricted would be less intrinsically motivated and would produce less creative products than kindergarten students whose choices were not restricted.

Limitations

This study was limited by factors that will be accounted for here. First, the nature of creativity is subjective. The definition of creativity is not clearly established to cover all aspects of creativity. The inclusion of process and product in a clear manner in a definition of creativity has not been found by this researcher. For the sake of this study, this researcher relied on the definition of creativity created by Amabile for her study of which this present study was profiled.

Second, only one school was used in this study. Although the school schedule of half-day kindergarten classes did provide two classes from which to compare and contrast the choice and no-choice restrictions within the art activity, it is only one school from which the findings were based.

Third, the rating scale questionnaire was completed by only one teacher. Other studies which have utilized this rating scale have used more than one teacher's opinion in rating where each child stands in regards to creativity. This use of more
than one teacher was not possible in this setting. This limited the study by not having
the additional information to compare and contrast teachers’ opinions about each
child’s creative personality.

Fourth, using the same children for the second half of the study may have
inhibited the results. The children in the initial choice condition may have
remembered how they created their first collage and apply those memories when they
are in the no-choice condition environment. The same result may have occurred with
the children who began the study in the no choice condition. They may have
remembered the collage they made in the choice condition.

Definition of Terms

The following operational definitions are utilized in chapter two:

Consensual Definition of Creativity: A product or response is creative to
the extent that appropriate observers independently agree it is creative. Appropriate
observers are those familiar with the domain in which the product was created or the
response articulated. Thus, creativity can be regarded as the quality of products or
responses judged to be creative by appropriate observers, and it can also be regarded
as the process by which something so judged is produced (Amabile, 1001).

Extrinsic Constraints: Extrinsic constraints are any social factors that
control, or could be perceived as controlling, task engagement: they are extrinsic to the
properties of the task itself (Amabile, p.209).

Extrinsic Motivation: People are said to be extrinsically motivated to engage
in a task if they view their task engagement as motivated primarily by external goal
such as the promise of a reward or the expectation of evaluation (Amabile, p.2).

Intrinsic Motivation: Intrinsically motivated behaviors are energized and
directed by a basic innate need to interact effectively with the environment and to have
an impact on the environment. Stated more simply, people need to feel competent
and self-determining; they need to feel a sense of personal causation (Zuckerman,
p.443). People are said to be intrinsically motivated to engage in a task if they view
their task engagement as motivated primarily by their own interest and involvement in
the task (Amabile, p.2).
Intrinsic Motivation Hypothesis of Creativity: People who have greater freedom to choose what they will do and how they will do it should have more intrinsic motivation for the activity than people who do the exact same activity without having had a choice (Zuckerman, p. 443). An intrinsically motivated state is conducive to creativity, whereas an extrinsically motivated state is detrimental (Amabile, p.2).

Open-ended activity: is an activity which can have more than one answer or response (Hennessey, 1987).
Chapter 2

Review of Related Literature

Introduction

The literature compiled here attempts to explain the components of creativity as well as the focus of this study. It was hypothesized that children whose choice is restricted will have inhibited intrinsic motivation and will produce less creative products than children whose choice is not restricted. The literature supports the idea that creativity can be inhibited by environmental influences which undermine a child's inner or intrinsic motivation to use their own creative ideas. Therefore, they are less likely to be creative in the classroom for fear of being "wrong." It is this inhibiting factor that this research and the supporting literature will explain.

Nature of Creativity

Creativity begins in infancy as babies manipulate toys, explore space, discover their body parts, test hunches about their immediate world and even solve problems. (Schirrmacher, p.52)

Creativity is usually thought of in terms of the person's personality. The word creative is sometimes confused with the word gifted. Many people think there is something innate inside a few gifted people that causes them to be creative. They think that if a child has an unusual talent or is highly intelligent they are creative. But creativity is not the same as talent or intelligence. A person can be gifted in the area of music, for example. They can play a musical instrument perfectly at a very young age. But that doesn't necessarily mean they are creative with their instrument. A child may score unusually high on an IQ test. This, of course, means the child is intelligent, but it does not indicate a high level of creativity (Amabile, 1989). The work of Tegano
has shown that "young children of above-average intelligence, at least as measured by standard IQ tests, perform no better on age-appropriate measures of creative potential than do children of average or below-average intelligence" (Tegano, p.9).

Eccentricity is a trait that is often confused with creativity. An eccentric person is one who acts strangely, has a mental imbalance or refuses to conform to the norms of society. People assume that eccentric people are highly creative. But researchers have seen no more than a slight relationship between some kinds of creativity and a mental imbalance. Many psychologists believe instead that people can and do display their best creativity more so when they are free of anxieties or mental imbalances. It is true that extremely creative people do tend to rebel against the norms of society, but they also tend to be strong both mentally and emotionally. A person who tries to be different for its own sake is not sufficient to be considered creative (Amabile, 1989).

To define creativity in children, two criteria must be met. First, the product must be considerably different from anything the child has done in the past. Second, the product cannot simply be different, it has to be correct, useful towards achieving some goal, appealing or meaningful to the child in some capacity (Amabile, 1989).

Many psychologists define these criteria as needing novelty and appropriateness. Novelty means the product can not be an imitation of something the child has seen in the past. It has to be new in a significant manner. Appropriateness is more difficult to define. Since art should be looked upon as subjective, it can be said that the child's novel product should have an appeal or be pleasing and meaningful--at least to the child, as far as we can see. If it meets this requirement then we can say it is appropriate (Amabile, 1989).
Assessing Creativity

The creativity assessment technique that will be used for this study utilizes a "consensual definition." It is an operational definition that can be used as the foundation of even the most subjective creativity assessment methods. It states:

A product or response is creative to the extent appropriate observers are those familiar with the domain in which the product was created or the response articulated. Thus, creativity can be regarded as the quality of products or responses judged to be creative by appropriate observers, and it can also be regarded as the process by which something so judged is produced.

(Amabile, p. 1001)

This definition is based on the product rather than the process of creativity or the individual. Any definition must rely in the end on the product. Therefore, a "product-centered operational definition is clearly the most useful for empirical research in creativity" (Amabile, p. 1002).

The definition relies on two assumptions. First, it is possible to acquire reliable judgments of the creativity level of certain products. What this means is, although creativity may be difficult to explain, it is "something that people can recognize when they see it." Also, people can agree with one another about what they see. Second, is an assumption that there are degrees of creativity—people can say with an acceptable agreement level in place "that some products are more creative or less creative than others" (Amabile, p.1002).

Creative Process and Content

Creativity researchers have found that there are five main stages of the creative process. The first stage is called problem presentation. This is where the task is
given. The second stage is the preparation. This is where the tools or resources to do the task are gathered. The third stage is the generation of ideas or possibilities. This is the stage that most people think of as the creativity stage. This stage sometimes includes an incubation process. Sometimes a person who is doing the task must leave it for a while to ponder the idea and then come back to it at a later time. The fourth stage is validation. This is the checking or testing of the different ideas developed in the previous stage. The fifth stage is the outcome assessment. Here a decision is made to stop because either the person has completed the task successfully, the person must try again because the completion was unsuccessful or the idea must be abandoned because there is no possibility for success (Amabile, 1989).

These stages describe the process of creativity. The contents of creativity should also be noted. There are three components of creativity. The first component of creativity is domain skills. Domain skills are the materials of talent, education and experience in a particular area or areas. They can be classified as somewhat inborn. But education and experience can have a major influence on the development of creativity in a particular area or areas. Even high levels of creativity and talent need guidance and development (Amabile, 1989).

The second component is creative thinking and working skills. These are the special working styles, thinking styles and personality characteristics that help people utilize their domain skills in new ways. The third component is intrinsic motivation. Intrinsic motivation is the "desire to do something for its own sake, because it is interesting, satisfying or personally challenging." Intrinsic motivation may also be inborn to some degree. Amabile states that intrinsic motivation may be the
missing link because it has been so neglected in past studies on creativity. But, it is also "the one component that can be most effectively used to foster creativity (Amabile, 1989).

**Intrinsic Motivation**

The major parts of intrinsic motivation are interest, competence and self-determination. A child must be interested in the task, he must feel confident that he can succeed and he also needs to feel that he is doing the task for his own reasons; that it is his choice to perform the task (Amabile, 1989).

Creativity seems to be guided by an internal mechanism within a person rather than external forces. There is little research to support this with young children, but researchers have found a link between internal control or motivation in four-year-olds and how expressive they are with ideas. This is understandable considering the natural link between children's freedom in playing and their creativity level. Both share the criterion of intrinsic motivation; in other words it seems ridiculous to think that we could force children to play just as it would be ridiculous to suggest that children could be forced to think creatively (Tegano, 1991).

If it is true that self-determination is the most important basis of intrinsic motivation, it would be expected that children would be more intrinsically motivated for activities over which they have a greater sense of control. This hypothesis is widely accepted in other areas such as organizational psychology. Participative management and job enrichment are based on the assumption that "greater self-determination leads to higher levels of motivation and better performance." The same is true with educational theorists. They believe that "greater freedom tends to enhance intrinsic motivation and performance" (Zuckerman, p.443). For example:
In a test of the effects of choice on creativity, nursery school children were asked to make a paper collage. Children assigned to the choice condition were allowed to choose any 5 out of 10 boxes of materials to use in this task. An experimenter made the choices for the children in the no-choice condition. All subjects then completed their collages, which were rated on creativity by artists. As predicted, there was a substantial difference in collage creativity. The collages made by subjects in the choice condition were judged significantly more creative than those made by subjects in the no-choice condition (Hennessey, p. 14).

**Extrinsic Motivation**

From the time they enter school, children are placed under behavioral restrictions. They are often told what to do, when to do it, and how it must be done. According to the intrinsic motivation hypothesis of creativity, this kind of external control over performance can undermine creativity. Early intrinsic motivation research focused on the effects of extrinsic constraint on intrinsic motivation as assessed by subsequent interest. Self-perception theory proposes that, when working under salient extrinsic constraints, individuals may come to see their performance as motivated by those constraints and not by their own interest in the task. Thus, intrinsic interest should be undermined (Amabile, p. 209).

In the classroom, the internal mechanism of control may be seen in children who are not likely to seek approval from the teacher for what they do. However, there are some children who constantly look for reinforcement from their teachers. All children need to feel accepted, but it is the child whose motivation seems to stem from external acceptance, at the expense of accepting and evaluating themselves, who are driven by external motivations. "The externally motivated child may be less likely to engage in a creative or open-ended activity because the activity lacks the system of
built-in rewards for the right answer" (Tegano, p.39).

The externally motivated child may have problems moving to the production of a creative product because of this inability to critically self-evaluate. "To begin to engage in creative thinking means being able to set aside the influence of evaluation and to allow ideas to form, change, and combine." Some children have better skills for putting the influence of evaluation out of their minds as they become engrossed in the process of thinking, making or writing their ideas in a nonconventional way (Tegano, p. 39).

Five aspects of classroom learning which are indicative of either intrinsic motivation or extrinsic motivation in young children have been proposed:

1. Learning motivated by curiosity versus learning in order to please the teacher;
2. Incentive to work for one's own satisfaction versus working to please the teacher and get good grades;
3. Preference for challenging work versus preference for easy work;
4. Desire to work independently versus dependence on the teacher for help; and
5. Internal versus external for determining success or failure (Amabile, p.5).

Other researchers Amabile cited present a similar idea about intrinsic versus extrinsic motivation:

When an individual adopts an intrinsic motivational orientation, features such as novelty, complexity, challenge and the opportunity for mastery experiences are sought and preferred. These qualities are usually present in some form during enjoyable play, entertainment, or leisure time periods [...] When an individual adopts an extrinsic motivational orientation, features such as predictability and simplicity are desirable, since the primary focus associated with this orientation is to get through the task expediency in order to reach the desired goal [...] These kinds of
preferences and concerns are common when an activity is approached as a job, duty, or necessary evil. (Amabile, p. 6)

Any of many extrinsic constraints can undermine intrinsic motivation by making people feel controlled by external factors and not by what they are interested in doing. This feeling of external control may hold back their creativity because it may cause them to narrowly focus only on those aspects of the job that are necessary for finishing it, or finishing it in a way that is consistent with the particular constraint. But, under intrinsic motivation, people may be more prone to look at all aspects of the job and explore nonconventional ways of performing. “Thus any factors that undermine perceptions of self-determination in task engagement may be expected to undermine creativity” (Amabile, p.210).

Convergent and Divergent Thinking

A person is using divergent thinking when he comes up with a variety of responses or ideas to a certain problem. Brainstorming falls under the category of divergent thinking. Humor, too, is also related to divergent thinking. It has been referred to as “cognitive playfulness.” It is difficult to relate “cognitive playfulness” to children because “sensing the incongruities in a situation and making the logical leap from incongruity to humor may involve advanced cognitive abilities.” Since most young children are still very literal in the way they think, it is difficult to establish a relationship between creativity and humor in young children. But most teachers see the advantage of having a child with a good sense of humor in the classroom. This child’s humor could put the rest of the class at ease and help “establish a ‘safe’ environment for divergent thinking and problem solving” (Tegano, p.27).
The opposite of divergent thinking is convergent thinking. Convergent thinking narrows a problem to one right answer. IQ tests, standardized tests and math tests are all examples of convergent thinking tasks. If a child thinks of another way to respond on an achievement test, the teacher cannot give him credit because it is not the “right” answer, even if she knows he understands the concept. Children will therefore learn that the “right” answer is the one that will be rewarded (Tegano, 1991).

In a classroom situation, if the focus is always on convergent thinking, children will become oriented to a “right answer only” way of thinking. This orientation can be seen in tests conducted by creativity researchers. To give an example, researchers asked two groups of students to name all the ways to use a box. The first group was preschool and kindergarten students. They were eager and gave many responses with very little coaxing. The second group was second and third grade students. They would only give one response and then they would look for approval of their answer. They wanted to know “Did I give the right answer?” They also seemed uncomfortable with the open-ended questions. Only after they were encouraged and told that there were many ways they could respond did the second and third graders begin to give imaginative answers (Tegano, 1991).

“Children need to develop both divergent and convergent thinking.” They should be looked upon as complimentary because they are both needed for children to think creatively. It is the teacher’s job to avoid replacing one type of thinking with the other (Tegano, 1991).

Another way to think about this is that children must learn the rules of a domain (e.g. what are the parts of a book report?) before they can begin to break the rules, change the rules, to be creative (a book report as a board game) (Tegano, p.29).
Educational Environment's Influence on Creativity

Creativity is that wonderful process of seeing the endless possibilities to transfer and use skills and knowledge. When children move beyond comprehension and memorization, they are involved as active and excited learners. When the application and utilization is original or unusual, they are creative learners. This is where the joy of learning occurs (Turner, 1978).

All children have creative potential. In the school setting, traditional goals of thinking logically, learning facts and having good conduct are emphasized, sometimes at the expense of creative expression. Therefore, creative potential may be overlooked or even stifled. As a result, children go out into the world as "standardized thinkers." They are "able to assimilate into society yet unable to separate themselves from it. They have lost that unique outlook on life that once characterized them and them alone." (Schaefer, p.3).

Part of the discipline of creativity is forcing oneself to take risks in thinking. An adult or a child who is thinking creatively is not going over "old ground" and is not responding as he thinks someone else expects. The reactions of most people to problems and questions tend to occur within set boundaries. To move people beyond the habit response or the "what do you want" response is one of the difficulties in teaching (Turner, p.2).

It is especially important for children to hold onto the intrinsic enjoyment of learning they are born with. They must, at an early age, feel free to playfully explore through the various mazes of tasks before them (Hennessey, p.16).

In school, children become passive learners rather than active participants in situations where self-expression is encouraged. Educators must try to emphasize the value of expressing oneself rather than the skills it takes to execute a task. Too
often the reverse is seen and teachers find that the children are more concerned about the “correct” way of doing the task rather than striving for self-expression (Schaefer, 1973).

Consider, for example, children’s drawing. Too often, adults demand realism in art. But, if we push this prejudice to its logical extreme, the essence of art is lost. Individuality is replaced by conformity and our “artists” are inferior to our copy machines. Eventually, the child’s composing process functions like computer software designed to locate mistakes, rather than as a vehicle for creative expression. Clearly, a rigid, lackluster curriculum is an environment inimical to the basic expressive arts. Under regimented conditions, teachers become walking contradictions, like the teacher in a cartoon who announces to the class: “I expect you all to be independent, innovative, critical thinkers who will do exactly as I say.” (Jalongo, p.199).

Encouragement that children receive caring adults is an important aspect of the nurturing process. They need this encouragement to develop a sense of self, for a belief in one’s self is very necessary to facilitate confidence to generate original ideas (Tegano, 1991).

Teaching to facilitate creativity is not a recipe approach; it is an attitude toward, perhaps even a philosophy of teaching (Tegano, p.12-13). The atmosphere of the classroom, the attitudes of the teacher, and the attitudes of the students all play a part in fostering creativity (Tegano, p.10). Early childhood teachers have the opportunity to enhance creativity skills in all children in the classroom (Tegano, p.8).

As we look to the future, the one question that is usually asked is “what will be required of tomorrow’s children?” Researchers think that children will need “resilience and flexibility, a creative and integrative way of thinking, and a certain
psychological sturdiness in the way they face new circumstances in the company of other people. The one thing that always occurs in the world is change. There are requirements of the art world that are also well-suited to meet the needs of a changing society. These include “play with images, ideas and feelings, recognizing and constructing the multiple meanings of events, looking at things from different perspectives and functioning as risk takers” (Jalongo, p.195).

The teacher is the central figure in determining how and to the extent an optimal environment for creativity may occur in an early childhood classroom. If we accept that biological, cultural, personality, and cognitive traits are influenced by the environment, then the teacher, who is by and large responsible for the environment, plays a critical role in the development of creative potential. (Tegano, p. 108-109)

Creativity is fostered in classrooms where learning is valued over performance, where teachers are trained to observe and understand children’s play and interactions in the classroom, where teachers engage children in playful interchange, and, in fact, where teachers value their own creativity. In this psychologically safe classroom questions are respected, judgment is deferred, and the source of motivation comes from within the child. The teacher sets the tone for this environment; consequently, the individual personality traits and teaching style become salient in the endeavor to foster the creative potential of the children in the classroom (Tegano, 109).

**Characteristics of Kindergarten Students**

Kindergarten is a year in which thinking, social, emotional, language and motor skills are developed in a challenging planned environment. Numerous opportunities are offered to explore, discover and discuss experience. Children learn to understand themselves, as positive concepts of self and others are developed. A well-rounded kindergarten program includes a variety of activities and
experiences as goals are met in an exciting learning environment. It is a year of growing, of learning, of creating and of developing. Kindergarten is the foundation upon which a child's future as a learner is built. It is a program in which children share experiences, learn to get along, explore and discover, enjoy books, develop effective work habits and gain self-confidence. In kindergarten children experience the excitement of learning and all that it represents (MaJo, p.1).

The early grades are where children's attitudes towards school are shaped. When children move from their home environment or preschool into the new world of elementary school, they start to judge themselves and their abilities. If they feel they can't do something, they may give up. This time is also an intellectual transition for these children. They have spent most of their time in a world of physical freedom and exploration. Now they have moved into a world composed of more abstract reasoning and thinking. When an adult sees a child in a sandbox, they assume the child is merely playing, but the child is actually working. This "child's work" is helping to develop an understanding of the world for the child. There have been numerous studies that show "the most effective way to teach young kids is to capitalize on their natural inclination to learn through play" (Kantrowitz, p.52).

In the 1980s, many schools went back to the basics and taught young children using traditional methods. This led to more homework, more tests and more discipline. These schools did not want the children "roaming" around the room. They instead wanted the children behind their desks and the teacher lecturing at the front of the classroom. These are high school teaching methods that were imposed on the young students. Parents, too, thought their children could and should be doing more. Parents, whose children had attended preschool for as many as two years before
kindergarten, thought their children should know how to read by the second half of kindergarten. But, Research has shown that many five-year-olds aren't ready for reading or other types of subjects that older children learn with ease. The parents are confusing that number of years the children have attended school with brain development. The human brain cannot turn into an older brain from mere exposure to certain concepts (Kantrowitz, 1989).

There is a definite process of intellectual development that most human brains follow. The majority of experts who study child development and education believe that “young children learn much more readily if the teaching method meets their needs.” Young children think in a different way from older children. Swiss psychologist, Jean Piaget began research on children between seven and nine years old. He found that younger children “learn much more by touching and seeing and smelling and tasting than by just listening.” Six year old children have an easier time learning math concepts if they have objects to count rather than only seeing the numbers written on the board (Kantrowitz, p.53).

Younger children also have a difficult time sitting still in the classroom. A young child has to think about sitting still. It is something most young children can not do for very long. Young children get more tired sitting still and listening to the teacher than when they can move around in the classroom. “The frontal lobe, the part of the brain that applies the brakes to children’s natural energy and curiosity, is still immature in 6 to 9 year olds.” As this frontal lobe develops, so does their tolerance level for sitting still (Kantrowitz, p.53).

The most important thing in language development is that young children learn to communicate ideas. Their language development “should not be broken down into
isolated skills—reading, writing and speaking." Children can express themselves through talking and they can make up stories long before they learn to read and write. Form over content should not be emphasized at this early level (Kantrowitz, p.54).

A young child's social development has a major effect on his educational progress. If a child has trouble socially, he could fall behind academically as well. Young children should be encouraged to work in groups so the teacher can observe the class socially and see who is having trouble making friends (Kantrowitz, 1989).

During the early years, children are beginning to compare themselves to other children. For most children, school is the first time their goals are not set by their own clock but by the outside world.” Young children have not learned the difference between effort and ability. If they try something and don’t succeed, they may give up thinking that they will never succeed. At this stage, grades should not be posted because children's self-esteem may be damaged by the effects of comparison (Kantrowitz, 1989).

"Between the ages of five and nine, there's a wide range of development for children of normal intelligence.” Some children are reading by kindergarten whereas other children are still struggling to read in second grade. By fourth grade, all children usually read on or about the same level. Teachers have to find out where each child is developmentally and teach on that level (Kantrowitz, 1989).

When planning to teach young children, the areas to emphasize include:

**Cognitive or Mental Development:** Young children need many experiences to gain an understanding of the world in which they live. As they move from intuitive reasoning to more logical reasoning, exploratory activities are needed to stimulate cognitive growth (Male, p.1). See appendix A for further information.

**Physical Development:** Five-year-olds need vigorous exercise.
Fine motor skills are just beginning to develop. Programs must offer varied opportunities to develop gross and fine motor skills (Malo, p.1). See appendix B for further information.

**Socio-emotional Development:** How children react to and relate to people and experiences constitutes their socio-emotional structure. Young children are developing emotionally and learning ways to deal with people. In school, children learn new behaviors as they attempt to get along with others, cooperate, and interact courteously (Malo, p.1). See appendix C and D for further information.

**Creativity:** Creativity involves the ability to see relationships between previously unrelated objects or ideas. It is an essential aspect of the educational program for young children. Opportunities for creative experiences should encompass every area within the curriculum to encourage imaginative thinking and problem solving. A wide range of art media and exploratory experiences should be incorporated into the program. The creative process is of great value in developing the self-esteem of a young child (Malo, p.1).
Chapter 3
Procedure and Design of the Study

Introduction

This was a replication study based upon the study of Theresa Amabile which was performed in 1984. Both studies used the consensual definition of creativity as a foundation for the use of artists as judges of creativity. The study was designed to examine differences in intrinsic motivation and creativity resulting from differences in the levels of choice given to the subjects (Amabile, 1984). The hypothesis stated that intrinsic motivation is undermined when choice is restricted resulting in decreased levels of creativity. This hypothesis was supported by the compiled literature in chapter two.

Subjects

The sample for this study was two kindergarten classes in southern New Jersey. As indicated by the New Jersey Municipal Data Book, the setting for this study is a middle-class township with a mean family income of $55,108. There were forty-three children who participated in this study. The mean age of the children in the morning class was six years and one month. The class was comprised of nine boys and fourteen girls. The mean age of the afternoon class was six years. The class was comprised of 10 boys and 10 girls.

Procedure

Kindergarten students made collages that were judged at a later date for their level of creativity by five artists. The morning kindergarten class was allowed to freely choose the material they wanted to use for their collage. Also, they did not have a model of a collage to look at while they were working on their collages. The afternoon
class was not allowed to choose their own material. The material for their collage was prepackaged by the experimenter in individual plastic sandwich bags. Each child received a bag from which to work. Also, the experimenter hung up an example of a collage she had made for the duration of the experiment. Two weeks later the roles were reversed. The morning class was given the no-choice condition and the afternoon class was given the choice condition. These four different groups of collages were then compared to each other. The first evaluation compared the choice condition in the morning and the no-choice condition in the afternoon. The second evaluation compared the no-choice condition in the morning and the choice condition in the afternoon. The third evaluation compared the morning choice and no-choice products and the afternoon choice and no-choice products. The morning choice and afternoon choice and the morning no-choice and the afternoon no-choice were compared to each other as well to rule out any role that time of day may have played in the experiment. It was hypothesized that the children given the choice condition would produce significantly more creative products that those children who were given the no-choice condition.

Before the experiments began, the cooperating teacher was asked to evaluate each child's creativity level on a questionnaire (See appendix E). These questionnaires were then used by the evaluator to compare the results of the level of creativity for each child's product in the choice and no-choice conditions to their perceived creativity level by the cooperating teacher.

All the children in the morning kindergarten class who were present on the day of the experiment participated. The morning class was given the choice condition. There were eleven girls and nine boys who participated in the choice condition.
number 1. Three girls from the class were absent. The children sat on the rug and received instruction as a group. They were told they were going to each make a collage. They were shown the ten boxes of materials and told that they would be able to choose freely from the boxes. The children were told they could make whatever they wanted. The children could choose any materials they wanted. The children could come back to the rug at any time during the activity and choose more materials freely. The children were shown a collage the researcher had made using the same materials they would find in the boxes. The sample collage was then put out of sight. There was no time limit set. The children were then told to go to their seats and the researcher called tables to come to the boxes and pick out items to use for their collage. The children were not given a time limit while trying to choose their material. After all the children acquired their material and began their collage, they were again reminded that they could freely return items they didn't want or choose more items. The first child finished his collage in fifteen minutes. All of the children were finished after thirty minutes had elapsed.

All the children who were present in the afternoon class participated in the experiment. The afternoon class was given the no-choice condition. There were ten boys and nine girls who participated in no-choice condition number 1. One girl was absent. The children sat on the rug and received instruction as a group. They were told they were going to make a collage. The children were shown the material in the ten boxes. The children were then shown the sample collage. Then the children were shown the plastic bags of material. The children were told to use the material in the plastic bags for their collage. The children were told they could make whatever they wanted using the material in the plastic bags. The children were then told to go back
to their seats. The researcher handed out the bags of material and paper. She then hung up the example of a collage so it was clearly visible to the students while they were working on their collage. There was no time limit set. The first student was finished her collage in fifteen minutes. The rest of the class with the exception of one girl was finished in twenty minutes. The particular girl was finished in forty minutes.

Two weeks later, the groups were switched. The morning group received the no-choice condition and the afternoon group received the choice condition.

All the children in the morning kindergarten class who were present on the day of the experiment participated. The morning class was given no choice. Four girls and one boy were absent. The class consisted of ten girls and eight boys. They were the no-choice condition number two experiment. The children sat on the rug and received instruction as a group. They were told they were each going to make a collage. They were shown the materials in all ten boxes. The children were then told that they were going to do something different. The children each received a bag of items to use for their collage. The children were shown the sample collage made by the researcher. The researcher hung up the sample collage so it was clearly visible to the students while they were working. The children were told they could make anything they wanted. There was no time limit set. The first child was finished his collage in fifteen minutes. All of the children were finished within twenty-five minutes.

All the children who were present in the afternoon class participated in the experiment. The afternoon class was given the choice condition. There were nine boys and nine girls who participated in the choice condition number two. One boy and one girl were absent. The children sat on the rug and received instruction as a group. They were told they were going to make a collage. The children were shown the ten
boxes of materials. The children were then told they were going to do something different. They were told that they could choose their own materials from the boxes. The children could also go back to the rug at any time and take more materials freely. The children were shown the sample collage the researcher made and then the sample was placed out of sight. There was no time limit set. The children were then told to go back to their seats and the researcher called tables to come to the boxes and pick out items to use for their collage. They were not given a time limit while choosing their material. After all the children acquired their material and began their collage, they were again reminded that they could freely return items they didn’t want or choose more items. The first child finished his collage in fifteen minutes. All of the children were finished after thirty minutes had elapsed.

**Design**

This was a quasi-experimental replication study. This study was based upon the consensual definition of creativity as explained in chapter one. A quantitative assessment of creativity rating scale was used as the measuring instrument. This rating scale was used by six judges to assess the creativity level of the products made by the kindergarten students. Four of the judges hold Bachelor of Art degrees in art. The remaining two judges had least three years of art classes at the university level. The scale focused on four aspects of creativity: fluency, flexibility, originality, and elaboration. The products were rated on a low to high scale. See Figure 1 for an example of the scale. The cooperating teacher filled out creativity evaluation forms for each child which measured their level of creativity as perceived by the teacher. These forms were matched against the evaluation of each child’s product to see if there is any relationship between the children’s perceived creativity and their actual
performance in both the choice and the no-choice environments.

Fluency involves thinking of many different ideas or possibilities. Flexibility involves stretching an idea, coming up with a different approach to thinking. Originality is more subjective and open to interpretation on a case by case basis. The elements of originality all comprise the arena of unique and imaginative products that catch the eye of the observer. Elaboration is the ability to create detail and make an idea stand out from the crowd (Schirmacher, 1993).

**Figure 1**

**Creativity Rating Scale**

<table>
<thead>
<tr>
<th>Low</th>
<th>Fluency</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>few different</td>
<td>1 2 3 4 5 6 7</td>
<td>many different</td>
</tr>
<tr>
<td>lacks variety rigid limited range</td>
<td>1 2 3 4 5 6 7</td>
<td>wide variety flexible wide range</td>
</tr>
<tr>
<td>stereotyped unimaginative common</td>
<td>1 2 3 4 5 6 7</td>
<td>unique imaginative unusual</td>
</tr>
<tr>
<td>lacks detail unelaborate simple</td>
<td>1 2 3 4 5 6 7</td>
<td>very detailed elaborate complex</td>
</tr>
</tbody>
</table>

(Schirmacher, 1993)
Chapter 4

Analysis of Findings

Introduction

The purpose of this study was to assess whether choice restriction decreased intrinsic motivation for a task resulting in a less creative product. The study focused on two groups of kindergarten students in a half-day school setting. The students were either given choice or no choice of materials when making their collage. It was hypothesized that the students who were given choice of materials would produce a more creative product than the students who were given no choice of materials.

Tabulation of Means and Standard Deviations

There were four groups of collages assessed for creativity in this study. Using the consensual definition of creativity, six judges rated each collage for creativity.

Group A represented the morning kindergarten class who had choice in materials. Group B represented the afternoon kindergarten class who had no choice in materials. Two weeks later the experiment was repeated. Group C represented the morning class who had no choice. Group D represented the afternoon class who had choice.

These groups were compared in three different ways:

- Group A choice and Group B no choice
- Group C choice and Group D no choice
- Group A choice and Group C no choice
- Group B no choice and Group D choice
- Group A choice and Group D choice
- Group B no choice and Group C no choice

There was a significant difference between the means and standard deviations
between each group. See table 1 for findings.

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td>101.5</td>
<td>23.76</td>
</tr>
<tr>
<td>Group B</td>
<td>73.50</td>
<td>20.98</td>
</tr>
<tr>
<td>Group C</td>
<td>71.81</td>
<td>18.61</td>
</tr>
<tr>
<td>Group D</td>
<td>100.8</td>
<td>22.76</td>
</tr>
</tbody>
</table>

See figure 1 for further explanation of the mean results. See figure 2 for further explanation of the standard deviation results.
In order to see more clearly the differences between the groups an Analysis of Variance (ANOVA) was calculated. The sources of variation within the choice verses no choice variable was highly significant. There was no significant difference in time of day the collages were made. See Table 2 for findings.
table 2
Morning and Afternoon Choice and No Choice

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>DF</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM1 vs PM2</td>
<td>439.259</td>
<td>1</td>
<td>439.259</td>
<td>.878</td>
<td>.352</td>
</tr>
<tr>
<td>Choi Y2N</td>
<td>10831.706</td>
<td>1</td>
<td>10831.706</td>
<td>21.610</td>
<td>.000</td>
</tr>
<tr>
<td>2-Way Interactions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AM1 vs PM2 Choi Y2N</td>
<td>16.871</td>
<td>1</td>
<td>16.971</td>
<td>.034</td>
<td>.855</td>
</tr>
<tr>
<td>Explained</td>
<td>11175.983</td>
<td>3</td>
<td>3725.328</td>
<td>7.43</td>
<td></td>
</tr>
</tbody>
</table>

See figure 3 for further explanation of findings.

figure 3

Results of Choice vs. No Choice

mean: ILDCREAT

CHOI1Y2N

Choice

No Choice

32
There was a significant difference between the morning choice and no choice. See table 3 for findings.

**table 3**

Morning Class Choice and No Choice

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>DF</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMChnoCh</td>
<td>5844.983</td>
<td>1</td>
<td>5844.983</td>
<td>12.668</td>
<td>.001</td>
</tr>
<tr>
<td>Explained</td>
<td>5844.983</td>
<td>1</td>
<td>5844.983</td>
<td>12.681</td>
<td>.001</td>
</tr>
</tbody>
</table>

See figure 4 for further clarification.

**figure 4**

Results of AM Class
There was also a significant difference between the afternoon choice and no choice variable. See table 4 for findings.

### Table 4

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>DF</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMChnoCh</td>
<td>5002.526</td>
<td>1</td>
<td>5002.526</td>
<td>9.249</td>
<td>.004</td>
</tr>
<tr>
<td>Explained</td>
<td>5844.983</td>
<td>1</td>
<td>5844.983</td>
<td>9.49</td>
<td>.004</td>
</tr>
</tbody>
</table>

See figure 5 for further clarification.

### Figure 5

**Results of PM Class**

![Graph showing the results of PM Class choices and no choice, with a significant difference observed.](chart.png)
There was no significant difference when the ratings of the cooperating teacher were compared to the choice and no choice students. See table 5 for findings.

**Table 5**

**Teacher Ratings**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>DF</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM1 vs PM2</td>
<td>.053</td>
<td>1</td>
<td>.053</td>
<td>0.00</td>
<td>.986</td>
</tr>
<tr>
<td>Chol1 vs Chol2</td>
<td>7.635</td>
<td>1</td>
<td>7.635</td>
<td>0.047</td>
<td>.829</td>
</tr>
<tr>
<td>Explained</td>
<td>114.250</td>
<td>3</td>
<td>38.083</td>
<td>0.234</td>
<td>.872</td>
</tr>
</tbody>
</table>

See figure 6 for further clarification.

**Figure 6**

*Results of Teacher Rating*
Chapter 5
Summary, Conclusions, and Recommendations

Introduction

The main focus of this study was creativity in the classroom. Creativity was defined as involving a flexibility of thought. This study raised the question of how creativity is stifled in the classroom by inhibiting children's intrinsic motivation for the task.

Summary of the Problem

A child's joy, otherwise known as intrinsic motivation, for a task should be enough to help the child see the task through to completion. However, extrinsic constraints in the classroom may unknowingly inhibit this joy. Therefore, the child does not have the internal drive and excitement that he would have had if the extrinsic constraints were never imposed (Amabile, 1984). The problem stated for this study examines the effect of an extrinsic constraint, such as imposing choice restriction on students would undermine their intrinsic motivation for the task thus adversely affecting their creativity.

Summary of the Hypothesis

It was hypothesized that kindergarten students whose choices were restricted would be less intrinsically motivated and would produce a less creative product than kindergarten students whose choices were not restricted.

Summary of the Procedure

The procedure was a two-fold experiment. Before the experiment began, the cooperating teacher evaluated each child's creativity using the questionnaire provided...
by the experimenter. Because this was a half-day kindergarten setting, there were two separate kindergarten classes available for the study. Both classes made collages using the same materials. The dependent variable was whether or not the students had the freedom to choose their own materials. Group A (the morning class) was given choice in materials. Group B (the afternoon class) was given no choice in materials.

Group A went freely to the boxes that contained the items for the collages. Group B had their material chosen by the experimenter in prepackaged bags. Also, both groups were shown a sample collage made by the experimenter. The difference was that the collage was hung up for Group B but not for Group A. There was no time limit set.

Two weeks later the procedure was repeated. Group C (the morning class) had no choice in materials. Group D (the afternoon class) had choice in materials. The experiment mirrored the first experiment. The sample collage was hung up for Group C but not for Group D.

The 76 collages were independently judged for creativity by 6 judges. All the judges had an artistic background. The collages were judged using a creativity rating scale which assessed fluency, flexibility, originality and elaboration.

**Summary of the Findings**

A Chi-Square was performed to assess the interjudge reliability. Four of the judges had a significant reliability. However, two of the judges were found to be outliers. The four judges who were seen to be statistically reliable were female. The two outlier judges were male. The resulting data from the Chi-Square suggested gender bias was occurring. Overall, the male judges tended to score the collages.
lower than the female judges who tended to score the collages more in the median range. Interestingly, the second most frequent choice for all six judges was at the higher end of the scale. This gender bias tendency will be discussed in further detail in the conclusions section.

An overall score for creativity was computed for each collage by adding up the scores of the judges for each collage. As hypothesized, there was a significant difference between the creativity of the collages. The collages made by the children who had choice were judged significantly more creative than the collages made by the children who had no choice. There was no significant difference in the time of day the collages were made. The most striking significant difference was between the collages made by the same children when they had choice and when they did not have choice. There was a difference in the level of creativity for the morning class when comparing their own work. There was a difference in the level of creativity of the afternoon class when comparing their own work. The results of the teacher's ratings did not show a significant difference.

The creativity results support the intrinsic motivation hypothesis of creativity.

**Conclusion**

This study suggested that choice restriction does inhibit the creativity of children. As seen in the overall scores of the collages the extrinsic constraint of choice restriction did result in lower levels of creativity. The children who had choice of materials did display a higher level of intrinsic motivation for the task which was evident in the resulting collages.

What was most interesting was the difference in creativity for the same groups of children when they had choice compared to when they did not have choice. There
This finding is a strong indicator that allowing children choice tend to lead to higher levels of creativity.

**Implications and Recommendations**

The findings of this study suggests that choice restriction tends to lead to an inhibition of creativity while allowing choice tends to increase the intrinsic motivation for the task and leads to a more creative product.

However, future studies may look further into the question of choice restriction and other intrinsic constraints which may have an effect on the intrinsic motivation of children.

The gender-bias discovered while assessing the judges for interjudge reliability is also a concern. Future studies may assess the role gender plays in judging products for creativity.

Future studies could compare different age and grade levels to see if there is a significant difference in creativity at other age levels when an extrinsic constraint is imposed.

Future studies could have the teacher rating scale completed by more than one teacher. This could lead to a more accurate comparison between the scores of the judges and the opinions of the teachers.

Finally, future studies may desire to use more than one school to compare the imposition of choice restrictions in different settings.
References


Appendix A
Basic Characteristics Of A Child Who Has An Intellectual Age Of A Five Year Old

Beginning to understand the differences between reality and fantasy

Chooses colors imaginatively; discovers they can be mixed and uses them experimentally. Is aware primarily of contrast

Imaginative, creative and inquisitive. Seeks self-expression; likes dramatic play and role playing

Learns by doing imitating, observing, exploring, examining, investigating, experimenting, and questioning

Is inquisitive and wants to explore, investigate, manipulate, and experiment with a variety of materials and media.

Is curious about own world

Learns through use of the five senses

Learns through concrete and direct experiences rather than abstractions

May derive satisfaction from doing rather than from the finished product

Recognizes some details. Understands some whole or part relationships

Begins to show an ability to think things through and solve simple problems. (This is a vitally important characteristic that should be continuously encouraged and developed)

Enjoys intellectual challenges

Recognizes familiar objects with fewer clues

Interested in telling stories and relating own experiences

Improves language at this level by use of example and substitution

Likes to identify repetitious phrases, words, letters
Recognizes name in print and may print first name

Possesses a speaking vocabulary of approximately 3,000 to 8,000 words

Independent thinker, answers without mimicry

Expresses fluent and flexible speech patterns; talks in complex full sentences; enjoys using new words

Asks many questions that are relevant, meaningful, direct and personal

Develops further understanding of abstract words relative to experiences

Uses most speech sounds correctly

Begins to develop a concept of time, space, numbers, and has a memory of past events

Uses numbers incidentally, likes to count

Is learning to listen for a purpose ad without interruption

Greater independence in learning and solving problems

Paints what the child knows, and not what the child sees

Thinks mainly of the present, but can reason and generalize to some degree

Interested in doing and observing things related to immediate experiences

Begins to show a gradual increase in span of interest and attention but easily disturbed

Has ability to recognize individual words in speech

Uses more complex and abstract sentences in stories

Draws a person with seven parts

Shows interest in simple scientific explanations of experiences in the child's everyday world
Able to learn full name, address, and telephone number

Can complete a 15 piece puzzle
Basic Characteristics Of A Child Who Has An Intellectual Age Of

A Six Year Old

Begins to demonstrate concrete operational thinking

Demonstrates conservation of numbers

Understands seasons in terms of suitable activities

Likes to be read to

Recognizes words, phrases, sentences

Likes poems and the rhythm of language

Shows an interest in the sounds letters make

Is able to print upper and lower case letters, some words and first and last name.

Writes numerals in sequential order

Uses inventive spelling

Is able to count to 100

Is able to name coins

Adds within ten

Understands groups, objects (sets)

Uses simple measurements

Solves problems with greater degree of independence

Time and space relationships develop

Has control of grammatical structures of native language

Has speaking vocabulary of 8,000-14,000 words
Basic Characteristics Of A Child Who Has A Physical Age Of A Five Year Old

Has reached a period of general “slow down” in skeletal growth

Still needs mid-morning snack

Has developed large muscles that require continuous strengthening through physical activity and use of appropriate equipment

Has better control over large muscles than small ones; not ready for complicated skills and small muscle coordination

Runs, skips, hops, turn somersaults, uses overhead ladder

Is active but tires easily and needs planned periods of rest

Activity has direction

Beginning to sit still in a group or during individual activities for short periods (15-20 minutes)

Sensory motor equipment not ready for reading; far-sighted and lacks eye-hand coordination necessary for formal work with books and small objects

Generally has developed hand preference that should not be changed

Enjoys the sense of touch and is aware of texture: rough, smooth, dull, shiny, wet, dry

Beginning to lose teeth

Much learning is still through a motoric manipulative mode (physical)
Basic Characteristics Of A Child Who Has A Physical Age Of
A Six Year Old

Can complete a 15 piece puzzle

Reaches about 2/3 of adult height

Attention span is variable, depending on activities

Attempts to use tools and materials; can join boards and make simple structures

Often fills own need for variety, for rest, for change of pace. Takes break as needed

Uses pencils, pencil crayons, magic markers, paints, chalk, and wax crayons for coloring and drawing

Can cut and paste

Likes to write on chalkboards

Very active; in almost constant motion; often appears clumsy

Can use large needle; does simple beading, simple weaving, and bead patterning

Does all motor movements (walk, crawl, run, hop, jump, leap, skip, slide, gallop)

Jumps rope by self

Eyes more fully developed to begin reading
Appendix C
Basic Characteristics Of A Child Who Has A Social Age Of A Five Year Old

Is sociable and seeks companionship of other children, but is self-centered at times.

Plays best in small groups of two to five, but shows an increased ability for enjoyment of larger groups and group activities.

Plays well with groups and alone; duration of tolerance for large groups is short.

Likes to show objects and share experiences.

Is eager to please.

Asks adults for help when needed.

Enjoys companionship of other children and adults.

Is developing a respect for rights and feelings of others and learning to take turns.

Forms strong friendships for short periods of time.

Enjoys simple directions; is proud of ability to carry them out.

Is cooperative; wants supervision; likes to have approval; blames others for own misdeeds; decides wants quickly.

Likes to care for younger siblings; should not be given too much responsibility.

Is capable of and eager to assume definite responsibilities within level of maturity.

Is very imaginative.

Fantasizes a great deal, loves make believe.

Is an attentive observer or eager participant.

Is curious about the world as it relates to self.

May have occasional “tantrum”; makes accusations and finds fault.
Has strong feelings for family; likes to be with family; enjoys family picnics and holiday celebrations

Likes to tell jokes

Begins to participate in cooperative play
Basic Characteristics Of A Child Who Has A Social Age Of

A Six Year Old

Has picture book interest in children of other lands

Likes much group play; imaginative play of house, store, etc. Interest mostly self-centered; little solitary play; often plays with a constant friend

Expanding environment; home, school, community relationships important

Other adults become more important. The parents' role is changing in the child's world

Interested in things money buys rather than money itself. Needs help in planning what to do with money; on shopping excursions must buy something

Has difficulty making decisions. Needs guidance in planning activities

Dresses self completely; Has a pride and interest in clothes, what to wear for different seasons and weather but needs help with caring for clothes

Tends to become attached to those children who has same interests and abilities

Has difficulty determining intentions in situations
Basic Characteristics Of A Child Who Has An Emotional Age Of

A Five Year Old

Needs a sense of belonging
Gains a feeling of security from definite routines. Likes to have rules
Is continuing to develop a self-image
Enjoys and responds to repetition
Responds to tension and over-stimulation with noise and aggression
Has growing desire for approval and an eagerness to do what is expected
Needs opportunity to do things for self and develop individuality
Responds to feasible challenge
Is beginning to develop self-control, accept suggestions, and initiate an action
Has a growing sense of humor and appreciation for humorous incidents and situations; likes to laugh
Shows anger as a common emotion
Has a feeling of rivalry; sometimes jealous of others; wants recognition
Is interested in immediate and realistic experiences; still in "I" stage

A Six Year Old

Is highly emotional
Is self-assertive and aggressive
Wants and needs to be "first"
Enjoys competition if winning (will cheat if necessary)
Needs praise and approval
Needs clear and simple directions in advance to get started in the right direction
Needs activities which provide a feeling of success
Likes to take products home to show parents
Name is important; writes name on product
Has difficulty accepting being ignored
Wants to know "what and "why" about a wide range of things
Is friendly, sympathetic and helpful

Is sometimes impulsive
Appendix E
Preschool Creativity Rating Scale

Directions: Please indicate the degree to which each description or adjective typifies the child. How typical of the child is each behavior?

(1) Never; (2) Rarely; (3) Sometimes; (4) Frequently; (5) Always

1. Child is willing to take risks, (1) (2) (3) (4) (5)
do things differently, try new things. Willing to try the difficult.

2. Child has an extraordinary (1) (2) (3) (4) (5)
sense of humor in everyday situations.

3. Child is opinionated, outspoken, willing to talk openly and freely.

4. Child is flexible, able to accommodate to unexpected changes in situations.

5. Child is self-directed, self-motivated.

6. Child is interested in many (1) (2) (3) (4) (5)
things, is curious, questioning.

7. Child engages in deliberate, (1) (2) (3) (4) (5)
   systematic exploration, develops a plan of action.

8. Child is able to make activities uniquely his or her own, personalizes what he or she does.

9. Child is imaginative, enjoys (1) (2) (3) (4) (5)
fantasy.

10. Child is a nonconformist, (1) (2) (3) (4) (5)
does things his or her own way.

11. Child comes up with many (1) (2) (3) (4) (5)
solutions to a problem.

12. Child is uninhibited, has a (1) (2) (3) (4) (5)
freewheeling style.

Comments

For more information on use of this scale, please contact Dr. Deborah Tercero, Department of Child and Family Studies, University of Tennessee, Knoxville, TN 37996-1900.
Name: Karen M. Suloff
Date and Place of Birth: February 7, 1968
Camden, New Jersey
Elementary School: St. John’s School
Collingswood, New Jersey
High School: Collingswood High School
Collingswood, New Jersey
College: Rutgers University
Camden, New Jersey
B.A. English Literature, 1992
Graduate: Rowan University
Glassboro, New Jersey
M.S.T. Elementary Education, 1997