

# mini MASTERS

## EXECUTIVE SUMMARY

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### Overview

From January – May 2014, 64 preschool students from under-served families in New Orleans participated in Mini Masters, an early childhood arts integration program provided by the New Orleans Museum of Art (NOMA). In the second year of its pilot, the program results suggest solid findings for increased responsiveness to art for the children studied.

### Program Description

The Mini Masters program components are designed to effectively change the developmental environments for the children in favor of integrating the visual arts. The program employs a multi-layered approach, including:

- In-class visual arts lessons

- Multiple museum visits

- Professional Development workshops for educators

- Curriculum resource materials including posters, lesson plans, and related books

- Parental involvement

- Mini Masters Showcase event for students, families, partners & supporters

### Assessment

In the current study, 52 students were interviewed at their school sites before and after the program interventions, yielding a final treatment group of 36 and a control group of 8. Interviews consisted of viewing and discussing a reproduction of a work of art from the museum's collection. The length of the interviews and number of adult prompts needed were averaged for each group. All interviews were videotaped and transcribed, and the transcriptions were compiled into lists of nouns, adjectives, and verbs and compared for vocabulary usage. The transcriptions were also categorized into seven patterns of thought processes based on Bloom's Taxonomy.



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## Key Data

### Interview Length & Number of Prompts

	TREATMENT GROUP	CONTROL GROUP
Increase in interview length	24%	30%
Reliance on adult prompts	-17%	20%
Total changes in vocabulary use		
Nouns	30%	60%
Adjectives	56%	36%
Verbs	59%	40%
Total changes in higher-order thinking skills		
Naming	3%	-13%
Describing	0%	-33%
Inferring	15%	33%
Connecting	44%	0%
Questioning	14%	13%
Extending	42%	0%

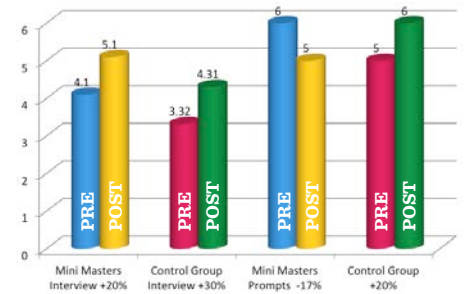


Figure 1 | Interview Length & Number of Prompts

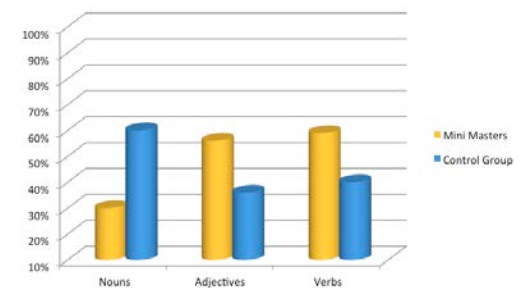


Figure 2 | Percentage Change in Vocabulary Use

## Results

When compared with a control group, participants of the Mini Masters program increased in length of art analysis while decreasing in need for adult support. Participants used more complex vocabulary and more complex thinking skills in their analysis of an art reproduction in pre- to post-program interviews.

The data suggests that the goals of the Mini Masters program are being met, and the multiple interventions of the program work together to effectively change developmental environments to support art integration for preschoolers.

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## INTRODUCTION

The positive effects of including the arts in education have been well documented (Eckhoff 2012; Edwards & Willis 2000; Phillips, Gorton, Pincoiotti & Sachdev 2010). These effects include an enhancement of creative expressiveness, visual literacy, and cognitive processing (Eckhoff 2012). Typically preschool art programs are evaluated through subsequent art products rather than participant responses; however preschoolers' verbal exchanges pertaining to art can reveal their thought processes and reactions (Coates & Coates 2006). Traditionally viewing art and appreciating visual art has not been the purview of early

childhood education (Eckhoff 2007). For example the preschool years are not included in the National Art Education Association standards. However, in reference to preschoolers, the National Association for the Education of Young Children (NAEYC) states in *Children's Developmental Benchmarks and Stages: a Summary Guide to Appropriate Arts Activities* (2007):

Children develop higher levels of thinking by learning to look at others' artwork or performances and developing an opinion. When discussing music, art, dance, and theater,

children can talk in terms of likes and dislikes. This builds judgment and analytical skills.

Mini Masters, created by the New Orleans Museum of Art, is an arts integration outreach program for urban schools and centers located in New Orleans. The program combines classroom instruction, studio art experiences, multiple museum visits, and family interaction. Now in its third year, the program is emerging from the pilot stage with some important findings concerning preschoolers' responses to art.



## PROGRAM DESCRIPTION

The Mini Masters program is delivered in partnership with schools servicing low income families, and supported through privately funded grants to the museum. Other community partnerships for program delivery have included the Tulane University Teacher Preparation Certification Program (TPCP) which made it possible to include pre-service teachers for in-class program delivery, and Seamless Transitions, a local non-profit organization that seeks to assist preschoolers and their families in making successful transitions into kindergarten. The program has been successfully piloted in a variety of early childcare settings suggesting flexibility and adaptability in the program model.

### Mini Masters Program

#### Goals include:

Increasing high-quality arts integration experiences for preschool students.

Building the capacity of early childhood educators to provide effective, integrated arts instruction and developmentally appropriate visual arts experiences for preschoolers.

Introducing early childhood educators to their local art museums, and encourage museum use as a resource and foundation for arts-integrated teaching and learning.

Involving parents/guardians of preschoolers by encouraging attendance in and engagement with their local art museum and school classrooms.

#### Program components include:

Professional Development workshops for teachers providing practical techniques and modeling

Curriculum-based visual arts lessons delivered in class by a museum educators and later co-taught cooperatively with classroom teachers

Curriculum resource materials, such as posters and lesson plans provided by NOMA

Multiple free museum visits with guided tours based on units of study

Parent involvement through free family memberships to the museum for all participating students

*Mini Masters Showcase*, an evening exhibition of student artwork at NOMA for all participating students, families, educators, partners and supporters

The multiple components of the Mini Masters program are designed to create a holistic experience for participating students. Lessons delivered by a visiting museum educator allow classroom teachers to observe modeling of lessons, and progress to team teaching later in the year until they are working independently. Students benefit because engaging with a novel adult generates interest in the children for the tasks. Lessons include viewing of reproductions from the museum

collection, sharing of connected children's literature, related hands-on studio art projects, and corresponding materials in educational centers. In addition, teachers receive professional development workshops delivered both at the school sites and the museum. These workshops include gallery talks and practical ideas for incorporating art into the classroom, as well as sample studio art projects. At least two museum visits per semester are provided by the museum for participating classes including transportation. Multiple museum visits builds the students' and teachers' comfort level with the museum experience. A culminating showcase of student work is held at the museum for the children together with their families at the end of the school year. In short, the children in Mini Masters classes have multiple encounters with creating, viewing, discussing, and presenting art, and includes a validation of having their own art respectfully displayed and viewed by others. This combination of approaches enriches the environment for arts education in the participating classrooms, which is the most direct way to affect change in child development (Edwards & Willis 2000; Bowker & Sawyers 1986; Bronfenbrenner, 1994).

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## ASSUMPTIONS OF THE STUDY

Numerous studies suggest that when exposed to works of art and discussions of art, young children do develop aesthetic preferences and offer verbal responses to the works with which they are presented (Zurmuehlen 1990; Coates & Coates 2006; Bowker & Sawyers 1986; Eckhoff 2007; Pope & Willis 2000; Housen 2002; Honigan & Bhavnagri 1998; NAEYC 2007). Furthermore, verbal language use is the precursor or foundation for later acquisition of reading and writing skills, and exposure to verbal language enriches the vocabularies of young children (Neuman, Copple & Bredekamp 1999; Edwards & Willis 2000; Phillips, Gorton, Pinciotti, & Sachdev 2010; Steele & Mills 2011; Biemiller, 2009). Based on prior research then, it is an assumption of this study that young children will have increased verbal responses to works of art as they are exposed to it, and that they will be more expressive in their responses; that producing art and discussing art will cause them to become more visually literate and that the language used in their responses will be more descriptive as they are exposed to the ideas of visual literacy through these experiences. It was also assumed that, with more exposure to art integration overall, the children would require less prompting to get them to speak about the art due to comfort with the process.

Young children are concrete thinkers (Copple & Bredekamp 2009). The parts of speech that are learned first are those that are attached to concrete objects or experiences, and are predominantly

nouns (Marchman 2008). Because adjectives and verbs are used in more sophisticated, descriptive speech it was assumed that an increase in the use of adjectives and verbs would be an indication of the use of more description and more refined language by the children.

A list of art terminology was predetermined and was listed and examined in addition to the other vocabulary, although the terms were not explicitly taught in any of the lessons. The art vocabulary came from a list posted on the website for the James A. Michener Art Museum in Doylestown, Pennsylvania (2014). They have offered a preschool outreach program for several years, and the list was derived from their work with classroom teachers. These words, when they occurred were included in both the part of speech list and art vocabulary list. The assumption was that an increase in the use of art

vocabulary would be an indication of internalizing art concepts. (Sapra, 2011) Another assumption of this study concerns the use of higher order thinking skills. Research suggests that participating in the arts enhances higher order thinking skills in young children (Salmon 2010; Honigman & Bhavnagri 1998; Housen 2002). It was assumed that being exposed to art experiences would cause the children to increase their use of higher-order thinking skills when talking about art. For the purposes of this study, the revised version of Bloom's Taxonomy (1990's) was used as the template for ordering the thinking processes that the children used in talking about art, and is thus considered the definition of higher-order thinking skills for this work. Bloom's Taxonomy, originally published in the mid 1950's as *The Taxonomy of Educational Objectives*, is critically considered the standard scale in education for calibrating higher-order thinking skills (Paul 1993).





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## STUDY DESIGN

In the spring of the 2013-2014 school year from January through May, four classrooms of children at three different sites within the New Orleans city limits participated in the Mini Masters program. One class came from a locally owned and operated private child care center that services children ages six weeks to four years old. One class was located in a charter elementary school containing grades preschool through 8th grade, and two additional classes were located at a large Head Start center for children ages birth through four which is run by a national level private corporation. A control group was obtained from an additional preschool classroom located on the charter school campus. All children were between four and five years old and preparing to enter kindergarten the following year. Fifty-two children from the program classes participated in the study. Both pre and post evaluations were obtained from thirty-six children from the treatment group and eight children from the control group. For the treatment group seventeen were male and nineteen were

female. Ninety-eight percent of the children were African American, and two percent were Hispanic.

The arts programming interventions offered through the New Orleans Museum of Art included two fieldtrips to the museum with docent guided tours which were created specifically for the Mini Master's program. Teachers for the four classes were also given two professional development workshops at the museum, which were designed specifically for the program. Two of the treatment classes (twenty-four children studied) received two lessons with art activities delivered by the museum educator. The other two classes (twelve children studied) received two lessons with art activities which were delivered by pre-service teachers trained by the museum educator. All four classes participated in a group gallery showing of the children's art as a culminating activity for the program year. The control group of children received no interventions from the museum.

For the evaluation it was determined to interview each of the children as they were being shown a reproduction of a work of art, once prior to any interventions, and again after the culminating showcase event. The same reproduction was used for both evaluations. It was *The Milk Vendor*, a seventeenth-century oil by the Dutch artist Abraham Williamson. The painting was chosen because it contains elements that would be familiar to the children such as a house, trees, and people, as well as objects that might not be familiar, such as farm animals and period clothing. With full parental consent, all of the children were interviewed by the same museum educator at both junctures. The interviews were videotaped and transcribed by the program evaluator. All participants were assigned a number for identification in order to protect confidentiality and to enable the matching of pre and post findings. The interview questioning was designed to be open-ended in a manner similar to



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the Visual Thinking Strategies process originally created by Abigail Housen (2002). In the case of the interviews however, there were no questions used that were designed to get the children to expound on their thoughts. Only open requests for their views were offered in an effort to avoid feeding ideas to the children, and to get as true a reading as possible of what they could report without adult support or scaffolding. A series of prompts were predetermined with the initial prompt being “What do you see in this picture?” Children were then prompted similarly as needed to keep them focused on the image, and to assure that they had said all they could about it. The children were then asked to list the colors they saw, and were thanked for their participation. In many cases, both in the pre and post interviews, the children clearly stated when they were finished with the process, which was as desired, and signaled the closing prompts of the interview. At this point the interviewer asked “Is there anything you want to tell me about the picture?” followed by “what colors do you see?” Some of the children added parting thoughts, but many reiterated that they were done. Most would list colors when prompted. A list of prompts can be found at the end of the article.

The interviews were transcribed word for word and as closely as possible to the original speech of the children. The transcriptions were then compiled into lists of the nouns, adjectives, and verbs spoken by the group as a whole. Each word was recorded once per child. For example a child may have said the word “chicken” several times during their interview, but it was only recorded once in the word lists. The number designated

in the word lists equals the number of children who used the word at least once. In some cases words were used as more than one part of speech, for example as a noun and also as an adjective. In such cases the word was recorded once for each part of speech per child. Although an attempt was made at recording every word the children spoke, there were some barriers to accomplishing this. In one classroom in particular there was a great amount of background noise picked up by the microphone during the recording, which made it impossible to decipher some of the speech. In some cases the children’s speech was very soft or poorly articulated to the extent that it was impossible to understand what they were saying from the video. In such cases, if after numerous playbacks it was determined that the passage was not clear these portions were not transcribed. This means some of the language in both the pre and post interviews was not included in the study, although this was a very small portion of the recordings. Overall the recordings were clear and none were entirely discarded due to audio problems. The transcription includes passages from all the children in the study, and represents an accurate sample of their overall abilities.

The children were asked to name the colors they saw in the image during the interview. These responses were listed separately from the open-ended question responses. If the child named a color before they were prompted it was recorded in the word lists either as a noun or as an adjective depending on how the color was used.

As the interviews were being transcribed a pattern of cognitive approaches to the

art piece became clear. These responses paralleled those found by Abigail Housen in adults (2002) and could be categorized into seven groups: names, describes, infers, connects, questions, evaluates, and extends. The following defines each process:

**Names** | the initial response of virtually all of the children was to begin stating items depicted in the reproduction.

**Describes** | after naming several items in the reproduction some of the children would begin to describe actions or movements that were clearly shown, “He was helping her to pour the water in.” This quote from child number three was a common observation made by the children. A passage was coded as describing if it contained only information that was readily evident from the artist’s rendition. If the child began to extrapolate in any way beyond what was readily observable the passage was coded differently.

**Infers** | a child’s naming or describing sometimes would become an inference. Inferences included assigning relationships, attributes or status to items or figures, or the prediction of past or future actions. These were based strictly on what was available in the image and were also related to the personal experiences of the child. For example, if a child called the people in the image “a family” they were inferring a relationship and making an assumption based solely on what was available in the reproduction. Other common assumptions made by some children



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included that a storm was coming due to the clouded sky, or that all of the people were going to go into the house. Inferences, like descriptions, were logical assumptions based on what was readily evident.

**Connects** | at times a child would make connections between what they saw in the painting and their personal life. For example, after studying the birds in the reproduction, child number twenty-six said, “A goose know how to fly. A chicken don’t know how to fly.” This child was applying prior knowledge to the artwork at hand. This is an unusual example of connections made by the children overall.

**Questions** | if a child asked any type of question concerning the painting it was coded as such. Typical questions included asking what the different animals or colors were called. There was no attempt made to calibrate the cognitive level of the questions that were asked. All questions were coded similarly.

**Evaluates** | if a child made any type of statement of judgment about the painting these were coded as evaluations. Typical evaluations made by the children were broad opinion statements about the image, for example, child number fourteen stated, “It’s no good ‘cause it doesn’t have a ninja turtle.” There were one or two incidences where children made evaluative statements about certain elements of the print, and these were also coded as evaluations.

**Extends** | occasionally a child would use the painting as a vehicle for creating an intricate, imaginative story. If their discourse included elements that were not contained in the painting or readily suggested by the scene the passage was coded as an extension. Extensions included monsters, violent storms, princes and princesses, evil intentions of some of the figures, and growing old. For example, since none of these elements are suggested in the image, it was assumed that they were a creative interpretation made solely by the child.

The pattern of processes exhibited by the children seemed to map fairly closely to the six levels represented in the revised version of Bloom’s Taxonomy which include: remembers, understands, applies, analyses, evaluates, and creates. The National Art Education Association (NAEA) has defined Bloom’s Taxonomy for art educators (NAEA, 2014). These definitions are included in Table 1. For the purposes of this study it was decided that naming was equivalent to remembering, describing was equivalent to understanding, inferring and connecting were equivalent to applying, questioning was equivalent to analyzing, evaluating was equivalent to evaluating, and extending was equivalent to creating (see Table 1 for Bloom’s definitions and correspondence of the two sets of processes). Originally inferring was coded along with questioning as a process of analysis. However, the occurrence of inferences made in the study was very high when compared to the amount of questions, which suggested they were mismatched, and that inferences belonged lower on the cognitive hierarchy. Upon further

reflection it became evident that in order to make an inference about a novel encounter one had to draw on prior personal experience to do so. This observation was consistent with the inferences made by the children in the study, so the Bloom’s equivalent for inferences was changed to application along with connecting, both being processes where the children were applying the art encounter to their prior experiences.

It should be mentioned that the first thinking skills of Blooms Taxonomy, remembers and understands, are not considered higher-order. These are considered basic skills which make up the foundation through which the other four levels are acquired. Young children, however, are in the process of laying this cognitive foundation. Therefore it is likely that the majority of responses will fall in the lower ranges of the hierarchy. However, it is assumed that gains in the other levels are possible with exposure. In addition to transcribing the text of the interviews, the length of the interviews and the number of prompts received by each child was recorded and compared for the pre and post interviews. It was assumed that longer interview length would be an indicator of child engagement with the art and with the process of responding to the art, and that the ability to engage and respond would grow with exposure to art in the classroom and museum. It was also assumed that the number of prompts needed by a child to persevere with the interview was an indicator of child ability to respond and engage with the art independently. In other words, a longer interview with fewer adult prompts would indicate greater independent engagement by the child with the art appreciation process.





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Bloom's Taxonomy Terms with NEA descriptions	NAEA Defining Verbs	Mini Masters Interview Thought Processes
<b>Remembering:</b> Can the student recall or remember the information?	define duplicate, list, memorize, recall, repeat, reproduce, state	<b>Naming:</b> naming items in the reproduction
<b>Understanding:</b> Can the student explain ideas or concepts?	classify, describe, discuss, explain, identify, locate, recognize, report, select, translate, paraphrase	<b>Describing:</b> describing the scene in the reproduction based solely on information that is readily evident from the artist's rendition.
<b>Applying:</b> Can the student use information in a new way?	choose, demonstrate, dramatize, employ, illustrate, interpret, operate, schedule, sketch, solve, use, write	<b>Inferring:</b> making inferences by assigning relationships, attributes or status to items or figures, or the prediction of past or future actions based strictly on what was available in the reproduction and were also related to personal experiences. <b>OR</b> <b>Connecting:</b> applying the art to personal experiences by making statements connecting what is seen in the painting and personal life experiences.
<b>Analyzing:</b> Can the student distinguish between the information?	appraise, compare, contrast, criticize, differentiate, discriminate, distinguish, examine, experiment, question, test	<b>Questioning:</b> asking a question about the image.
<b>Evaluating:</b> Can the student justify a stand or decision?	appraise, argue, defend, judge, select, support, value, evaluate	<b>Evaluating:</b> Making a statement of opinion or value judgment about the image.
<b>Creating:</b> Can the student create a new product or point of view?	assemble, construct, create, design, develop, formulate, write	<b>Extending:</b> using the painting as a vehicle for creating imaginative stories by which include elements that are not contained in the painting or readily suggested by the scene depicted.

**Table 1 (NAEA, 2014)**



## FINDINGS

### Changes in number of minutes and prompts

The average number of minutes of the pre-interviews for the treatment group (n=36) was 4:10 (four minutes and ten seconds) with the range being 1:37 to 8:58. The average number of prompts given in the pre-interviews for the treatment group was six, with the range being four to eleven. For the post-interview the same group averaged a length of 5:10 (range 1:20 to 18:28) with the average number of prompts being 5 (range 4-9). This represents an average 24% increase in the length of the interviews for the treatment group with a decrease of prompting by 17%. The control group (n=8) increased the interview number of minutes from pre-interview 3:32 to 4:31 (pre-range 2:03 to 5:04 and post range 2:16 to 7:21), an increase of 30%, however they also increased in the number of prompts from five to six which is an increase of 20% (pre- range 4-8 and post-range 5-7).

The substantial increase in interview length (24%) and subsequent decrease in prompting (-17%) suggests the treatment

students persevered significantly longer at art interpretation with significantly less adult coaching. While the treatment group showed a larger gain in interview length (30%) they also had an increase in prompting (20%). This finding suggests they also persevered at art interpretation longer, but required a significant increase in adult support to do so (see appendix A for full listing of interview data).

### Changes in vocabulary

In the pre-interviews the treatment group used a total of 229 nouns, 94 adjectives, and 85 verbs. In the post interviews the treatment group used a total of 297 nouns, 147 adjectives, and 135 verbs. This represents a total gain by 30% in use of nouns, 56% in use of adjectives, and 59% in use of verbs. The control group used a total of 45 nouns, 14 adjectives, and 10 verbs in the pre-interviews. For the post-interviews they used a total of 72 nouns, 22 adjectives, and 24 verbs. This represents a 60% gain in noun use, a 36% gain in adjective use, and a 42% gain in verb use.

Each of the groups showed gains in vocabulary use with the treatment group showing higher gains in descriptive words (adjectives and verbs) and the control group showing higher gains in concrete words (nouns). However, when looking at the words used by 25% or more of the students in each group a greater discrepancy emerges. For words used by 25% or more of the children pre to post-interview, the treatment group had a 63% gain in use of nouns, a 125% gain in use of adjectives, and a 100% gain in use of verbs. For words used by 25% or more of the control group pre to post interview there was a 48% gain in the use of nouns, a 66% gain in adjectives and a 42% gain in verbs (see Table 3). At the 50% mark, the gains in nouns disappear for the control group, and gains in adjectives and verbs start to look similar for both groups. This trend is not surprising, but to be expected, given the small size of the study cohorts. There was no change in color vocabulary use for either group. There was no change in art vocabulary use for either group.

	<b>Treatment Group</b>		<b>(n=36)</b>		<b>Control Group</b>		<b>(n=8)</b>	
	<b>Avg. # minutes</b>	<b>Range</b>	<b>Avg. # prompts</b>	<b>Range</b>	<b>Avg. # minutes</b>	<b>Range</b>	<b>Avg # prompts</b>	<b>Range</b>
<b>Post-interview</b>	5:10	1:20- 18:28	5	4-9	4:31	2:16- 7:21	6	5-7
<b>Pre-interview</b>	4:10	1:37- 8:58	6	4-11	3:32	2:03- 5:04	5	4-8
<b>Total change</b>	+1.00		-1		+1.39		+1	
<b>Percentage</b>	24% increase		17 % decrease		30% increase		20% increase	

Table 2



The logo features the word "mini" in a colorful, stylized font where each letter is a different color (m: pink, i: yellow, n: blue, i: green) and has a tower-like structure on top. Below it, the word "MASTERS" is written in a simple, grey, sans-serif font.

3 Classes: 36 Children total (no control)					
NOUNS USE		ADJECTIVE USE		VERB USE	
total post :	297	total post :	147	total post :	135
total pre:	229	total pre:	94	total pre:	85
difference:	68	difference:	53	difference:	50
	30% gain		56% gain		59% gain
9 + uses (25% or more used):		9 + uses (25% or more used):		9 + uses (25% or more used):	
total post :	36	total post :	9	total post :	6
total pre:	22	total pre:	4	total pre:	3
difference:	14	difference:	5	difference:	3
	63% gain		125% gain		100% gain
18 + uses (50% or more used):		18 + uses (50% or more used):		18 + uses (50% or more used):	
total post :	11	total post :	1	total post :	1
total pre:	6	total pre:	0	total pre:	0
difference:	5	difference:	1	difference:	1
	45% gain		100% gain		100% gain
Control Group: 8 children					
NOUN USE		ADJECTIVE USE		VERB USE	
total post :	72	total post :	22	total post :	14
total pre:	45	total pre:	14	total pre:	10
difference:	27	difference:	8	difference:	14
	60% gain		36% gain		40% gain
2 + used (25% or more used):		2 + used (25% or more used):		2 + used (25% or more used):	
total post :	21	total post :	9	total post :	5
total pre:	11	total pre:	3	total pre:	2
difference:	10	difference:	6	difference:	3
	48% gain		66% gain		60% gain
4 + used (50% or more used):		4 + used (50% or more used):		4 + used (50% or more used):	
total post :	4	total post :	1	total post :	0
total pre:	4	total pre:	0	total pre:	0
difference:	0	difference:	1.00	difference:	0
	no change		100% gain		no change

**Table 3**



**Changes in higher-order thinking skills**

During the pre-interview 97% of the treatment group used the skill of naming, 72% described, 58% made inferences, 22% made personal connections, 44% asked questions about the artwork, 17% made evaluative statements about the art, and 8% extended the art experience through imagination. During the post-interview for the same group: 100% named, 72% described, 67% made inferences, 50% made personal connections, 50% asked questions, 11% made evaluative statements, and 19% made extensions. For the treatment group foundational skills, naming increased by 3%, but there was no change in describing. For the higher order skills, there was a 15% increase in inferences,

a 44% increase in connections, a 14% increase in questions, and a 42% increase in extending. However there was a 33% decrease in evaluative statements. These figures suggest that more post-interview time was spent on higher order thinking skills overall, with the largest gain happening in the highest skill on Bloom’s levels-creating.

For the control group pre-interview 100% of the children named, 75% of them described, 25% made inferences, 13% made personal connections, 0% asked questions, 13% made evaluative statements, and 0% made extensions. In the post-interview 88% named, 50% described, 38% made inferences, 13% made connections, 13% asked questions, 13% made evaluative statements, and 0%

made extensions. For the control group foundational skills there was a 13% decrease in naming and a 33% decrease in describing. For higher level skills there was a 33% increase in inferences, and a 13% increase in questions asked, but no change in connecting, evaluating, or extending. These figures suggest that more interview time was spent on higher-order thinking skills, but not in the highest levels of Bloom’s Taxonomy, and not to the extent displayed by the treatment group. It should be noted that the control group required a 20% increase of adult prompting for the post interviews, which should also be considered when viewing these outcomes.

THOUGHT PROCESSES								
		Names	Describes	Infers	Connects	Questions	Evaluates	Extends
<b>Treatment</b>	<b>Post-interview</b>	36	26	24	18	18	4	7
n=36	<b>Pre-interview</b>	35	26	21	8	16	6	3
	Point Change:	0.03	0	0.09	0.28	0.06	-0.06	0.11
	%increase/decrease	3%	0%	15%	44%	14%	-33%	42%
<b>Control</b>	<b>Post-Interview</b>	7	4	3	1	1	1	0
n=8	<b>Pre-Interview</b>	8	6	2	1	0	1	0
	Point Change:	-0.12	-0.25	0.13	0	0.13	0	0
	%increase/decrease	-13%	-33%	33%	0%	13%	0%	0%

**Table 4**





## DISCUSSION

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The increase in interview length, decrease in need for prompting, and increase of descriptive vocabulary use for the treatment group is congruent with the finding of an increase of use of higher order thinking skills. The statistical evidence together strongly supports an increase in engagement with art analysis for the treatment group. There was a decrease in evaluative statements, which was counter to the other evidence. However, the coding for the higher-order thinking skills is still being refined, and it is possible that evaluative statements may not be the best indicator of the presence of that cognitive process in four-year-olds. The treatment children obviously persevered longer with the art with less adult support on the post interview, which is an indicator of an increase of cognition in itself. It may be that making general statements of personal preference can at times represent a more shallow response rather than a judgment which is thoughtful (Housen, 2002).

The control group also made gains as did the treatment group. This is to be expected as young children are developing in every domain at a rapid pace (Sapra, 2011; Copple & Bredekamp 2009). As such, gains due to naturally occurring development could not be controlled for in this study. It is also possible that some gains were due to familiarity with the process, but these were also expected and considered desirable as a measure of comfort with the art analysis process. It should be noted that three of the treatment classes and the control group were receiving art integration lessons from a local art education organization in addition to the

Mini Masters program at the time of the study. The influence of this intervention could not be controlled for aside from the inclusion of the control group in those interventions.

The control group gains overall were not as strong as those of the treatment group. The increase in interview time was offset by an increase in the number of prompts needed to complete the interviews. Any gains in vocabulary were not as strong for the control group especially when looking at words used by 25% or more of the children. It should be noted that some of the gains for the treatment group, especially where vocabulary is concerned, may be due to the difference in the size of the group in comparison to the control group. Still even when taking into account all of the vocabulary used by the control group, the gains were stronger in the use of nouns rather than in the more descriptive language of adjectives or verbs. Additionally, gains were made by the control group for the cognitive skills of inferring and questioning, but there was no change in the higher critical thinking skills. It should be noted that if a child used even a single word indicator as an inference, such as calling the milk vendor “father”, it was coded as an inference, so it was possible to make inferences without much vocabulary use or description. This could account for the increase in this skill for the control group, but would require further analysis.

The coding of questions as the sole indication of the analysis level should be re-examined. All questions specific to the art image were coded equally,

which most likely does not reflect the depth of the cognitive processes they represented. For example, there is a different level of engagement evident in a question about the name of an animal versus a question about what time period the painting embodies. The questions asserted by the children probably deserve better attention going forward. In short, the increase in the need of prompting, coupled with the minimal change in vocabulary use is congruent with the finding of smaller increase in use of higher-order thinking skills for the control group.

While the children were asked to name colors in the painting, this turned out to be a rote process and produced no change for either group. It may be pertinent to let the children volunteer colors in their observations and count this as an evaluative response going forward. The color words are a part of a preschool curriculum vocabulary and are a finite set of words. The art vocabulary, other than colors was tabulated, but also did not yield any change for either group. The short duration of the intervention period may account for the lack of findings for color and art vocabulary, but since art vocabulary was not emphasized in the program this lack of finding was not considered problematic.

Some verbal exchanges and cognitive processes were not accounted for due to the evaluation design, but are worth noting here. Several children identified figures and animals in the painting as “boys” or “girls” in the post-interviews. They insisted on labeling all of the legged characters in the image by gender. This did not occur in the pre-interviews at



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all, and may be a developmental marker of sorts. Several children named body parts on the figures and animals in the painting in the post interview, which did not occur in the pre-interviews at all. This appeared to be a connection to learning they had done in their classes about the body, and could have been interpreted as a personal connection or application, but was not coded as such due to ambiguity.

There were also several children who counted items in the post-interview, and there was no coding for this thought process; the highest counted up to 22. Counting might be considered a form of analysis, or a personal connection of applying prior learning to a new situation. In the end these were left out of the coding for cognitive processes. The number words past five were not included in the vocabulary lists as it may have inflated the nouns and skewed the data. There were no children that counted items in the pre-interviews.

Some children indicated their engagement with the art in non-verbal ways. Child number 47 appeared to have special needs (note: none of the children's IEP status was disclosed to any of the museum staff). In the pre-interview the child was not able to name any items in the image, but insisted on pointing to all of the figures saying "doggie" each time, which was the only word she spoke. In the post interview she named about three of the figures, but mostly spoke in unidentifiable utterances. At one moment, she pointed

to the sky and then to the foreground saying, "boo, boo, boo, boo" going back and forth for several seconds. It was clear that she was responding to the visual layout and regions of the painting, but there was no way to capture this in the data. Child number 26 pointed to the clouded sky in the image and called out "cracked!" clapping her hands like thunder and making gestures like a storm. This type of response could not be captured through the evaluation process, but was clearly a response to the painting.

Several children indicated their familiarity with art and art processes and the experiences they had through the program in ways that are not captured in the analysis, but are noteworthy. Child number three used the terms "living" and "non-living" in her interview, which was the subject for one of the lessons delivered by the museum educator and the theme for the tour of the sculpture garden. The theme was based on the classroom curriculum. It was clear the child was applying what she had experienced on the tour to the art at hand. Child number 15 recognized the reproduction saying, "We saw this yesterday" (it was actually several weeks passed)... "We saw this at the fieldtrip- the real one. My mama go and my baby go. They were trying to take care of us." The museum field trip was obviously a momentous event in this child's life which was rekindled by viewing the reproduction of the painting. Child number 51 (not included in analysis) asked the interviewer in

the post-interview, "Are we going to the museum?" This child was in the group that created a museum in their classroom, an activity facilitated by the classroom teacher after the museum field trip. Going to a museum turned out to be a novel experience for this class in particular, and this child remembered it upon seeing the reproduction of the painting. Child number 28 repeatedly answered the interviewer's questions with "what do you see?" This seemed to be an effort to try to create a back and forth conversation about the art piece, which was a response that was not anticipated. This child seemed to want to have a discussion about the image recreating experiences had through the program with the art educator who was conducting the interview. Child number 35 had an extended response to the image, relating it to an art piece she said she was working on at home. "Color golden on that bird" (points to a chicken). "Momma say she get me golden paint because I'm trying to paint a sculptures." The in-class project for her class had been creating a decorated disc out of plaster of Paris and coating it with gold paint. This child clearly was making a connection between the painting and their experience in creating art through the program. Several other children indicated seeing the image before, but it was not possible to ascertain whether they were referring to the museum trip or to the pre-interview without further questioning. In either case it was evident they were recalling their experiences in viewing art.

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## NEXT STEPS

The Mini Masters program continues in the 2014-2015 school year, which will allow for a full year program and evaluation. The corporation-run Head Start center is participating again with two classrooms of 17 children each. One teacher has been a previous participant in the program; the other is new to the program. All the participating children are new to the program. A locally owned center in one of the lower income areas of the city is participating with one classroom of 20 children. This site is new to the program. A third site at a school which is part of a large local charter network is also participating. This site has three classrooms of twenty children each, all of whom are new to the program. This addition is particularly exciting for the potential to grow the program throughout the charter network and to track the children into higher grade levels.

The same work of art, interview questions and sequence is being used for the evaluation going forward. The form for recording the interviews may be adapted for better facilitation of the transcriptions. All interviews will be recorded on an iPad. This may be less intrusive for the children than a camera, and affect the interview process less. The pre-interviews took place in September of 2014 and post-interviews will take place in May 2015. A control group of 20 children was obtained from within the charter school network which is using the same curriculum as the three participant classes.

In the next iteration of evaluation it may be desirable to look at the complexity of the language used by the children beyond parts of speech. Corpus Linguistics methodology (Teubert, 2005) suggests that number of syllables in a word and sentence length can also be an indicator of the complexity of meaning, and more complex language is considered more sophisticated developmentally (Sapra, 2011). It may also be of interest to revisit the scaling of cognitive processes when compared to that of Bloom's- especially the questioning function and analysis level. This appeared to be a weakness in the scale used in the current study- especially where the coding of questions was concerned, and should probably be investigated further along with evaluative statements as an indicator of true evaluative processes. Color words will not be specially prompted for in the next evaluation as there was no change indicated for the current study. Instead the color words will be included as a part of the regular vocabulary and will be coded as art terminology. While art vocabulary will not be a focus of the program as in the past, it will be considered in the next evaluation.

In addition to the supports currently being offered through the Mini Master's program a curriculum is being developed by NOMA educators for use in the participating classrooms.

The 2014-2015 year will be a developmental phase for the curriculum, which will not be made mandatory,

but supplementary, and will be used at the teachers' discretion. Feedback will be requested of the teachers to aide in the further development and implementation of the curriculum.

Mini Masters shows some encouraging outcomes for the program participants. These outcomes were obtained over a short period of one school semester, or five months time. With a full school year ahead, it is anticipated that even stronger outcomes will be forthcoming for the subsequent program year. Some indicators of program success cannot be quantified, but are captured through the child post-interview transcriptions. These anecdotal experiences also support the efficaciousness of the program for preschoolers. The complete package of interventions is changing the classroom environments for preschoolers on a fundamental level to include art experiences throughout, and these occurrences are taking place for children who may never have these experiences otherwise.



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## APPENDIX A

Treatment Classes:		Pre Test		Post Test	
Child #	M/F	# Minutes	# Prompts	# Minutes	# Prompts
1	F	3:52	5	5:42	9
2	M	2:30	5	5:33	7
3	M	8:58	7	5:14	5
4	F	5:00	6	9:37	5
5	F	5:33	4	5:29	5
6	M	3:37	6	3:18	6
7	M	5:41	10	6:01	4
9	M	2:24	5	1:21	5
12	M	2:49	10	4:15	5
14	M	1:37	5	2:38	4
15	F	3:24	5	5:45	5
16	F	2:43	11	1:22	5
26	F	5:20	6	18:28	5
27	F	3:24	4	7:59	5
28	M	4:15	4	5:55	6
29	F	5:48	4	7:29	4
30	F	2:07	5	4:34	5
31	M	3:33	6	2:30	5
32	F	3:08	6	4:29	6
33	F	5:14	4	11:50	5
34	M	2:04	6	1:52	5
35	F	7:26	5	6:07	6
36	F	7:01	4	5:59	6
37	M	3:40	8	2:15	5
38	F	5:20	5	7:44	5
40	M	4:54	10	7:10	5
41	M	5:58	6	4:19	6
42	M	3:36	5	4:14	5
43	M	2:24	6	1:20	6
44	F	2:27	5	4:15	5
45	F	5:17	5	2:51	5
46	M	2:38	7	2:56	5
47	F	7:36	4	6:17	4
48	M	2:31	6	1:46	6
49	F	2:29	5	2:45	5
50	F	3:46	5	5:04	4
<b>Total M:</b>		17			
<b>Total F:</b>		19			
<b>Total children :</b>		36			
<b>Avg. Minutes &amp; Prompts:</b>		<b>4:10</b>	<b>6</b>	<b>5:10</b>	<b>5</b>
<b>Avg. prompt change:</b>			<b>17% decrease</b>		
<b>-1</b>					
<b>Avg. minutes change:</b>			<b>24% increase</b>		
<b>+1.00</b>					





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## APPENDIX B



CONTROL GROUP		Pre Test		Post Test	
Child #	M/F	# Minutes	# Prompts	# Minutes	# Prompts
17	M	3:53	6	3:00	7
19	F	3:50	5	3:46	5
20	M	2:03	4	3:58	5
21	M	2:20	4	2:16	6
22	F	3:10	6	5:42	6
23	M	5:04	5	4:36	5
24	F	3:29	5	5:36	5
25	F	4:34	8	7:21	6
Total M:		4			
Total F:		4			
Total children:		8			
<b>Avg. Minutes &amp; Prompts:</b>		<b>3:32</b>	<b>5</b>	<b>4:31</b>	<b>6</b>
<b>Avg. prompt change:</b>		<b>+1</b>			
		<b>20% increase</b>			
<b>Avg. minutes change:</b>		<b>+ 1.39</b>			
		<b>30% increase</b>			

## LIST OF INTERVIEW PROMPTS

### Used in every interview:

What do you see in this picture?  
 Is there anything else you see?  
 Is there anything you want to tell me about this picture?  
 What colors do you see?

### Other prompts used:

What more can you find?  
 Is there anything else you see?  
 What else do you see?  
 Is there more you can find?

Is there anything more you can find?  
 Is there anything else you see in this picture?  
 Is there anything more you can find in the picture?  
 You don't see anything else?  
 You can't find anything else?  
 Can you find anything else?  
 Can you tell me what more things you see?  
 Where is this place?  
 Who is this in the picture?

Do you want to say anything else?  
 So let's look at the picture.  
 Let's keep looking at the picture.  
 Let's look at the picture here.

### Responses to child questions (not counted in prompt numbers):

I don't know, what do you think?  
 You tell me what it is.  
 What do you think it is?  
 I don't know, what do you think it is called?

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