

Howard Gardner's Theory of Multiple Intelligences in Art Museum Education

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Abstract

This Master's thesis investigates how Howard Gardner's theory of multiple intelligences can be used within art museum education. Over the period of one month an online survey was sent out through museum listservs to art museum educators researching how they do or do not incorporate multiple intelligences in their programs. This research was guided by the hypothesis that art museum educators do not have one definitive theory and that they may be using the ideas of multiple intelligences unconsciously. The data collected revealed that art museum educators believe multiple intelligence theory has become foundational but can be used more as a guideline for developing educational programs rather than a strict model.

Dedication

To Nanny, Jacqueline LaBarge

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Nomenclature

Multiple Intelligence Theory (MI Theory): Howard Gardner proposed his theory of multiple intelligences (MI) in the 1980s. The MI theory suggests that there are eight or more different types of intelligences that people possess based on research in cognitive science and neuroscience.

- The intelligences include: linguistic, musical, logical-mathematical, spatial, bodily-kinesthetic, interpersonal, intrapersonal, and naturalistic.

Art Museum Educator: A person who works in the education department of an art museum or an art-related museum.

Multi-Modal Teaching: Using different perceptual modalities, such as the five senses, to present information to every type of learner.

Multi-Modal Learning: Someone who learns well through different presentations of information and through different perceptual modalities.

Multi-Sensory: Incorporating different senses (i.e., smell, touch, etc.) to engage visitors in a museum.

Chapter I: Introduction

In the 1970s Howard Gardner began his research of developmental psychology and neuropsychology for his theory of multiple intelligences often referred to as MI theory.¹ In 1983, Gardner published his book *Frames of Mind: The Theory of Multiple Intelligences*, which introduced his theory of MI to the general public.² This theory suggests there are eight or more different intelligences, which every person may possess in different combinations. These intelligences include: linguistic, musical, logical-mathematical, spatial, bodily-kinesthetic, interpersonal, intrapersonal, and naturalistic.³ People may have strengths or weaknesses in one or more of the intelligences.⁴ The theory of MI invites a pluralistic view of intelligence and accepts the idea that everyone processes information differently.

The public and private educational communities both have adapted the MI theory and begun creating MI schools and curriculums.⁵ In the museum education community, children's museums have included ideas of Gardner's theory in their exhibition design and programming. In art museums, there is evidence that aspects of the theory or individual intelligences have been incorporated into their programming. Being a newly

¹ Howard Gardner, *Multiple Intelligences: New Horizons*, Rev. ed. (New York: Basic Books, 2006), vii.

² Howard Gardner, *Frames of Mind: The Theory of Multiple Intelligences* (New York: Basic Books, 1983).

³ Gardner, *Frames of Mind*, 77-251.

Naturalistic Intelligence was not added until 1996. See Bruce Campbell, "The Naturalistic Intelligence," Johns Hopkins School of Education, <http://education.jhu.edu/PD/newhorizons/strategies/topics/mi/campbell.htm> (accessed October 28, 2014).

⁴ Valerie Strauss, "Howard Gardner: 'Multiple intelligences' are not 'learning styles'" *Washington Post*, October 16, 2013.

⁵ Gardner, *Multiple Intelligences: New Horizons*, 53.

recognized professional field, museum educators use a wide variety of theories in their practice.⁶ Since museums allow for experiential learning by incorporating MI theory into art museum educational practice they are better able to reach a wide variety of audiences.

This thesis was able to determine if art museum educators were incorporating multiple intelligence theory into their programs. In order to determine if art museum educators are utilizing this theory, an online survey was conducted and sent over museum-based listservs. This research was guided by the following research questions: 1) Are art museum educators using concepts of multiple intelligences theory or individual intelligences purposefully or unintentionally in their programming? 2) Why and how are art museum educators using Howard Gardner's theory of multiple intelligences? Based on the research conducted, the data revealed that art museum educators believe MI theory is foundational in their practice but use it more as a guideline for developing programs rather than a strict model.

Overall, this thesis revealed that the use of the multiple intelligence theory is an important way to design educational programs in museums as it allows for multi-modal teaching and learning. People with different intelligences will be able to create connections and better understand art and art history because the theory allots for a variety of teaching techniques. It is essential that art museum educators consider how their programs are reaching their audience and to consider how they are presenting information. Through the data collected during this thesis process the multiple intelligence theory has proven to be a resourceful theory to be utilized in art museum education as a guideline for developing programs.

⁶ David Ebitz, "Sufficient Foundation: Theory in the Practice of Art Museum Education," *Visual Arts Research* 34, no. 2 (January 2008): 15.

Chapter II: Review of the Literature

Howard Gardner's Theory of Multiple Intelligences

In the 1900s, Alfred Binet created an “intelligence quotient” or an IQ test that was intended to measure one’s intelligence.⁷ Binet defined intelligence as the totality of mental processes that are measured through tests.⁸ Howard Gardner, Professor of Cognition and Education at Harvard University, regarded the IQ test as only one way to measure a person’s intelligence. In the 1980s, Gardner introduced his theory of multiple intelligences or MI with his book *Frames of Mind: The Theory of Multiple Intelligences*.⁹ The MI theory suggests there are eight or more different types of intelligences people possess, based on research in cognitive science and neuroscience.¹⁰ Everyone has all of the intelligences, but the degree to which a person may have any one of these intelligences varies.¹¹ For example, a person may possess strengths in a combination of a few intelligences or may be extremely intelligent in one.¹² As defined by Gardner, “An intelligence entails the ability to solve problems or fashion products that are of consequence in a particular cultural setting or community,” revealing the difference

⁷ Howard Gardner, *Multiple Intelligences: New Horizons*, Rev. ed. (New York: Basic Books, 2006), 3.

⁸ Alfred Binet and Theodore Simon, *A Method of Measuring the Development of the Intelligence of Young Children*, trans. Clara Harrison Town (Lincoln, Illinois: The Courier Company, 1911), 3-5.

Columbia Electronic Encyclopedia, 6th ed., s.v. “Intelligence.”

⁹ Gardner, *Multiple Intelligences: New Horizons*, vii.

¹⁰ Gardner, *Multiple Intelligences: New Horizons*, 5.

These intelligences include: linguistic, musical, logical-mathematical, spatial, bodily-kinesthetic, interpersonal, intrapersonal, and naturalistic.

¹¹ Valarie Strauss, “Howard Gardner: ‘Multiple intelligences’ are not ‘learning styles’” *Washington Post*, October 16, 2013.

¹² Strauss, “Howard Gardner: ‘Multiple intelligences’ are not ‘learning styles’” *Washington Post*, October 16, 2013.

between the traditional ideas of one intelligence and Gardner's MI theory.¹³ Compared to Gardner's theory, general intelligence (g) is measured through an IQ test.¹⁴ Gardner broadens the spectrum for classifying one's intelligences by allotting for multiple possibilities.

Criteria for the Multiple Intelligences Theory

Although many argue there may be more than eight intelligences, Gardner defines eight criteria each intelligence should fulfill. All of the intelligences must be valued by human cultures.¹⁵ The criteria allowed Gardner to define the eight different intelligences.

1. The first criterion includes isolation by brain damage, which could destroy or isolate an intelligence.
 - Example: If one were to suffer trauma in the right hemisphere of the brain this could cause difficulty discriminating tones, which is a part of the musical intelligence.¹⁶ This trauma would destroy the use of the musical intelligence.¹⁷
2. The second is the existence of savants, prodigies, and other exceptional individuals within specific intelligences.
 - Example: These are people such as Wolfgang Mozart who is considered a prodigy of music and would be considered to have a strong musical intelligence.

¹³ Gardner, *Multiple Intelligences: New Horizons*, 6.

¹⁴ Lynn Waterhouse, "Multiple Intelligences, the Mozart Effect, and Emotional Intelligences: A Critical Review," *Educational Psychologist* 41, no. 4 (Fall 2006): 210.

¹⁵ Gardner, *Frames of Mind: The Theory of Multiple Intelligences*, 66-71.

¹⁶ Gardner, *Frames of Mind: The Theory of Multiple Intelligences*, 125.

¹⁷ Examples were found from: Gardner, *Frames of Mind: The Theory of Multiple Intelligences*, 68 – 125; Armstrong, *Multiple Intelligences in the Classroom*, 7.

3. Next, is an identifiable core operation or set of operations, which are intelligences triggered by internal or external sources. The core operation or set of operations is the way to determine if someone is strong or weak in one of the intelligences.
 - Example: A core operation by an external source for the bodily-kinesthetic intelligence would be to imitate movement of others.¹⁸ Copying another person would be the external source and the core operation would be the movement.
4. The fourth is a history of the intelligence and a set of “end-state” performances, meaning prodigies of the intelligence have created a set of criteria which others with strength in the same intelligences should be able to fulfill.
 - Example: Mozart is an example of a musical prodigy and other musical prodigies should be able to do the same things.
5. Additionally, an evolutionary history and evolutionary plausibility or development of an intelligence over time that may have occurred through mutations.
 - Example: The spatial intelligence is evident in cave drawings or early musical instruments for the musical intelligence.¹⁹
6. The sixth criterion involves support from experimental psychological tasks, meaning the study of specific intelligences.
 - Example: An example of this criterion would be studying linguistic processes in-depth.²⁰

¹⁸ Gardner, *Frames of Mind: The Theory of Multiple Intelligences*, 68.

¹⁹ Armstrong, *Multiple Intelligences in the Classroom*, 7.

7. Another criterion is support from psychometric findings, such as standardized tests.

- Example: The logical-mathematical intelligence can be measured through IQ tests.

8. The last is susceptibility to encoding in a symbol system, which develop culturally.²¹

- Example: The linguistic intelligence is symbolized through different spoken and written languages.²²

Based on these eight criterion, Gardner was able to identify eight different intelligences.

The Intelligences

Linguistic Intelligence

In his book, *Frames of Minds: The Theory of Multiple Intelligences*, Gardner introduces the linguistic intelligence by talking about different poets who use semantics to create their poems.²³ Semantics is the study of words and the meanings of words in their contexts.²⁴ Semantics is a critical part of the linguistic intelligence, yet there are other aspects Gardner includes in his definition of this intelligence. He identifies four aspects of the linguistic intelligence. The first is the rhetoric aspect or the ability to

²⁰ Gardner, *Frames of Mind: The Theory of Multiple Intelligences*, 69.

²¹ Gardner, *Frames of Mind: The Theory of Multiple Intelligences*, 66-71.

²² Armstrong, *Multiple Intelligences in the Classroom*, 8.

²³ Gardner, *Frames of Mind: The Theory of Multiple Intelligences*, 77-81

²⁴ Merriam-Webster Dictionary, "Semantics," <http://www.merriam-webster.com/dictionary/semantics> (accessed March 19, 2014).

convince others through language.²⁵ An example would be a lawyer being able to convince the jury of his or her point of view. The next aspect is the mnemonic potential of language or the ability to remember information. The third is the role of language in explanation through learning and teaching. The final aspect of linguistic knowledge is the potential of language to explain its own activities or meta-linguistics.²⁶ When combined these aspects make up the theory of the linguistic intelligence.

In the brain, the linguistic intelligence occupies the Broca's/Wernicke's area as well as the right and left hemispheres. Broca's/Wernicke's area is responsible for syntactic processes. Someone with damage to this area would not be able to form complete sentences.²⁷ For a right-handed individual, language relates to the left hemisphere of the brain and the opposite is true for left-handed individuals.

Musical Intelligence

Another intelligence that fulfills Gardner's criteria is the musical intelligence. Since there are many different ways to make music, Gardner identifies the two essential abilities of the musical intelligence as pitch and rhythm.²⁸ It is known for people to develop musical skills at a very young age. As these musically talented people grow older, they also must learn the technical aspects of music to continue to develop. An example of a person with a strong musical intelligence would be Johann Sebastian Bach. Gardner states,

²⁵ Gardner, *Frames of Mind: The Theory of Multiple Intelligences*, 82.

²⁶ Gardner, *Frames of Mind: The Theory of Multiple Intelligences*, 82-83.

²⁷ Gardner, *Multiple Intelligences: New Horizons*, 13; Thomas Armstrong, *Multiple Intelligences In the Classroom*, 2nd ed. (Alexandria, VA: Association for Supervision and Curriculum Development, 2000), 5.

²⁸ Gardner, *Frames of Mind: The Theory of Multiple Intelligences*, 111.

The majority of musical capacities, including the central capacity of sensitivity to pitch, are localized in most normal individuals in the right hemisphere. Thus, injury to the right frontal and temporal lobes causes pronounced difficulties in discriminating tones and in reproducing them correctly, even as injuries in the homologous areas in the left hemisphere (which cause devastating difficulties in natural language) generally leave musical abilities unimpaired.²⁹

This reveals that the musical intelligence is located in the right hemisphere and damage in this area can cause difficulties in understanding music.³⁰

Logical-Mathematical Intelligence

The logical-mathematical intelligence develops from a child's initial understanding of objects, where children can be seen ordering and reordering objects as a way of assessing objects.³¹ From this development of the initial understanding, a child develops further understanding of other concepts. In Gardner's explanation of this intelligence, he references Jean Piaget's Stages of Cognitive Development. A person will eventually reach the formal mental operation stage by the age of eleven or twelve and will be able to understand objects as well as symbols, words, etc. This reveals how the intelligence can develop over time.³² Despite Gardner's criticism of IQ tests, the logical-mathematical intelligence is measured through such tests. The logical-mathematical intelligence consists of problem-solving in mathematics and science. This intelligence occupies the left frontal lobes and right parietal lobes. The left frontal lobes are important

²⁹ Gardner, *Frames of Mind: The Theory of Multiple Intelligences*, 125

³⁰ Gardner, *Frames of Mind: The Theory of Multiple Intelligences*, 125; Armstrong, *Multiple Intelligences In the Classroom*, 5.

³¹ Gardner, *Frames of Mind: The Theory of Multiple Intelligences*, 136.

³² Gardner, *Frames of Mind: The Theory of Multiple Intelligences*, 139; Jean Piaget, "Intellectual Evolution from Adolescence to Adulthood," *Human Development* 15, (1972): 1-12.

for logical deduction, while the right parietal lobes are used for numerical calculation.³³ Damage to these sections of the brain leads to issues in solving multiple step problems.³⁴

Spatial Intelligence

The fourth intelligence is spatial intelligence. In the book *Multiple Intelligences in the Classroom*, Thomas Armstrong, an educator and psychologist with 27 years of experience, describes spatial intelligence as, “the ability to perceive the visual-spatial world accurately (e.g., as a hunter, scout, or guide) and to perform transformations on those perceptions (e.g., as an interior decorator, architect, artist, or inventor).” This reveals that the spatial intelligence includes the ability to consider spatial relationships between objects and transform them.³⁵ Another example is in Gardner’s book *Multiple Intelligences: New Horizons* where he introduces the spatial intelligence with an explanation of how sailors are able to find their way around the seas through their knowledge of the spatial relationships between the stars and the land.³⁶ Artists also have the ability to see these spatial relationships. For example, an artist painting a still life must be able to see the relationship between different objects. The spatial intelligence occupies the right cerebral cortex of the brain; damage to this part of the brain causes problems with spatial processing.³⁷

³³ Gardner, *Multiple Intelligences: New Horizons*, 12.

³⁴ Gardner, *Frames of Mind: The Theory of Multiple Intelligences*, 166; Armstrong, *Multiple Intelligences In the Classroom*, 5.

³⁵ Pokey Stanford, “Multiple Intelligence for Every Classroom,” *Intervention in School & Clinic* 39, no. 2 (November 2003): 81.

³⁶ Gardner, *Multiple Intelligences: New Horizons*, 13.

³⁷ Gardner, *Multiple Intelligences: New Horizons*, 14; Armstrong, *Multiple Intelligences in the Classroom*, 5.

Bodily-Kinesthetic Intelligence

The bodily-kinesthetic intelligence involves the ability to move one's body. This can be seen in athletes who are able to control their movements. This intelligence also includes using one's hands to produce or transform things, for example, sculptors and surgeons.³⁸ The bodily-kinesthetic intelligence is related to the motor cortex part of the brain, which is connected to the spinal cord and controls movement.³⁹ Damage to this area would make even simple movements difficult.⁴⁰

Personal Intelligences

There are two intelligences that relate to relationships with other people and they are called the personal intelligences. One is the relationship we have with others and the other is the relationship we have with ourselves. The interpersonal intelligence is one's relationship with others. In Gardner's book *Multiple Intelligences: New Horizons*, he describes the interpersonal intelligence with an anecdote about Helen Keller and Anne Sullivan, her teacher. Keller was born both blind and deaf, which made her unable to communicate with others. Sullivan knew by building a relationship with Keller she would be able to teach her more effectively.⁴¹ Someone with the interpersonal intelligence is able to read others feelings, emotions, intentions, etc.

The other personal intelligence is the intrapersonal intelligence, which is the ability to be in touch with one's inner personal feelings. Gardner defines the intrapersonal intelligence as, "Knowledge of the internal aspects of a person: access to

³⁸ Armstrong, *Multiple Intelligences In the Classroom*, 2.

³⁹ Gardner, *Frames of Mind: The Theory of Multiple Intelligences*, 222.

⁴⁰ Gardner, *Multiple Intelligences: New Horizons*, 10.

⁴¹ Gardner, *Multiple Intelligences: New Horizons*, 14-15.

one's own feeling life, one's range of emotions, the capacity to make discriminations among these emotions and eventually to label them and to draw on them as a means of understanding and guiding one's own behaviors."⁴² Someone with the ability to acknowledge and understand his or her own emotions would be considered someone with an intrapersonal intelligence, for example, Sigmund Freud. Both the interpersonal and intrapersonal intelligence are related to the frontal lobes. These frontal lobes are often related to personality change when there is damage.⁴³

Naturalistic Intelligence

The last intelligence Gardner identifies is the naturalistic intelligence. Someone with the naturalistic intelligence has a strong relationship with nature and is able to identify different species in nature. For example, someone who gardens well would be considered someone with a strong naturalistic intelligence. Gardner explains that the naturalistic goes beyond the natural world stating, "Today few people in the developed world are directly dependent on naturalistic intelligence. We simply go to the grocery store or order groceries on the phone or the Internet. And yet, I suggest, our entire consumer culture is based on the naturalistic intelligence."⁴⁴ This reveals that the naturalistic intelligence also includes consumer goods. Brain damage studies have revealed evidence of people who recognize and name inanimate objects but cannot

⁴² Gardner, *Multiple Intelligences: New Horizons*, 17.

⁴³ Gardner, *Multiple Intelligences: New Horizons*, 15-17.

⁴⁴ Gardner, *Multiple Intelligences: New Horizons*, 19.

recognize living things, as well as vice versa.⁴⁵ The ability to discriminate between living and non-living things is in the left parietal lobe.⁴⁶

Other Intelligences

These eight intelligences: linguistic, musical, logical-mathematical, spatial, bodily-kinesthetic, intrapersonal, interpersonal, and naturalistic all make up Gardner's MI theory. However, some argue there are other intelligences, which should be included, such as the spiritual intelligence. This spiritual intelligence would involve having unearthly experiences. In the article, "Is Spirituality an Intelligence? Motivation, Cognition, and the Psychology of Ultimate Concern," Robert Emmons, Ph.D. of Personality Psychology, argues spirituality should be included in the intelligences. Emmons describes five components of the spiritual intelligence which include the capacity for transcendence; the ability to enter into heightened spiritual states of consciousness; the ability to invest everyday activities, events, and relationships with a sense of the sacred; the ability to utilize spiritual resources to solve problems in the living; and the capacity to engage in virtuous behavior.⁴⁷ However, Gardner argues the spiritual intelligence could not be a part of the MI theory because it does not fulfill the criteria set forth by him. His main concern as stated in the article, "A Case Against Spiritual Intelligence," is the lack of brain evidence that supports the spiritual intelligence, which may be in part because it has not been studied much by

⁴⁵ Gardner, *Multiple Intelligences: New Horizons*, 19.

⁴⁶ Thomas Armstrong, *Multiple Intelligences In the Classroom*, 2nd ed. (Alexandria, VA: Association for Supervision and Curriculum Development, 2000) 5.

⁴⁷ Robert A Emmons, "Is Spirituality an Intelligence? Motivation, Cognition, and the Psychology of Ultimate Concern" *International Journal for the Psychology of Religion* 10, no. 1 (January 2000): 8.

neuroscientists.⁴⁸ In addition, different religions believe their religion is the only one, so differences between faiths cause invalidity.

Another intelligence which Gardner has not included in his theory is existential, which involves questioning the world around one. Yet, this intelligence fits into many others. Gardner states, “My conservative nature dictates caution in giving the ninth place of honor to existential intelligences. I do mention this candidate intelligence in passing, but, in homage to a famous film by Federico Fellini, I shall continue for the time being to speak of ‘8 ½ Intelligences’.”⁴⁹

Critiques of the Theory

The multiple intelligence theory has raised many questions and comments since first being introduced in the 1980s. In 1995, nearly a decade after introducing this theory, Gardner wrote an article, “Reflections on Multiple Intelligences,” which discussed how myths have developed about the theory. This was the first article that addressed the interpretations that arose from the theory.⁵⁰

The first myth relates to the original seven intelligences (when this article was written naturalistic had not been considered an intelligence) and is the idea that there is a way to measure each intelligence.⁵¹ In the article, “Multiple Intelligences, the Mozart Effect, and Emotional Intelligence: A Critical Review,” by Lynn Waterhouse, Professor of Global Graduate Programs at The College of New Jersey, she argues there cannot be a

⁴⁸ Howard Gardner, “A Case Against Spiritual Intelligence,” *The International Journal for the Psychology of Religion* 10, no. 1 (January 2000): 30.

⁴⁹ Gardner, *Multiple Intelligences: New Horizons*, 21.

⁵⁰ Gardner, “Reflections on Multiple Intelligences,” 1.

⁵¹ Gardner, “Reflections on Multiple Intelligences,” 1.

classroom test for students because MI theory itself has not been verified.⁵² However, Gardner never intended for educational standards to develop from the theory. In addition, he believes testing MI theory on someone would require testing each individual intelligence in a variety of ways.⁵³

The second myth of MI theory is that an intelligence is the same as a domain or a discipline.⁵⁴ Gardner defines an intelligence as bio-psychological potentials that everyone possesses, whereas a domain or discipline is an organized activity within one or more cultural settings.⁵⁵ For example, Gardner explains there is a musical intelligence that one possesses and a domain of music, which is an organized activity.⁵⁶

The third myth is that an intelligence is the same as a learning style. In a recent article “Howard Gardner: ‘Multiple Intelligences’ are not ‘learning styles’,” Gardner clarifies that his concept of intelligences should not be confused with learning styles. Everyone has all of the intelligences, yet some are stronger in some people than others.⁵⁷ In this article, Gardner states, “The concept of intelligences does not focus on how linguistic or spatial information reaches the brain – via eyes, ears, hands, it doesn’t matter. What matters is of the mental computer, the intelligence, that acts upon that

⁵² Lynn Waterhouse, “Multiple Intelligences, the Mozart Effect, and Emotional Intelligences: A Critical Review,” *Educational Psychologist* 41, no. 4 (Fall 2006): 209.

⁵³ Gardner, “Reflections on Multiple Intelligences,” *Phi Delta Kappan* 77, no. 3 (November 1995): 2.

⁵⁴ Gardner, “Reflections on Multiple Intelligences,” 2.

⁵⁵ Gardner, *Multiple Intelligences: New Horizons*, 31; Howard Gardner, “Replies to My Critics,” in *Howard Gardner Under Fire: The Rebel Psychologist Faces His Critics*, ed. Jeffery Schaler (Chicago and La Salle, Illinois: Open Court Publishing Company, 2006), 294.

⁵⁶ Gardner, *Multiple Intelligences: New Horizons*, 31.

⁵⁷ Valerie Strauss, “Howard Gardner: ‘Multiple intelligences’ are not ‘learning styles’,” *Washington Post*, October 16, 2013.

sensory information, once picked up.” The reaction to information reveals strength of one’s intelligence, not how this intelligence reaches a person.⁵⁸

The fourth myth of the theory is that it is not empirical.⁵⁹ To create the theory Gardner combined findings from a variety of studies from a diverse range of disciplines.⁶⁰ In Waterhouse’s article, she argues there is no empirical evidence that supports Gardner’s theory of multiple intelligences and few psychometricians or others with psychological backgrounds support his theory.⁶¹ However, Gardner argues that the theory is based on empirical evidence. In the article, “The Science of Multiple Intelligences Theory: A Response to Lynn Waterhouse,” by Howard Gardner and Seana Moran, Ph.D. of Human Development and Psychology from Harvard University, they discuss how Gardner selected from a variety of different sources including neuroscience, cognitive science, anthropology, and evolutionary sciences allowing Gardner to approach MI theory from a variety of perspectives.⁶²

Other critics question the selection of intelligences and their development. John White, Professor of Philosophy of Education at the Institute of Education, University of London, critiques the criteria set forth by Gardner as invalid, in his article, “Multiple

⁵⁸ Strauss, “Howard Gardner: ‘Multiple intelligences’ are not ‘learning styles’”

⁵⁹ Gardner, “Reflections on Multiple Intelligences,” 4.

⁶⁰ Howard Gardner and Seana Moran, “The Science of Multiple Intelligences Theory: A Response to Lynn Waterhouse,” *Educational Psychologist* 41, no. 4 (2006): 227.

⁶¹ Waterhouse, “Multiple intelligences the Mozart Effect, and Emotional Intelligences: A Critical Review,” 209; Waterhouse, “Multiple intelligences the Mozart Effect, and Emotional Intelligences: A Critical Review,” 229.

⁶² Gardner and Moran, 229.

Invalidities.” White argues the eight criteria seem unrelated and random. In addition, he believes it is hard to determine the cultural significance of an intelligence.⁶³

The fifth myth Gardner identifies is, “MI theory is incompatible with *g* (general intelligence), with hereditarian accounts, or with environmental accounts of the nature and causes of intelligence.”⁶⁴ MI theory allows for a variety of possible strengths in intelligences a person may possess, rather than only one way to process information.

The sixth myth stated by Gardner is, “The MI theory so broadens the notion of intelligence that it includes all psychological constructs and thus vitiates the usefulness, as well as the usual connotation, of the term.”⁶⁵ Gardner believes this theory is only meant to encompass the ideas of an individual’s intelligence, rather than change the meaning of the term “intelligence.”

The seventh myth of the MI theory is there are more than seven intelligences.⁶⁶ This article was written in 1995, before the naturalistic intelligence had been included in the theory.⁶⁷ As mentioned previously, Emmons argues that spirituality intelligence should be included. In Gardner’s book, *Multiple Intelligences: New Horizons*, he states the existential intelligence is a promising candidate as another intelligence in the theory. Gardner states, “It could be that there are regions – for example, in the inferotemporal lobe—that are particularly crucial for dealing with the Big Questions. However, it is also

⁶³ John white, “Multiple Invalidities,” in *Howard Gardner Under Fire: The Rebel Psychologist Faces His Critics*, ed. Jeffery Schaler (Chicago and La Salle, Illinois: Open Court Publishing Company, 2006), 47.

⁶⁴ Gardner, “Reflections on Multiple Intelligences,” 4.

⁶⁵ Gardner, “Reflections on Multiple Intelligences,” 4.

⁶⁶ Gardner, “Reflections on Multiple Intelligences,” 5.

⁶⁷ Naturalistic Intelligence was not added until 1996. See Bruce Campbell, “The Naturalistic Intelligence,” Johns Hopkins School of Education, <http://education.jhu.edu/PD/newhorizons/strategies/topics/mi/campbell.htm> (accessed October 28, 2014).

possible that existential questions are just part of a broader philosophical mind—or that they are simply the more emotionally laden of the questions that individuals routinely pose.” These Big Questions may cause brain reactions due to the nature of the questions or they may be an intelligence.⁶⁸ Due to the uncertainty of the existential intelligence, Gardner continues to assert that there are eight intelligences.⁶⁹

Applications in the Classroom

In the 1980s when Gardner wrote his MI theory, he was surprised to find the education field had become interested in the theory because of its accessibility to reach a variety of different students.⁷⁰ Gardner states,

For reasons that I do not fully understand, the theory of multiple intelligences spoke immediately to educators – loudly and quite clearly. Many educators saw an evident relation between the theory, as they understood it, and educational practices they embraced. In a sense, I had presented educators with a Rorschach inkblot, and they were trying to decipher it.⁷¹

This reveals that Gardner had not intended the theory to be used by the educational community. The MI theory allows educators to think of their students as different individuals and consider multi-modal forms of presentation. By acknowledging that there are different intelligences students may possess, teachers are better able to accommodate these intelligences. In the article “Multiple Intelligences for Every Classroom” Pokey Stanford, Professor of Education at William Carey College, discusses a study done in 1984 by John Goodlad, author of *A Place Called School*. Goodlad revealed that in traditional classrooms teachers spent 70% of the day lecturing students.

⁶⁸ Gardner, *Multiple Intelligences: New Horizons*, 21.

⁶⁹ Gardner, *Multiple Intelligences: New Horizons*, 21.

⁷⁰ Gardner, *Multiple Intelligences: New Horizons*, 53.

⁷¹ Gardner, *Multiple Intelligences: New Horizons*, 53.

Goodlad's research also revealed the second largest activity done in classrooms was written assignments.⁷² For students with a strong linguistic intelligence this may be beneficial for them, however, the remaining students with weak linguistic intelligences would struggle. Stanford explains that incorporating multiple intelligences into the classroom allows for all the students to have the opportunity to succeed. In addition, the use of the MI theory in the classroom will create increased motivation in students.⁷³

In the 2003 book, *Multiple Intelligences: Best Ideas from Research and Practice*, Mindy L. Kornhaber, Associate Professor of Education at Pennsylvania State University, Edward Garcia Fierros, Associate Professor at Villanova University, and Shirley A. Veenema, Chair of the Art Department and Art Instructor at Phillips Academy, indicate evidence for the success of MI theory in schools.⁷⁴ Kornhaber, Fierros, and Veenema conducted forty-one interviews with educators from schools in eight states and one in a Canadian province. As a result, they found schools that were implementing multiple intelligences theory reported improvements in standardized test scores. In addition, they found schools using the theory also saw improvements for students with learning disabilities.⁷⁵ Many of the schools utilizing the MI theory have extensive arts programs. They found these schools were using the arts to expand students' knowledge and to create cross-curriculum connections.

⁷² Pokey Stanford, "Multiple Intelligence for Every Classroom," *Intervention in School & Clinic* 39, no. 2 (November 2003): 82.

⁷³ Angela Clarke and Peter Cripps, "Fostering Creativity: A Multiple Intelligences Approach to Designing Learning in Undergraduate Fine Art," *International Journal of Art & Design* 31, no. 2 (June 2012): 114.

⁷⁴ Mindy Kornhaber, Edward Fierros, and Shirley Veenema, *Multiple Intelligences: Best Ideas from Research and Practice* (Boston: Pearson Education Inc., 2004), 12.

⁷⁵ Kornhaber, Fierros, and Veenema, *Multiple Intelligences: Best Ideas from Research and Practice*, 16.

The MI theory has also been incorporated into art classrooms. For example, an Australian university created a class called ‘Body and Space’ based on the MI theory. The class ran for 12 weeks and utilized each of the intelligences in a different art-related activity. As a result the students enjoyed the class and it helped develop their creativity.⁷⁶

Museum Education and Multiple Intelligences

Museum education is newly recognized as a professional field in the last 40 years, yet has been around since the beginning of the 20th century.⁷⁷ In the early part of the 20th century, museums mainly focused on building their collections and were primarily object-based. Similarly, schools have been teaching and assessing students in a very singular manner, instead of focusing on the different ways information can be taught and processed.⁷⁸ With the development of the museum education field, museums have become more focused on the visitor’s experience. Since the introduction of the multiple intelligence theory in the 1980’s, schools have adopted the theory to consider multi-modalities of teaching and learning. However, museum educators often reference a wide variety of educational theorists for facilitating learning in their museums. In the article, “Sufficient Foundation: Theory in the Practice of Art Museum Education,” David Ebitz, then Professor of Art Education at Pennsylvania State University, argued there is not one specific theorist for museum education, rather a diverse selection of educational theories for museum educators to pick and choose from.⁷⁹ During a convention with the National

⁷⁶ Clarke and Cripps, “Fostering Creativity: A Multiple Intelligences Approach to Designing Learning in Undergraduate Fine Art,” 124.

⁷⁷ George E. Hein, “Museum Education,” in *A Companion to Museum Studies*, ed. Sharon Macdonald (Malden, MA: Blackwell Publishing, 2006): 340-341.

⁷⁸ Gardner, *Multiple Intelligences: New Horizons*, 56.

⁷⁹ Ebitz, “Sufficient Foundation: Theory in the Practice of Art Museum Education,” 15.

Art Education Association in 2007, Ebitz asked a group of museum educators to write down theorists and theories used in their profession.⁸⁰ The most popular and recognized theorist was Howard Gardner and his MI theory. Similarly to education, museum educators recognize the relationship between this theory and their practice because it embraces the wide variety of visitors that come to museums. Yet there is little evidence that art museum education programs are being developed around MI theory similarly to how they are being used in classrooms, based on the researcher's study of articles and books about MI theory and art museum education. This is not to say that museums are not using the theory or aspects of the theory because it may be internal documentation or it is only discussed internally, rather than publicizing the use of these ideas.

In Gardner's book, *Multiple Intelligences: New Horizons*, he discusses the experiential nature of museums and apprenticeships, which he believes these are more effective models of education.⁸¹ Gardner states,

Certainly there are exemplary schools, and just as certainly there are poorly designed and poorly run museums. Yet, as institutions for learning, schools have become somewhat anachronistic, whereas museums have retained the potential to engage students, to teach them, to stimulate their understanding, and, most important, to help them assume responsibility for their own future learning.⁸²

Incorporating Gardner's MI theory in museums will create these multi-modal experiences for the intelligences of visitors.

Children's museum exhibitions and programs often incorporate ideas of MI theory. For example, the Children's Museum of Atlanta and Connecticut Children's

⁸⁰ Ebitz, 15-16.

⁸¹ Gardner, *Multiple Intelligences: New Horizons*, 134-135.

⁸² Gardner, *Multiple Intelligences: New Horizons*, 137.

Museum utilize ideas of MI theory to develop exhibitions, designs, and programs.⁸³

There is evidence art museums have begun to incorporate different aspects of intelligences to create their programs. For example, Museum Movement Techniques, or MMT, has been developed as a visual and movement thinking strategy to encourage the use of movement and the bodily-kinesthetic intelligence to look at art.⁸⁴ The Metropolitan Museum of Art has a program called Art Trek, which incorporates similar ideas of the MI theory.⁸⁵ The Art Trek program looks at multiple works of art and incorporates ideas of interpersonal, bodily-kinesthetic, logical-mathematical, and spatial intelligence. This researcher believes although the decision to use these different intelligences may not be conscious, if art museum educators considered utilizing the MI theory similarly to classroom educators, the effect would be beneficial. MI theory would offer learning opportunities to a wider range of audiences to better understand the content being displayed. As informal learning institutions, the use of the MI theory in programs offered by art museums will allow for a broader audience to create personal connections and motivate visitors to learn.

Conclusion

Based on the evidence presented in the literature review, the researcher concludes there is a lack of acknowledgement that MI theory is being used in art museum education.

There were only a few articles found that actually recognize the use of MI theory in art

⁸³ The Connecticut Children's Museum, "Connecticut Children's Museum: Universal Design for Learning Award 2005 Application," http://www.childrensbuiding.org/vsa_application.pdf (accessed April 15, 2014).

⁸⁴ Shelley K. Weisberg, "Moving Museum Experiences," *Journal of Museum Education* 36, no. 2 (Summer 2011): 199.

⁸⁵ Eunjung Chang, "Art Trek: Looking at Art with Young Children," *International Journal of Education through Art* 8, no. 2 (May 2012): 151.

museum education. This does not seem purposeful rather art museum educators are not referencing the use of the theory. The research Gardner presents about the theory makes it evident that this theory would be beneficial to be incorporated into art museums similarly to how it has been used in schools. As a way to better understand how and if art museum educators are using multiple intelligence theory in their practice the researcher decided to develop an online survey to gain insight on this topic.

Chapter III: Methodology

Introduction

As a way to determine how art museum educators in their programs were utilizing the multiple intelligence theory a methodology was developed.⁸⁶ Through thorough research of multiple intelligences in education and museum education, the researcher realized that the education field has begun to incorporate the theory of MI into their classrooms and lesson plans in order to better account for students' different intelligences. Art museums have not openly and publicly stated the use of Gardner's MI theory in their educational practices. This led to the hypothesis that if art museum educators are using the ideas of Gardner's multiple intelligence theory in their institution's programs then they are not consciously recognizing that this is Gardner's theory because it has become foundational in art museum education. In order to determine if art museum educators are using MI theory purposefully, using aspects of the theory unknowingly, or are not using the theory in their programs, an online survey was administered.⁸⁷ The evaluation took place from June 12, 2014, to July 12, 2014, and was sent out via SurveyMonkey, an online survey and questionnaire tool, over museum-based listservs.⁸⁸

⁸⁶ Gardner, *Multiple Intelligences: New Horizons*, vii.

⁸⁷ Please See Appendix I for Survey.

⁸⁸ These listservs included: American Association of Museums LinkedIn, Museum-Ed listserv, Museum-L, Philly MER, and National Art Education Association Museum Education Division listserv.

Rationale for Research

The reason the researcher is investigating multiple intelligences in art museum education is because it has proven successful in schools, which could lead to success in museums. In Thomas Armstrong's book, *Multiple Intelligences in the Classroom*, he states that MI theory in education has allowed for multiple perspectives in teaching.⁸⁹ In addition, in the book *Multiple Intelligences: Best Ideas from Research and Practice* by Mindy L. Kornhaber, Edward Garcia Fierros, and Shirley A. Veenema, they reveal the success of the multiple intelligence theory in forty-one schools through quantitative and qualitative studies.⁹⁰ Being able to identify different students' intelligences allows educators to use more specialized teaching methods. This theory recognizes that people learn and think in different ways and this is why it was beneficial to learn how art museum educators are using this theory or why they are not.⁹¹

Art museum educators were the primary audience for this thesis research because they work to create programs that teach art and art history in different ways. In the article, "Intrinsic value: The arts in the high school curriculum" by Jessica Davis, Founding Director of the Harvard Graduate School of Education, Arts in Education Program, she addresses the fact that New York City schools with art education had higher graduation rates than those without.⁹² Also, in the article, "Bringing Children to Art – Bringing Art to Children" by Kathy Unrath, Associate Professor of Art Education at University of Missouri, and Mick Luehrman, Professor of Art and Design at University of Central

⁸⁹ Armstrong, *Multiple Intelligences in the Classroom*, 1.

⁹⁰ Kornhaber, Fierros, and Veenema, 14.

⁹¹ The Gardner School of Arts & Sciences, "Multiple Intelligences," <http://www.gardnerschool.org/programs/curriculum/multiple-intelligences/> (accessed April 12, 2014).

⁹² Jessica Davis, "Intrinsic Value: The Arts in the High School Curriculum" *Visual Inquiry: Learning & Teaching Art* 1, no. 2 (April 2012), 106.

Missouri, they state, “Having access to museums at an early age sets the tone for further exploration of one’s culture by developing skills to interpret visual language,” revealing the importance of both art and museums.⁹³ This researcher believes that due to the hands-on nature of museums, they are good candidates for incorporating MI theory. The multi-modal possibilities of museum education create an ideal learning location for incorporating the multiple intelligences theory into their practice.

Research Questions

This study was guided by the following research questions:

1. Are art museum educators using concepts of MI theory or individual intelligences purposefully or unintentionally in their programming?
2. Why and how are art museum educators using Howard Gardner’s theory of multiple intelligences?

Research Team

A research team was developed in order to assist with the interpretation of data from the online surveys. The researcher was personally responsible for the data analysis, findings, conclusion, applicability, implications of this thesis, and this data. The research team consisted of myself, a 23-year-old Caucasian female, with a bachelor’s degree in art history, currently studying museum education at the University of the Arts and a Caucasian 23-year-old male with a bachelor’s degree in Communications and a minor in

⁹³ Kathy Unrath and Mick Luehrman, “Bringing Children to Art – Bringing Art to Children,” *Art Education* 62, no. 1 (March 2009), 41.

Mass Communications who is a Sales Representative at UPS. Pre and post journals were filled out allowing reflectivity about the topic, audience, and those studied.

Participants

The participants of the study were art museum educators who work at art museums within the United States of America and Canada. These art museum educators were selected as the participants of this evaluation because they are most familiar with their institution's programs and educational theories. There was no differentiation in the job level or title of the art museum educator as long as they are working within the education department or with an educational focus within an art museum. Other employees of art museums were not selected to participate in the study because they may not be as familiar with the educational programming in the institution.

Participant Solicitation

In order to reach the art museum educators, an online survey was created on SurveyMonkey and distributed through museum-based listservs. These listservs included: American Association of Museums LinkedIn, Museum-Ed listserv, Museum-L, Philly MER, and National Art Education Association Museum Education Division listserv. At the end of each online survey a question asked participants if they would be interested in partaking in a more in-depth interview. Based on the responses to this question, three different art museum educators were selected for participant discussions to help guide the researcher's conclusions.

Measures

The measures used for this study were an online survey created on SurveyMonkey and phone interviews with selected respondents. After receiving consent from the participant, a short description of MI theory was given and the next seven questions pertained to the use of MI theory in the museum. The remaining questions were demographic-based.⁹⁴

Functional Equivalence

Thesis committee members and museum educators reviewed the survey. The questions were prototyped to ensure readability and comprehension.

Demographic Data Collection

The demographic data that was collected during the online survey involved the art museum educator and the educator's institution. For the art museum educator, the demographics collected included the art museum educator's position in the museum, gender, age, race/ethnicity, educational background, and length of time they have worked in museum education. The museum demographics collected included type of institution, city and state of institution, governance, association with college or university, institution's annual budget, and the size of the education department. No identifying information was collected or shared and no identifying information such as the name of the person or museum was given to the research team.

⁹⁴ Please see Appendix I for Survey.

Procedure

The survey was prototyped by University of the Arts Museum Education Graduate students and thesis committee members. Following the prototyping phase, the online survey was sent out to art museum educators through museum-based listservs. Once this data was collected, the research team received the open-ended responses and was asked to identify any over-arching themes and ideas. Following this, the data was coded and analyzed.

Validity and Reliability

External Validity

The information gathered in the study may be generalized to the common population of art museum educators. The wide range of data collected from art museum educators (including demographics of the museum and their museums) allowed for external validity within a broader community.⁹⁵

Internal Validity

This study followed the rules and regulations of The University of the Arts. Information about the study was not shared with the participants until the end of the study. Surveying a sampling of art museum educators in the United States and Canada

⁹⁵ University of Connecticut: Neag Center for Gifted Education, "External Validity," University of Connecticut, <http://www.gifted.uconn.edu/siegle/research/Samples/externalvalidity.html> (accessed April 15, 2014).

allowed for internal validity. In addition, the research team helped ensure data was analyzed correctly.⁹⁶

Triangulation

The triangulation of data methods allows for validity and reliability of the data analyzed.⁹⁷ The collection of both surveys and in-depth informational interviews helped reinforce data and helped illustrate themes. In addition, having the research team help interpret the data also allowed for validity and reliability.

Conclusion

The purpose of this study is to inform whether or not art museum educators are using Gardner's theory of multiple intelligences. The evaluation was intended to reveal whether museums are using it or not using it, how they are using this theory, and whether this theory is used intentionally or unintentionally. The methodology of the study ensured the validity and reliability of the study. Once the data was collected it was analyzed used to answer the hypothesis.

⁹⁶ Indiana University, "Internal Validity," Indiana University, http://www.indiana.edu/~p1013447/dictionary/int_val.htm (accessed April 15, 2014).

⁹⁷ Hays and Singh, *Qualitative Inquiry in Clinical and Educational Settings*, 210.

Chapter IV: Data Analysis

Introduction

In order to understand how art museum educators are or are not using Howard Gardner's theory of multiple intelligences an online survey was conducted. The online survey asked a range of questions about the museum educator's demographics, their institution's demographics, and questions regarding MI theory and the museum field/practice. Over a one-month period 164 responses were collected. Of the 164 respondents, 69 participants completed the survey. Of these 69 completed surveys, only 42 were art museum educators. The following information is based on the 42 responses collected from art museum educators.

Research Question One

The data collected were able to answer the first research question, which states, "Are art museum educators using concepts of MI theory or individual intelligences purposefully or unintentionally in their programming?"

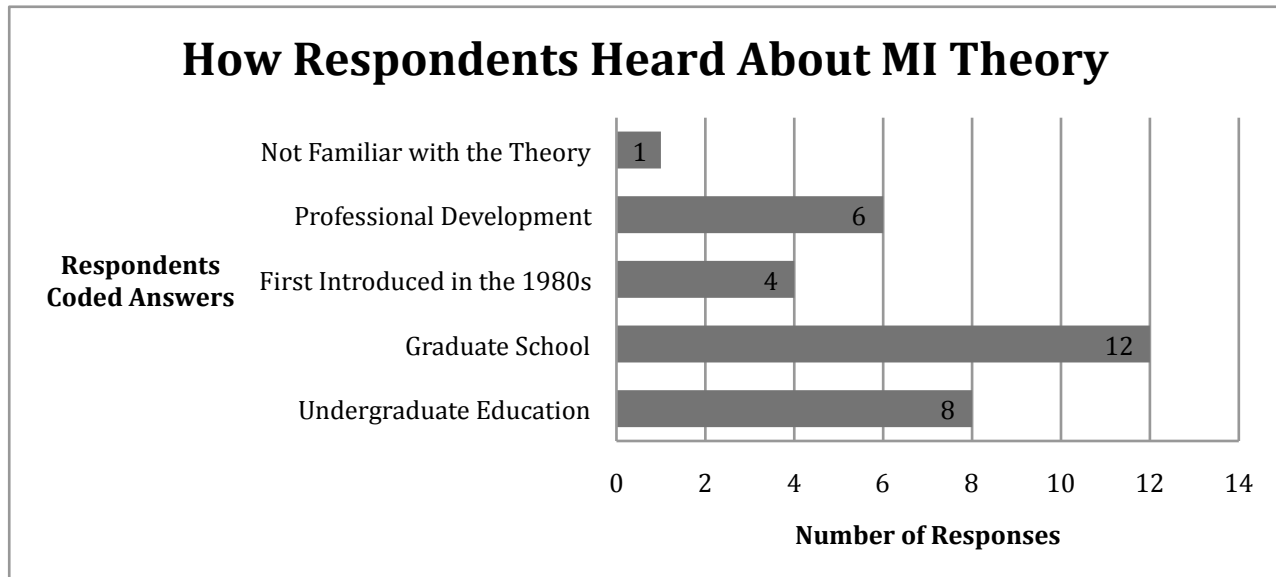


Figure 1. (n=37)

Figure 1 reveals the responses from part of the question, “Are you familiar with Howard Gardner’s theory of multiple intelligences? If so, please explain how you heard about this theory and what you think about this theory.” Only 31 respondents directly answered whether they were familiar or not; 37 stated how they heard about the theory. Of the 31 responses about familiarity only one respondent was not familiar with MI theory and the remaining 30 respondents were familiar with the theory of multiple intelligences. The 37 respondents who explained how they heard about the theory were coded into four categories – learned about the theory: 1) through professional development; 2) when the theory was first introduced in the 1980s; 3) in graduate school; 4) in undergraduate education. Of the 37 who stated how they heard about the theory, it is interesting the majority of respondents (12) said that they learned from their graduate school. The respondents who said they learned about the theory in graduate school received either a Master’s in museum studies, museum education, art education, arts

administration, or an education-related degree. One can conclude that museum, education, and art-related Master's programs believe it is important to teach the theory of MI, thus revealing that it is considered an important theory in these fields.

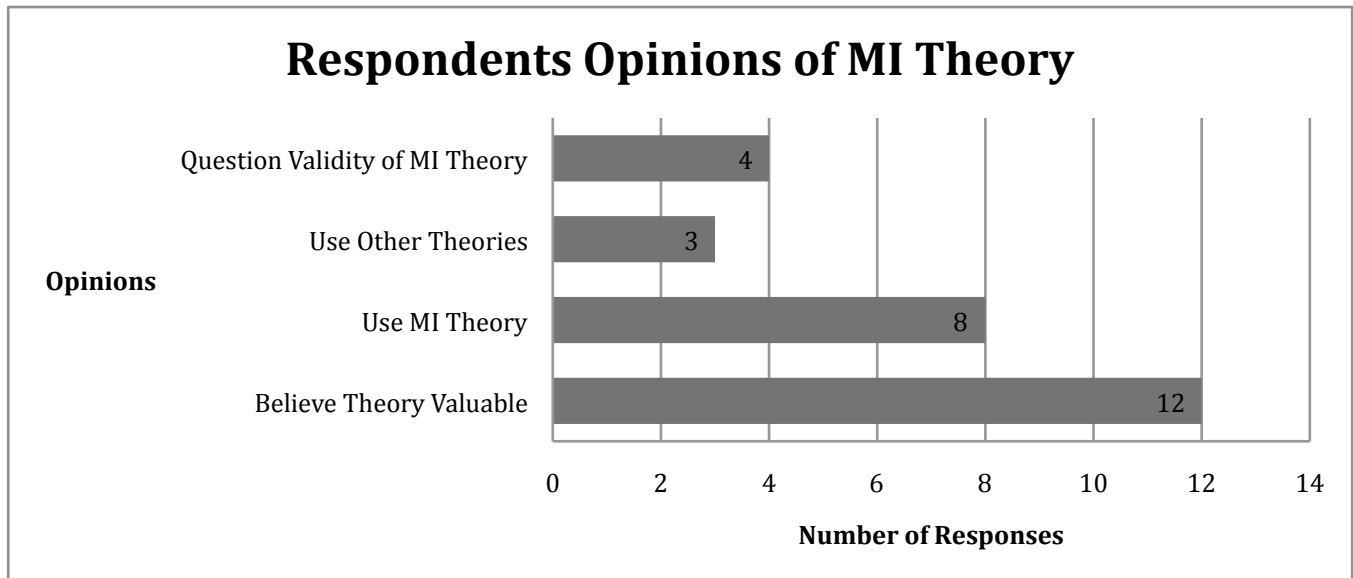


Figure 2. (n=22)

When asked, “Are you familiar with Howard Gardner’s theory of multiple intelligences? If so, please explain how you heard about this theory and what you think about this theory.” Of the 40 answers to the question, only 22 stated their opinion of the theory. These opinions were coded into four categories: question validity of MI theory; use other theories; use MI theory; and believe MI theory valuable. As a result, 12 respondents believe the theory is valuable, while only 8 said they actually use the theory. The eight respondents who said they use the theory incorporate it in their programming, tours, and docent/staff training. Only one respondent said the theory was both valuable

and used MI theory. Perhaps, those who use the theory in their programming underestimate its value.

Many of the responses from the questions were coded into multiple categories because people had a range of opinions regarding the MI theory. For example, one respondent from Hartford, Connecticut, with a Graduate Certificate in Museum Studies who has six to ten years of experience stated, *I first learned about this theory in an undergraduate psychology course. I think it is valuable in encouraging teachers and parents to respect different strengths in different children, although I am skeptical about whether the multiple intelligences are objectively measurable.*⁹⁸ This respondent's answer was coded into both "believed the theory was valuable" and "questioned the validity of the theory." Four respondents questioned the validity of the MI theory since there has been controversy regarding the empirical evidence of the theory. Yet, of the four respondents who questioned the validity of the theory, one believed it was valuable and another said they used the theory. One respondent who "questioned the validity," was from Nashville, Tennessee, with a Master's degree in Art History who has six to ten years of experience stated,

Yes, my undergraduate degree is in psychology and so I was exposed to it during the course of my studies. I think that Gardner's expansion of the traditional, and in my opinion limited, definition of intelligence is admirable, but I have reservations about this theory. His definitions are un-falsifiable, and there is no algorithm for determining the different forms of intelligence. The fact that he refers to these intelligence designations as artistic judgments rather than scientific makes this far too subjective.⁹⁹

Yet, when the same respondent from Nashville, Tennessee, was asked if she believed MI theory was foundational in art museum education she stated,

⁹⁸ Survey #36

⁹⁹ Survey #156

I would consider it foundational in that he encourages a broader definition of intelligence, which is certainly seen in the variety of programming that occurs in museums today. But I would consider contributions such as Visual Thinking Strategies and the proliferation of the inquiry method to be more instrumental in changing the way educators approach learning in a museum environment. That said, it is difficult to separate one theorist's contributions from those who laid previous groundwork, and I believe that advancements in both psychology and education impact art museum education today.¹⁰⁰

As a result, this response was coded as believing the theory is foundational. Overall, there were many conflicting answers between questions from individual respondents. This may be due to problems with the clarity of questions that caused the differences in responses. However, it is clear that respondents have mixed opinions about the theory.

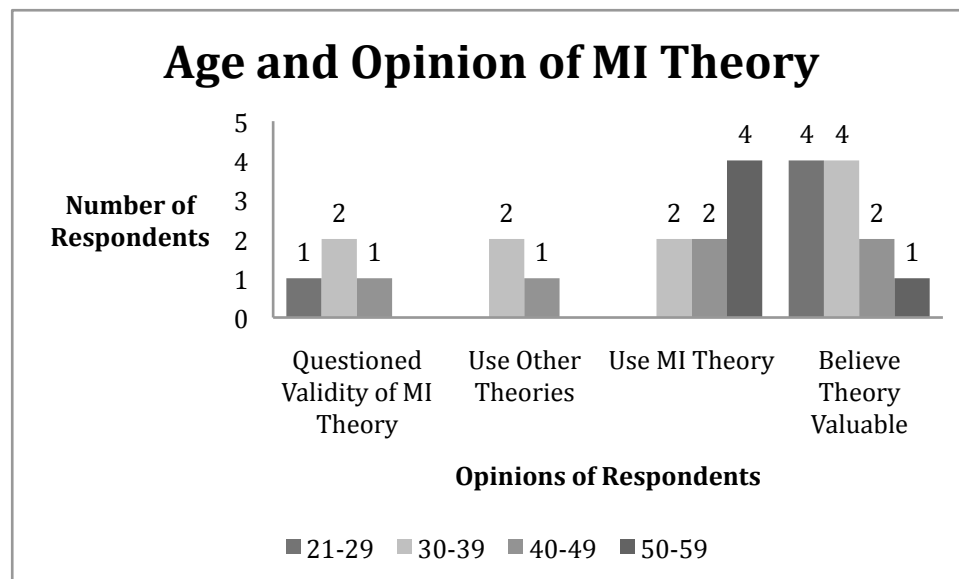


Figure 3. (n=22)

Since this theory was introduced in the 1980's it was important to investigate the correlation between the age of respondents and their opinion of the theory. Those who believed the theory was valuable were between the ages of 21 to 59 and this opinion had the largest range of ages. Respondents who said they believed the theory was valuable

¹⁰⁰ Survey #156

and used the theory included those in the 50 to 59 age ranges. In comparison, those who said they “use other theories” and “questioned the validity of the theory” maximum age range was 40 to 49 years old. Respondents who would have learned about MI theory in undergraduate or graduate when it first came out now would be between 50 to 59 years old, so it is not surprising that those between 50 and 59 years old use and value the theory. After Howard Gardner introduced the theory to the public, the theory received immediate criticism to which Gardner did not respond to for nearly a decade, which may explain why those in younger age groups questioned the validity of the theory and use other theories.

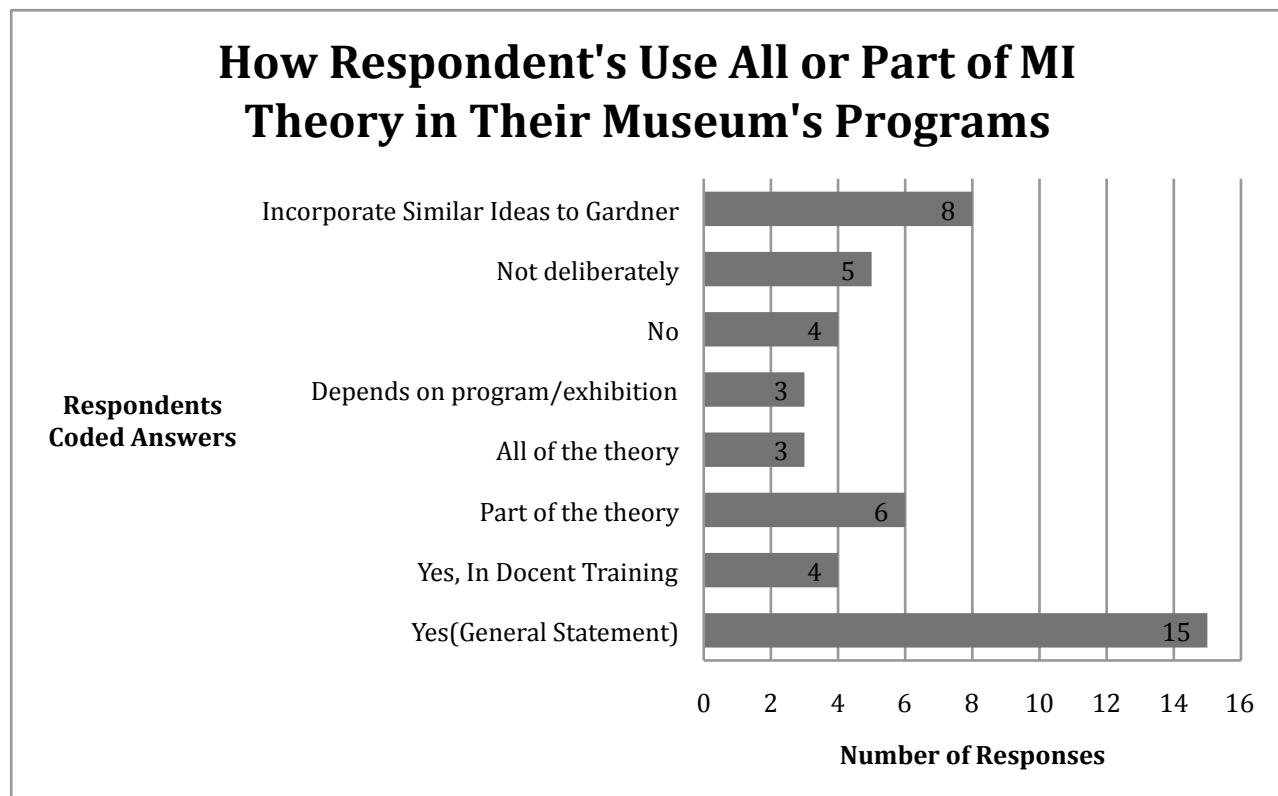


Figure 4. (n=42)

Figure 4 represents the responses from the question, “Do you incorporate all or part of Howard Gardner’s multiple intelligence theory in your museum’s programs?”

This question received 42 responses and the answers were coded into eight categories.

As a result, four responses were coded into multiple categories due to the general nature of their responses. For example the same respondent from Nashville, Tennessee, with a Master’s degree in Art History who has six to ten years of experience stated,

*We respect that visitors process information in a variety of ways, and try to ensure that they have options when it comes to absorbing. But we don't specifically design our programs and resources based on Gardner's theory. We do have audio tours, docent-guided tours, self-guided tours, lectures, and exhibitions that incorporate audio-visual components. We also have public programs involving dance, music, and storytelling.*¹⁰¹

¹⁰¹ Survey #156

This response was coded into both “not deliberately incorporating the theory” and “using similar ideas to Gardner.” Overall, 31 respondents stated that in some way they incorporate the MI theory in their programs. Responses coded into the category, yes (general statement) included responses that simply said “yes” and did not elaborate, as well as more elaborate responses that did not specify whether they use all of the intelligences or only part of the theory. For example, a respondent with a Bachelor’s degree in Ethnomusicology and Intercultural Studies as well as 11 to 15 years of experience from Erie, Pennsylvania stated,

Sure. We try to vary our tours so that students do a variety of things. We can't expect the attention or much enthusiasm of children if we have them talking about art for two hours. Instead they spend part of the time talking about their observations, part of the time playing movement games, part of the time making things, etc.¹⁰²

This quote reveals the wide variety of responses that was received during the survey period.

It is also important to note that eight respondents incorporated similar ideas to Gardner’s theory. In addition, three of the five respondents who were coded into the category “not deliberately incorporating Gardner’s theory” were also coded as “incorporating similar ideas.” Overall, it seems that some respondents may not have known that they were using similar ideas to MI theory, yet once it was described in the survey they may have realized they were.

¹⁰² Survey #140

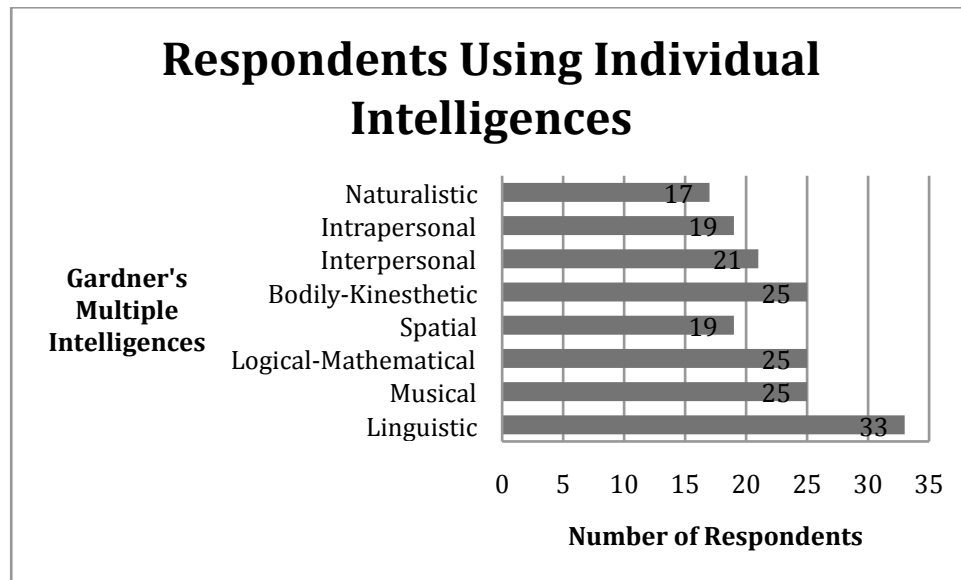


Figure 5. (n=43)

Represented in figure 5 is the number of responses to a question that listed all eight of the intelligences with a space next to it allowing respondents to identify which intelligences they use and why. In comparison to figure 3, where 31 respondents stated that in some way they incorporated the theory, 33 respondents stated they incorporate the linguistic intelligence. This discrepancy reveals that people have had conflicting responses, yet once the intelligences were listed, individual respondents found it easier to identify which they use. Interestingly, the spatial intelligence, which is most commonly associated with art and comparing special relationships between objects, received almost the least amount of responses. This may have been due to a lack of understanding about the spatial intelligence. In addition, intelligences that may have been easily defined by their name may have received higher responses, such as the linguistic intelligence.

Respondents seemed to relate the ideas of MI theory to an idea of multiplicity and multi-modalities. For example, an art museum educator from Illinois with a Master's in

Art History and Museum Education, who has been working in the field for 16 to 20 years stated, *I think about multiple modalities of presentations for different types of learners - touchable props, having students draw or write, asking students to have discussions with each other. However, at this point these are simply considered good teaching strategies - I rarely think specifically about Gardner.*¹⁰³ This idea of creating programs that are multi-sensory and multi-modal was another overarching trend drawn from the data. Multiple intelligences can easily relate to allowing for multiple modes of understanding and learning. Based on the responses collected, respondents feel comfortable to interchange these terms and seem to work hard to incorporate the ideas into their programs.

Another recurring theme that emerged from the open-ended responses was the idea that MI theory is one of many theories that art museum educators use. This concept that there is not one ideal theory for art museum educators but instead a wide variety of theories for art museum educators is an interesting way to think about learning theories. One art museum educator from Washington D.C. with a Master's in Special Education as well as 16 to 20 years of experience stated,

*As a career educator, I have always known about this and other learning theories. We used it in our docent training at my first museum position 20 years ago, and I have continued to use it. I think it's a very comprehensive and inclusive theory and one that many people can easily understand and relate to. As with any theory, though, I don't believe it's the ONLY way to understand learning.*¹⁰⁴

This statement reveals this idea of a multiplicity of educational theories in art museum education. This may be because of the unique learning opportunity museums and museum programs offer. Art museum educators have more flexibility in teaching

¹⁰³ Survey #93

¹⁰⁴ Survey #154

methods because there are no tests, acknowledging this ability to be flexible and not use only one theory when developing programs allows for more unique programs and learning opportunities.

Research Question Two

The data collected were also able to answer the second research question, “Why and how are art museum educators using Howard Gardner’s theory of multiple intelligences?” As a result, there seems to be a wide variety of ways art museum educators incorporating MI theory. Art museum educators seem to be using MI theory for a variety of reasons.

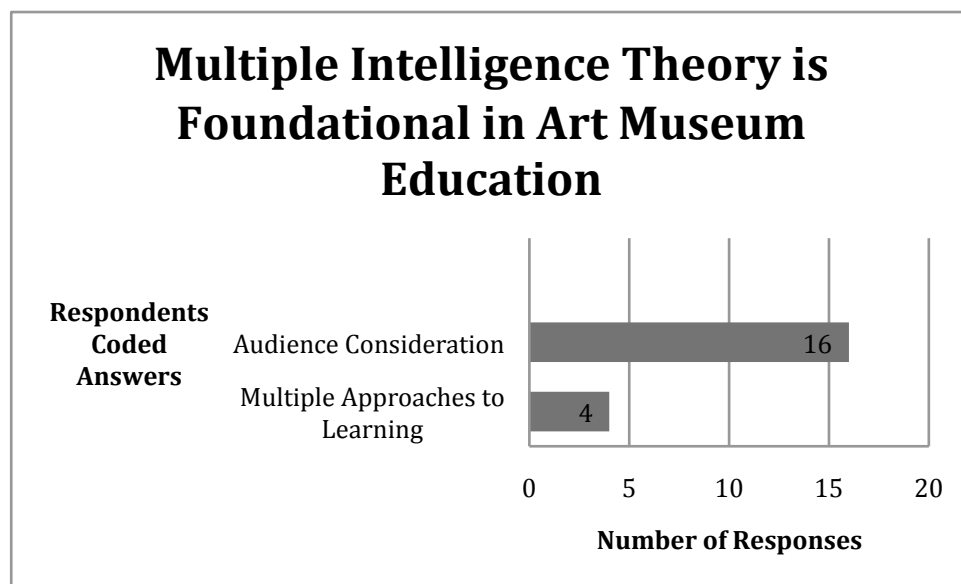


Figure 6. (n=20)

Respondents were asked, “Would you consider Howard Gardner’s multiple intelligence theory foundational in art museum education? Why or why not?” as a result, 26 respondents stated yes they did believe the theory was foundational and only four said

they did not believe it was foundational. Represented in figure 6 are the explanations from respondents who believed MI theory is foundational and were coded into the following categories: audience consideration and multiple approaches to learning. As a result, 16 respondents believed the theory was foundational because it considered the audience. For example, one respondent with a Master's degree in Art History and 11 to 15 years of experience from Rochester, New York, stated,

*I would, yes - I think Gardner's theory enables art museum education to push beyond the obvious visual aspect into the much more open-ended and broader public perspective. This lets people of all different ages, experiences, and backgrounds interact with art in so many ways, and "forces" we in the education field to think out of the box and incorporate additional voices and perspectives.*¹⁰⁵

This reveals the importance of MI theory because it reminds art museum educators that a wide variety of people that visit museums and the importance of multi-modal teaching. The second category was multiple approaches to learning which included those who thought MI theory was foundational but also encouraged people to use this theory along with other theories. However, it was apparent that people believed this theory was foundational, but also one of many theories art museum educators can use. There was also overlap in the categories into which the responses were placed, for example, some respondents believed that it considered the audience as well as something that could be used along with other approaches. For example, one respondent with a Master's in Secondary Art Education and with six to ten years of experience from Richmond, BC, Canada, stated, *I think it is essential that museum educators (as with all educators) must know that everyone learns and engages with the world differently. In that regard, looking at Gardner's theory is important, as one tool in the toolbox of many that*

¹⁰⁵ Survey #144

*educators use.*¹⁰⁶ As for how art museum educators are using multiple intelligences in their program, there are a wide variety of ways they are being incorporated. Each intelligence is being incorporated differently to fit the needs of the audience. The following reveals how the respondents said they were using the different intelligences in their programs.

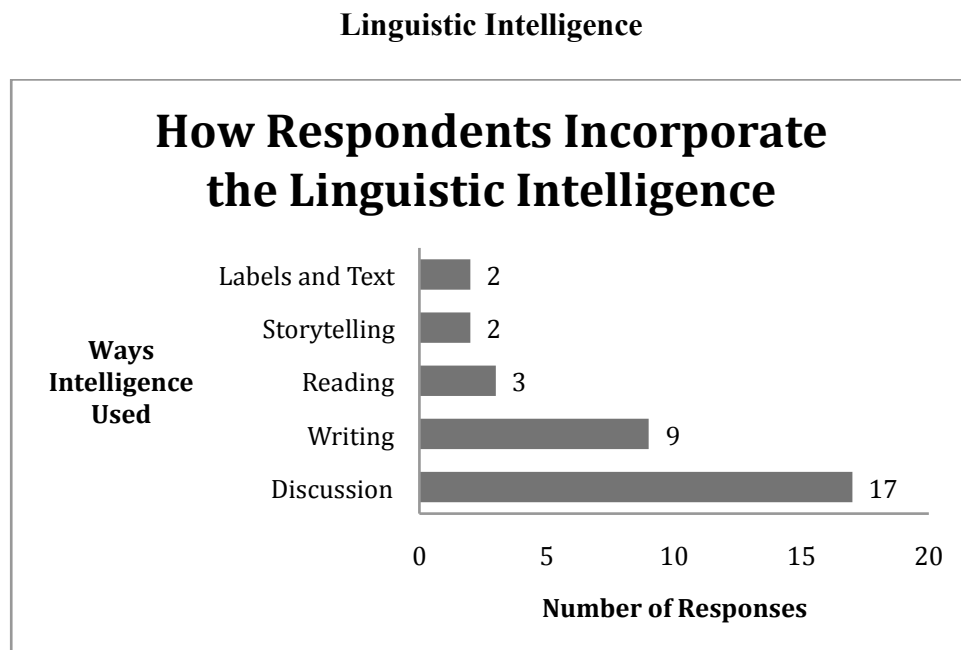


Figure 7. (n=33)

When asked to indicate which intelligences they used and why, 33 respondents said they were using the linguistic intelligence. These responses were coded into different categories of how they were incorporating this intelligence. Overall, 17 respondents said they incorporate the linguistic intelligence through including discussion into their programs. The second largest way respondents reach those with the intelligence is

¹⁰⁶ Survey #129

through writing. There was overlap in the coding, since some respondents noted more than one way they incorporated the linguistic intelligence. For example, a respondent with 21 plus years of experience from Ann Arbor, Michigan, with an M.A. in Communications, Visual Art, and History stated, *Yes--use writing, speaking in all our programs, as well as story telling.*¹⁰⁷ Due to the open-ended nature of the questions, many of the responses fit into multiple categories. The linguistic intelligence received the largest amount of responses out of all the intelligences, revealing that respondents found it the easiest to apply in art museum education.

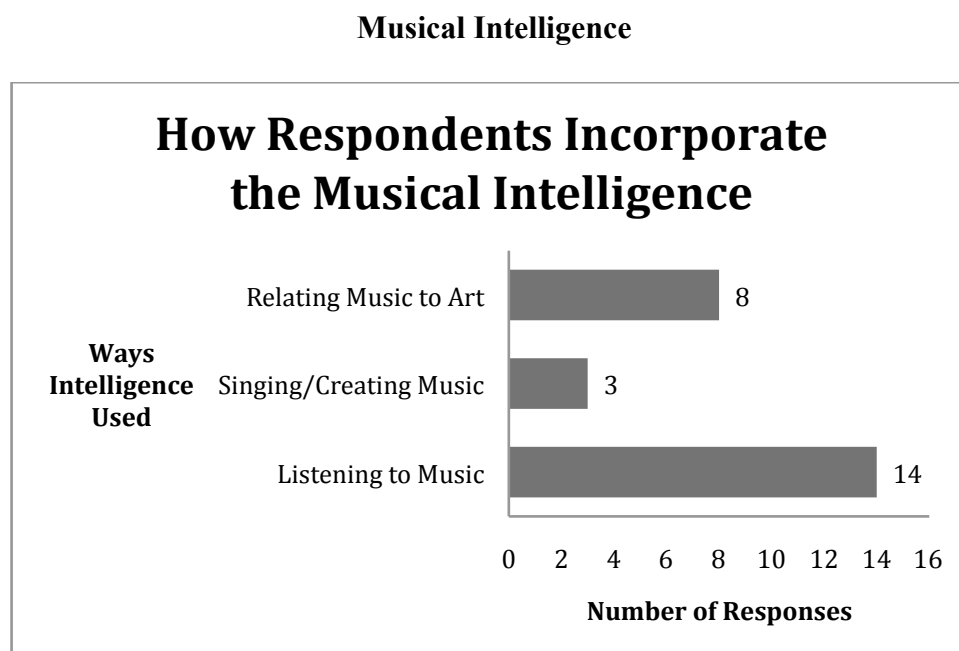


Figure 8. (n=25)

Figure 8 represents how respondents incorporated the musical intelligence into their educational practice. The answers were coded into different categories, and, as a

¹⁰⁷ Survey #127

result, fourteen respondents stated listening to music will help reach visitors with the musical intelligence, eight incorporate the musical intelligence by relating music to art, and three use singing as well as creating music. Overall, three responses were coded into multiple categories since respondents said they incorporated the musical intelligence in more than one way.

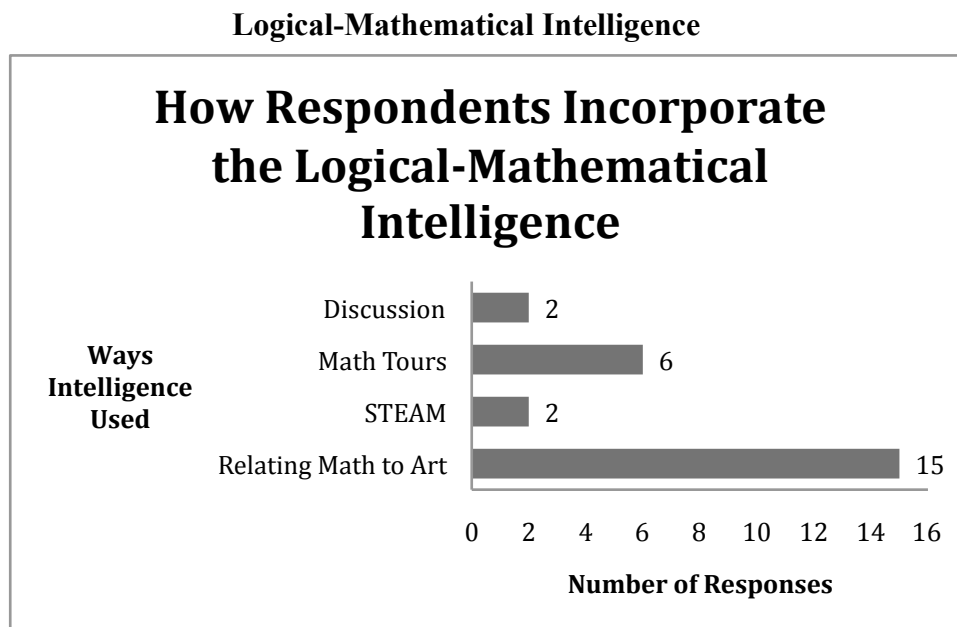


Figure 9. (n=25)

Figure 9 represents coded responses of how respondents incorporated the logical-mathematical intelligence in their practice. This intelligence is included through relating math to art, math tours, discussion, and STEAM-related programs. There was overlap of these responses since answers fit into multiple categories. The majority of respondents stated that they incorporated the logical-mathematical intelligence when relating math to art.

Spatial Intelligence

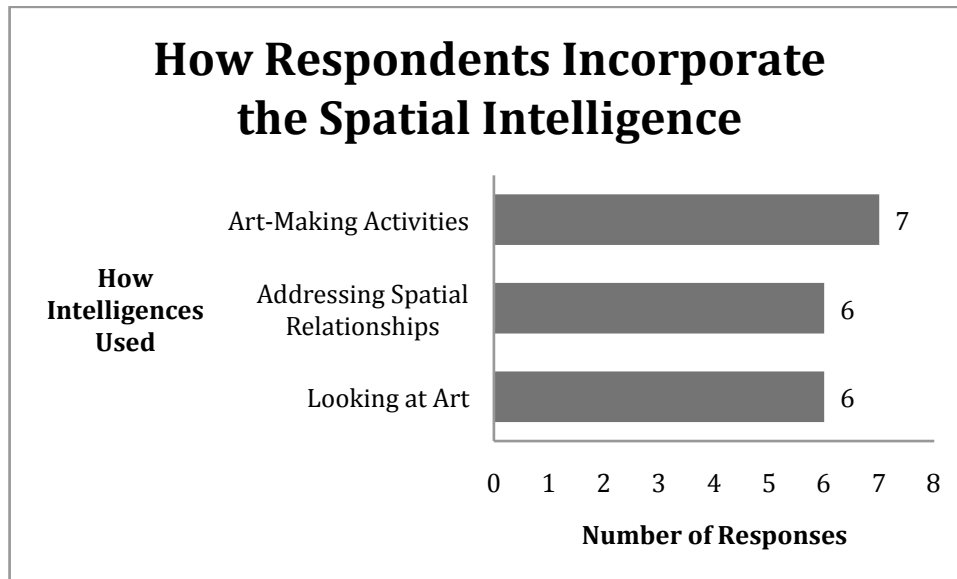


Figure 10. (n=18)

Eighteen respondents said that they incorporate the spatial intelligence in their practice. These responses, represented in figure 10, were coded into the categories: looking at art, art-making activities, and addressing spatial relationships. As a result, seven respondents incorporated the spatial intelligence through art-making activities. Only one respondent was included in two of the categories. This respondent has 11 to 15 years of museum experience from Ann Arbor, Michigan, with a Ph.D. in Art History, and stated, *if you use the term "visual-spatial," we do this in all tours. It is all about looking at art, learning from it, sometimes using sketching.*¹⁰⁸ This response was included in the categories, “looking at art” and “art-making activities.” It is interesting that only six respondents of the eighteen addressed the actual idea of spatial relationships since the

¹⁰⁸ Survey #66

spatial intelligence is more focused on this idea, rather than on looking at art and art-making activities.

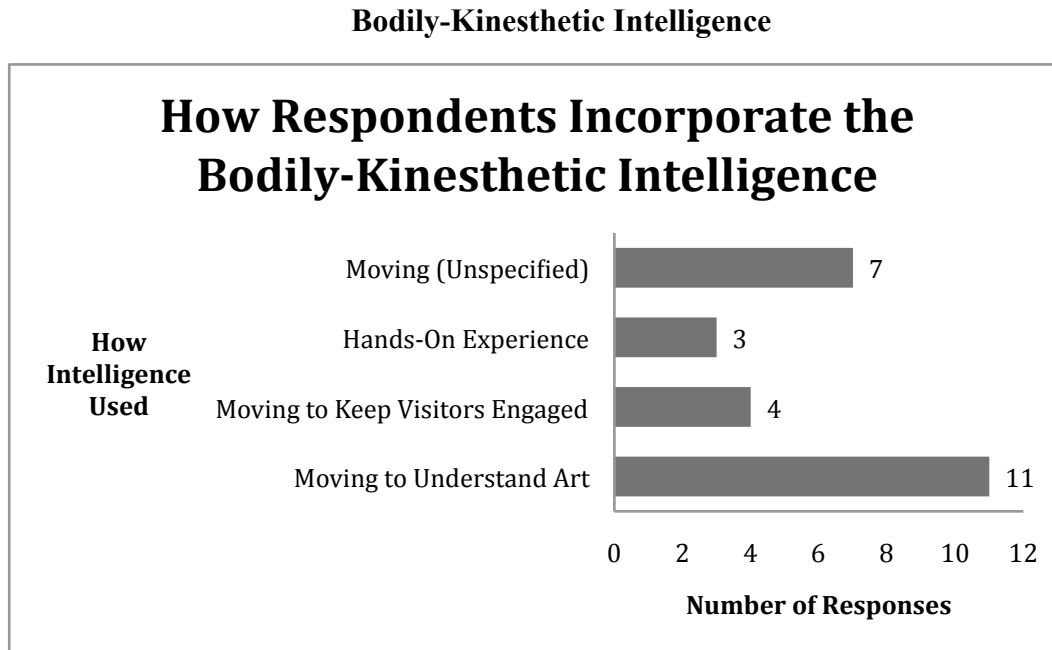


Figure 11 (n=25)

Figure 11, represents how respondents incorporated the bodily-kinesthetic intelligence. Respondents answers were coded into different categories, these categories included moving to understand art, moving to keep visitors engaged, hands-on experiences, and moving (unspecified). None of the respondents were coded into multiple categories. As a result, 11 respondents said they incorporate the bodily-kinesthetic intelligence through movement to understand art, such as mimicking figures in a painting. The second largest category was moving (unspecified), where respondents just said they incorporate movement, but did not explain how.

Interpersonal Intelligence

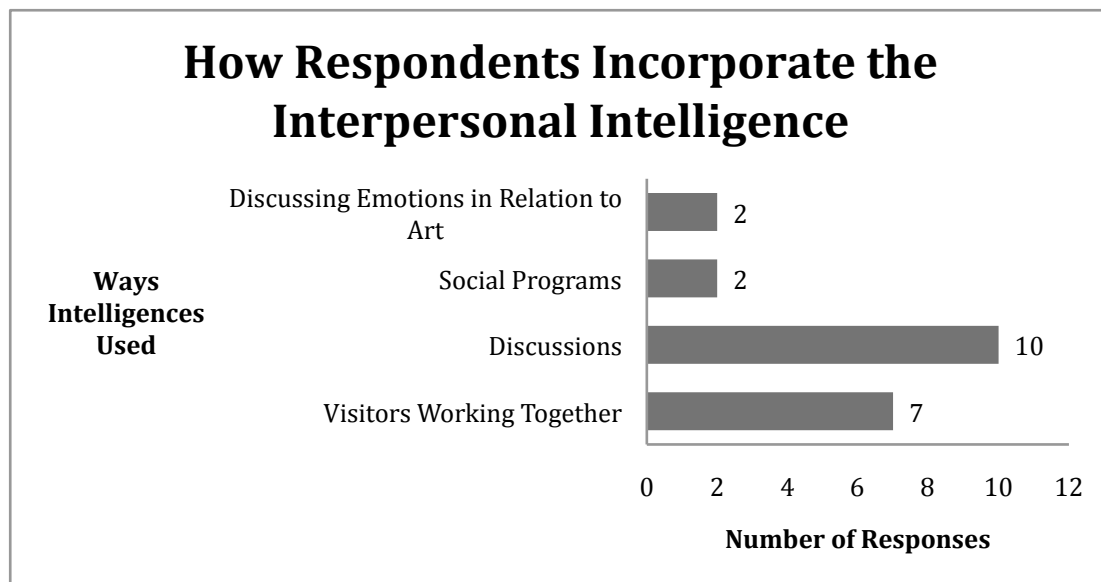


Figure 12. (n=21)

Figure 12 represents the responses from how respondents incorporated the interpersonal intelligence and were coded into different categories. As a result, ten respondents said they incorporate the interpersonal intelligence through discussions. Although only two respondents stated they incorporate the interpersonal intelligence when discussing emotions in relation to art it is interesting that they specified emotions. Those with a strong interpersonal intelligence have the ability to understand other's emotions and feelings, so by discussing emotions related to artwork would be beneficial for someone with a strong interpersonal intelligence. Two of the respondents were coded into multiple categories because of the general nature of their responses.

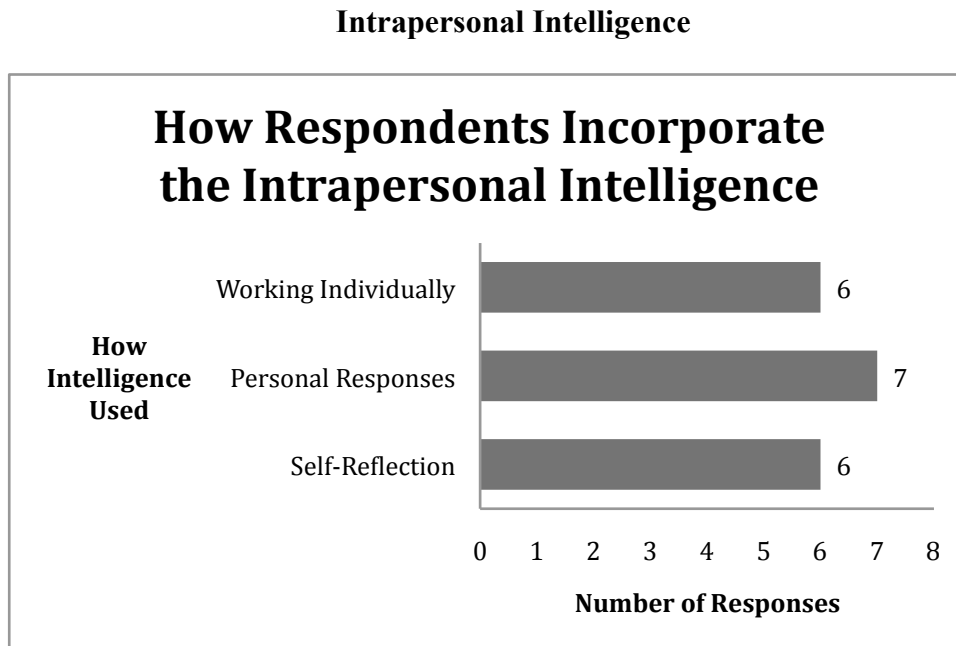


Figure 13. (n=19)

When asked how respondents incorporate the intrapersonal intelligences, the answers were coded into categories. As a result, seven respondents incorporate the intrapersonal intelligence by encouraging visitors to develop their own personal responses to questions or works of art. Three of the respondents were coded into multiple categories, these three respondents were included in the categories “working individually” and “self-reflection.”

Naturalistic Intelligence

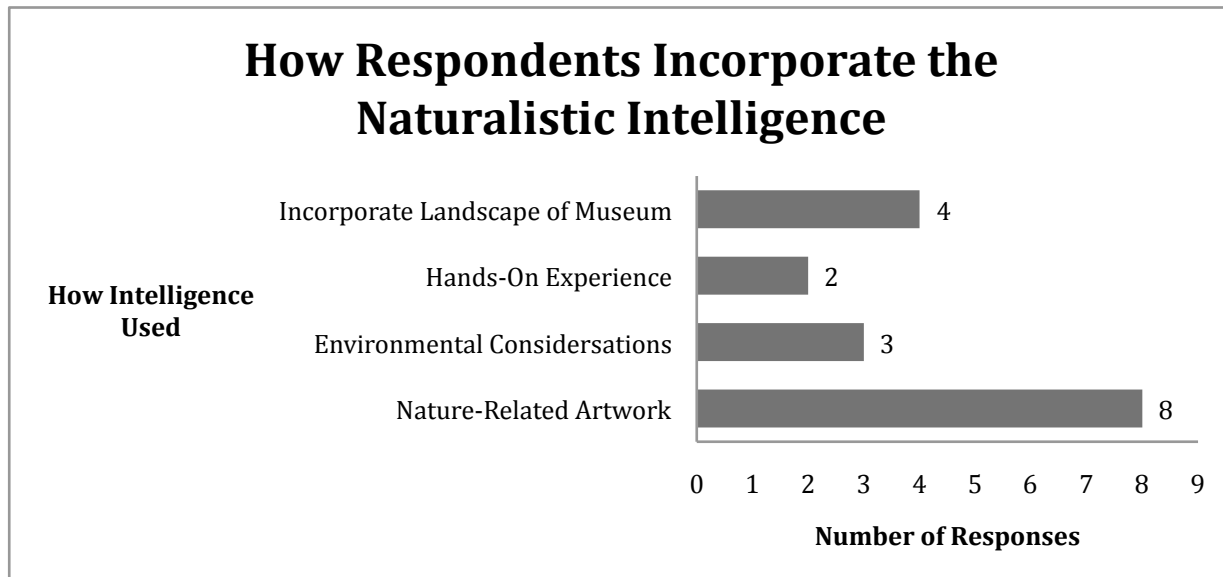


Figure 14. (n=17)

Four categories were coded from the responses to how the naturalistic intelligence was incorporated into respondents programs. As a result, the respondents incorporated the naturalistic intelligence by incorporating the landscape of the museum grounds, through hands-on experiences, environmental considerations, and nature-related artwork. The naturalistic intelligence was incorporated by the least amount of respondents, which may be because it is the newest addition to MI theory intelligences. However, respondents who did incorporate it found interesting ways to involve this intelligence.

Conclusion

When respondents were asked, “Would you consider Howard Gardner’s multiple intelligence theory foundational in art museum education? Why or why not?” 26 respondents stated yes and only 4 said no. Of the respondents who said no, 2 still believe

that the theory was informative and a good reference. This researcher believes that based on this information more art museum educators and art museums should consider incorporating MI theory into their programs. As David Ebitz suggested in his article, “Sufficient Foundation: Theory in the Practice of Art Museum Education,” although art museum educators recognize different theories, they are not fully integrated into museum practice.¹⁰⁹ Acknowledging that MI theory is an important theory to consider in art museum education would help its advancement in the field. From this research, I was able to reach the claim that although art museum educators recognize MI theory is foundational, it can be used as more of a guideline in practice.

¹⁰⁹ David Ebitz, “Sufficient Foundation: Theory in the Practice of Art Museum Education,” *Visual Arts Research* 34, no. 2 (January 2008): 15.

Chapter V: Conclusion

The hypothesis of this thesis was to determine whether or not art museum educators were using MI theory consciously and if they believed that multiple intelligences theory was foundational in their practice. In order to draw conclusions from this hypothesis, an online survey was sent to museum-based listservs.¹¹⁰ The online survey was guided by two research questions, which investigated whether are museum educators are using this theory intentionally or unintentionally and why and how are they using this theory. Over a one-month time period the survey received 42 responses from art museum educators.

Based on the survey responses, it was concluded that art museum educators know about MI theory because when asked if respondents were familiar with this theory, the question received 31 responses, as a result only one respondent was not familiar. It was clear that respondents both valued and used the theory, when they were asked for their opinions of the theory. In addition, respondents believed this theory was foundational in art museum education with 26 says yes the theory is foundational and only 4 saying no it is not. Those who believed MI theory was foundational said because it considered the audience and there are multiple approaches to learning. Yet, it was also concluded that art museum educators are not consciously recognizing that they are using the theory in their practice, since when asked if respondents were using the theory, eight said they used similar ideas and five said not deliberately. The survey results was able to determine how art museum educators are using individual intelligences as a way to reach a wide variety of visitors, which is revealed in the follow chart:

¹¹⁰ American Association of Museums LinkedIn, Museum-Ed listserv, Museum-L, Philly MER, and National Art Education Association Museum Education Division listserv

Multiple Intelligences	How to Incorporate Intelligences in the Museum
Linguistic Intelligence	Labels and Texts Storytelling Reading Writing Discussion
Musical Intelligence	Relating Music to Art Singing/Creating Music Listening to Music
Logical-Mathematical Intelligence	Discussion Math Tours STEAM Relating Math to Art
Spatial Intelligence	Art-Making Activities Addressing Spatial Relationships Looking at Art
Bodily-Kinesthetic Intelligence	Moving (Unspecified as to how) Hands-on Experience Moving to Keep Visitors Engaged Moving to Understand Art
Interpersonal Intelligence	Discussing Emotions in Relation to Art Social Programs Discussions Visitors Working Together
Intrapersonal Intelligence	Working Individually Personal Responses Self-Reflection
Naturalistic Intelligence	Incorporate Landscape of Museum Hands-On Experience Environmental Considerations Nature-Related Artwork

Figure 15. How respondents stated that they incorporate individual intelligences

The data collected from the 41 art museum educators revealed how art museum educators are utilizing different intelligences in this theory. The data collected from respondents can be generalized and used by other art museum educators, so they can understand how to incorporate MI theory in their practice. Acknowledging that museum

visitors have different types of intelligences and do not all process information the same is one of the most important things that can be learned from this thesis. One recurring theme that emerged during the data analysis was that respondents believe that many theories can be utilized in art museum education and art museum educators have the opportunity to pick and chose from a variety of sources. The survey led to the claim that art museum educators believe that MI theory is foundational in their practice and use it more as a guideline for developing programs. This thesis is important because it acknowledges that art museum visitors are not all the same and that they process information differently. It clearly indicates how art museum educators can use the different intelligences of the MI theory to fit the needs of their audience. The data collected revealed how art museum educators can help reach a wide variety of visitor intelligences through different programs and activities in order to create connections to art.

Applicability to the Museum Field

How to Use the Multiple Intelligence Theory

In the article, “Howard Gardner: ‘Multiple Intelligences’ are not ‘learning styles’” the author works to clarify the confusion between MI theory and learning styles. The major difference he identifies is that learning styles are how information reaches the brain, whereas MI theory is what a person does with this information once it is in the brain.¹¹¹ This seemed to be a recurring confusion for many of the survey participants.

¹¹¹ Valarie Strauss, “Howard Gardner: ‘Multiple intelligences’ are not ‘learning styles’” *Washington Post*, October 16, 2013.

However, what is important is to acknowledge that people learn differently. When asked the question, “Are you familiar with Howard Gardner’s theory of multiple intelligences? If so, please explain how you heard about this theory and what you think about this theory.” One art educator with zero to five years of experience and Bachelor’s degrees in Art Education and Studio Art stated,

*Yes, I am familiar. Education was my undergraduate focus, so I have been exposed to Gardner's theories for nearly 10 years now. Just as with any theory regarding the brain and education, I believe we must all understand that these things operate on a continuum/scale. Depending on the setting, the day, the time, the format, I may respond to different intelligences than in another setting. I can be many things, not just one, and we should know better than to plan for only one approach. Integrating these different intelligences into all we do allows for students/learners of all backgrounds and comfort levels to find something that will connect with them.*¹¹²

This reveals that art museum educators are recognizing this theory is important in reaching a variety of people.

The book, *Multiple Intelligences in the Classroom* by Thomas Armstrong, he suggests different ways to incorporate the theory into the classroom.¹¹³ Yet, there is no evidence as to how this theory could be clearly incorporated into the museum. However, this survey revealed how art museum educators are incorporating the different intelligences into their own practice. During a discussion with an art educator from an art museum associated with a university in Kansas, she suggested that many art museum educators use Visual Thinking Strategies in their practice because it has a clear step-by-step guide to use in the museum. Multiple intelligences theory is more of a general idea, which makes it hard to easily incorporate into programs. However, this thesis survey

¹¹² Survey #142

¹¹³ Thomas Armstrong, *Multiple Intelligences In the Classroom*, 2nd ed. (Alexandria, VA: Association for Supervision and Curriculum Development, 2000).

collected the ways art museums are incorporating the different intelligences in their programs. The following section identifies how survey respondents said they use different intelligences.

Linguistic Intelligence

The linguistic intelligence is comprised of four different aspects, which are rhetoric, the mnemonic potential of language, learning and teaching language, and the ability to explain its own activities.¹¹⁴ Art museums have the unique opportunity to easily reach visitors with a strong linguistic intelligence. Based on the data collected, 17 respondents reach those with the linguistic intelligence by incorporating discussion. Art can be discussed and debated. One respondent with six to ten years of experience with a Master's in Arts Administration and Art Museum Education from Massachusetts stated, *transfer of information through writing, reading and listening to the spoken word, such as conversation, discussions or debates. Get them to think about things using words rather than pictures.*¹¹⁵ This idea of getting visitors to think using words rather than pictures would help those with a strong linguistic intelligence create connections to works of art. In addition, inviting visitors to write, read, share stories, and use labels and text could incorporate the linguistic intelligence.

Musical Intelligence

The next intelligence being incorporated in art museum education is the musical intelligence. The musical intelligence is identified by Gardner as the ability to

¹¹⁴ Gardner, *Frames of Mind: The Theory of Multiple Intelligences*, 82-83.

¹¹⁵ Survey #62

comprehend pitch and rhythm.¹¹⁶ Art museum educators are able to easily reach individuals with a strong musical intelligence through using music to teach about an object. One art museum educator from New York with six to ten years of experience and a Master's in Arts Administration stated, *including QR codes for our sculpture garden which link to audio clips such as related musical pieces,*¹¹⁷ as a way to reach individuals with this intelligence. There seem to be three main ways of incorporating the music intelligence: listening to music, relating art to music, or singing/creating music. Incorporating music can create a sense of environment or atmosphere and can create a relationship between a visitor and an object. Another respondent with zero to five years of experience with a Bachelor's in Art Education and Studio Art stated, *Art and music share much of the same vocabulary, so 'seeing' a term represented can be effective for both types of learners,*¹¹⁸ revealing that since there are similarities between art and music, the musical intelligence can be incorporated into art museums.

Logical-Mathematical Intelligence

The logical-mathematical intelligence is related to the ability to problem-solve and understand objects, symbols, and words.¹¹⁹ This intelligence would seem to be the most difficult to incorporate in an art museum, however, 25 respondents said they did use the logical-mathematical intelligence in their programs. Based on the data collected, 15 respondents stated they use the logical-mathematical intelligence by relating math to art. One respondent who has been working in the field for six to ten years from Ohio stated,

¹¹⁶ Gardner, *Frames of Mind: The Theory of Multiple Intelligences*, 111.

¹¹⁷ Survey #57

¹¹⁸ Survey #142

¹¹⁹ Gardner, *Frames of Mind: The Theory of Multiple Intelligences*, 139.

*We have entire programs that utilize math skills in talking about artwork (patterns, geometry, measuring, etc.) We also have tours that utilize images in the collection to talk about scientific principles.*¹²⁰ Although art museum educators can tend to have more of an understanding of art through an art historical or art-focused background, there are many ways to reach visitors with different intelligences. By creating programs that incorporate counting, problem-solving, and critical thinking, art museum educators will be able to interest visitors who otherwise might not have been interested. Simply including math and logic questions in labels would help to interest visitors with a strong logical-mathematical intelligence.

Spatial Intelligence

The spatial intelligence relates to the ability to consider spatial relationships between objects or things.¹²¹ Art museum educators seem to incorporate this intelligence in a few ways. The data collected revealed that through art-making activities, looking at works of art, and considering how artists made spatial decisions is how the intelligence is used by art museum educators. The spatial intelligence is an easy intelligence for art museum educators to incorporate into their programs. Offering drawing supplies in the gallery will allow those with a strong spatial intelligence to focus on the organization of objects in a two-dimensional or three-dimensional space.

¹²⁰ Survey #70

¹²¹ Pokey Stanford, "Multiple Intelligence for Every Classroom," *Intervention in School & Clinic* 39, no. 2 (November 2003): 81.

Bodily-Kinesthetic Intelligence

The bodily-kinesthetic intelligence involves one's ability to move their body and control their movements. Art museum educators seem to incorporate this intelligence to help keep visitors engaged. Although it is excellent way to vent energy, using movement to mimic objects is another way visitors with strong bodily-kinesthetic intelligence can understand works of art. Art museum educators also understand visitors want to touch objects; incorporating movement in tours and programs will help create a hands-on experience for visitors. In addition, having guides and labels that encourage visitors to mimic movements of an object will allow for an engaging experience.

Interpersonal Intelligence

The interpersonal intelligence is one's relationship with others. Someone with a strong interpersonal intelligence can easily read other people.¹²² Art museum educators seem to be incorporating this intelligence in a variety of ways. The most popular method is through discussion. One art museum educator from Florida with zero to five years of experience and a Graduate Certificate in Museum Studies stated, *Most of our programs (all, really) include a social aspect so that learning is not passive, as in educating, but rather active and on the participants' terms.*¹²³ Allowing this intelligence to emerge naturally is an interesting way to think about having this intelligence occur in the museum setting. Art museums often have the connotation of being a quiet sanctuary for people. However, by encouraging visitors to talk within the museum space and having labels with prompts will help alleviate these stereotypes of museums. In addition,

¹²² Gardner, *Multiple Intelligences: New Horizons*, 14-15.

¹²³ Survey #23

another art museum educator with 11 to 15 years of experience with a Master's in Liberal Arts with a Concentration in Art from Connecticut stated, *This can also be applied to our interactive discussions or activities where they are asked to select a work of art and respond to questions on an activity sheet. They present their picks and why to the group after they have completed the activity.*¹²⁴ Offering different activities that encourage conservation will allow visitors to create deeper connections with specific objects.

Intrapersonal Intelligence

The intrapersonal intelligence is often confused with the interpersonal intelligence; however, it is about someone's relationship with himself or herself.¹²⁵ Often art museum educators are given a limited time with a school group or organized group. Making time for self-reflection will allow for visitors to develop personal connections with works of art. An art museum educator with 11 to 15 years of experience with a Master's in Liberal Arts with a Concentration in Art from Connecticut stated, *I always end a tour by asking if anyone had a favorite work of art covered in the tour. Kids especially love to respond and I follow up with questions like "what is it about this work that made it your favorite?" or along those lines ending the tour on a personal note.*¹²⁶ Ending tours or programs with a personal question is a good way to encourage visitors to think about how they feel about works of art or the museum as a whole.

¹²⁴ Survey #68

¹²⁵ Gardner, *Multiple Intelligences: New Horizons*, 17.

¹²⁶ Survey #68

Naturalistic Intelligence

Lastly, the naturalistic intelligence can be incorporated into art museum education in many different ways. The naturalistic intelligence is one's relationship with nature and natural objects. One art educator with zero to five years of experience and a Bachelor's degree in Art Education and Studio Art stated, *artists often connect with nature through their creations - understanding these choices and connections brings students from this intelligence into the discussion.*¹²⁷ Talking about natural materials or materials that are used to make art is one way to involve visitors with strong naturalistic intelligences. The naturalistic intelligence is most often associated with outdoors but can also include natural art materials or objects. Creating hands-on experiences for visitors with a strong naturalistic intelligence will allow them to create deeper connections.

For art museums with outdoor spaces and/or sculpture gardens, an art museum educator with eleven to fifteen years of experience with a Bachelor's degree in Art Education and Studio Art from Connecticut stated,

*I developed art walks featuring contemporary public art. Most people don't give these works a second thought. However, on our tours of these works people become so enthusiastic after learning about the art, the artist and their intent, the state 1% for art program, etc. They often return for other public art tours.*¹²⁸

Involving outdoor spaces in educational tours and programs will also help visitors with strong naturalistic intelligences to become engaged with the museum or collection.

¹²⁷ Survey #142

¹²⁸ Survey #68

Multiple Approaches, Multiple Intelligences

It was revealed through the research that other theories and ideas could be incorporated with multiple intelligences. During the analysis of the survey data, the researcher identified that incorporating multiple theories in art museum educators practice is helpful for unique visitor experiences. The idea that art museum educators have many tools in their toolbox is one of the most important outcomes of this study. In the context of multiple intelligences, intelligences can easily be related to many different theories. Art museum educators should not feel that they can only use one theory in their practice and instead recognize the wide variety of theories that are offered. The following chart identifies how different intelligences can be used along with different theories.

Multiple Intelligence	Theories/Ideas
Linguistic Intelligence	Visual Thinking Strategies ¹²⁹
Musical Intelligence	John Dewey's Experiential Learning ¹³⁰ The Orff Approach ¹³¹
Logical-Mathematical Intelligence	STEAM ¹³²
Spatial Intelligence	Visual Thinking Strategies ¹³³
Bodily-Kinesthetic Intelligence	Bloom's Taxonomy: Psychomotor Domain ¹³⁴
Interpersonal Intelligence	Bloom's Taxonomy: Cognitive and Affective Domain ¹³⁵ John Falk and Lynn Dierking's Facilitators ¹³⁶

¹²⁹ Visual Thinking Strategies, "What is VTS?" <http://www.vtshome.org/what-is-vts> (accessed October 28, 2014).

¹³⁰ John Dewey, *Experience and Education* (New York: Kappa Delta Pi, 1938).

¹³¹ Adam Perlmutter, "General Music," *Teaching Music* 16, no. 5 (2009): 48.

¹³² STEM to STEAM, "About," <http://stemtosteam.org/about/> (accessed October 28, 2014).

¹³³ Visual Thinking Strategies, "What is VTS?" <http://www.vtshome.org/what-is-vts> (accessed October 28, 2014).

¹³⁴ Benjamin S. Bloom et al., *Taxonomy of Educational Objectives: The Classification of Educational Goals* (New York: David McKay Company, Inc., 1956), 7.

¹³⁵ Benjamin S. Bloom et al., *Taxonomy of Educational Objectives: The Classification of Educational Goals*, 7.

¹³⁶ John Falk, "An Identity-Centered Approach to Understanding Museum Learning," *Curator* 49, no. 2 (2006): 151-166.

Intrapersonal Intelligence	Bloom's Taxonomy: Cognitive and Affective Domain ¹³⁷ Falk and Dierking's Rechargers ¹³⁸
Naturalistic Intelligence	STEAM ¹³⁹

Figure 16. How other theories and ideas can be used with the different intelligences

Incorporating these other theories and ideas would require both teachers and museum educators to become more aware of what types of intelligences their students have strengths in. This is why it is important to have programs that have multi-modal teaching and learning. The following information elaborates on what these theories are and how they relate to the different intelligences.

Linguistic Intelligence

Art museum educators are able to reach visitors with a strong linguistic intelligence by incorporating Visual Thinking Strategies. Abigail Housen and Philip Yenawine developed Visual Thinking Strategies or VTS in 1984.¹⁴⁰ VTS is typically used in museums and schools to encourage students to look closely at works of art using a strict open-ended format. Educators are encouraged to only ask three open-ended questions, "What's going on in this picture?", "What do you see that makes you say that?", and "What more can we find?"¹⁴¹ These questions are intended to encourage

¹³⁷ Benjamin S. Bloom et al., *Taxonomy of Educational Objectives: The Classification of Educational Goals* (New York: David McKay Company, Inc., 1956), 7.

¹³⁸ Falk, "An Identity-Centered Approach to Understanding Museum Learning," 151-166.

¹³⁹ STEM to STEAM, "About," <http://stemtosteam.org/about/> (accessed October 28, 2014).

¹⁴⁰ Visual Thinking Strategies, "History," <http://www.vtshome.org/about-vts/history> (accessed October 28, 2014).

¹⁴¹ Visual Thinking Strategies, "Method & Curriculum," <http://www.vtshome.org/what-is-vts/method-curriculum--2> (accessed October 28, 2014).

students to look closely at a work of art, while educators can only respond with one of the three questions and paraphrase the responses of the students.¹⁴² This allows for a more student-led discussion. One of the major criticisms of VTS is that the instructors are not supposed to give any historical information, yet this is why this teaching strategy would be beneficial for those with a strong linguistic intelligence. When asked in the survey how respondents incorporated the linguistic intelligence, the largest response was discussion (17 of the 33 respondents stated discussion). VTS would be a successful way to reach those with a strong linguistic intelligence by incorporating discussion and especially student-led discussion.

Musical Intelligence

The musical intelligence could be utilized in art museums by incorporating experiential learning. In the early twentieth-century John Dewey introduced his ideas of experiential learning.¹⁴³ In Dewey's book, *Experience & Education*, he explains that people learn through experiences that are either immediately agreeable or disagreeable and promote future experiences.¹⁴⁴ Dewey originated this idea of learning by doing.¹⁴⁵ The concept of a museum allows for experiential learning to occur naturally. For people with a strong musical intelligence, incorporating music with art would allow for experiential learning as well as create an atmosphere and setting. Experiential learning seems to be applicable to all of the intelligences and would be an excellent way to create museum experiences for all types of visitors.

¹⁴² Visual Thinking Strategies, "Method & Curriculum," <http://www.vtshome.org/what-is-vts/method-curriculum--2> (accessed October 28, 2014).

¹⁴³ John Dewey, *Experience and Education* (New York: Kappa Delta Pi, 1938), 7.

¹⁴⁴ Dewey, *Experience and Education* (New York: Kappa Delta Pi, 1938), 27.

¹⁴⁵ George Hein, "John Dewey and Museum Education." *Curator* 47 (October 2004): 413-427.

Another way the musical intelligence could be incorporated in art museum education is through the Orff-Schulwerk or Orff approach. Carl Orff, a German composer, developed the Orff approach in the 1920s.¹⁴⁶ This approach uses music and movement to teach students to become sensitive listeners.¹⁴⁷ Using the Orff approach in museum education would be an excellent way to reach visitors with a strong musical intelligence. Programs could be developed based on the Orff approach and would invite visitors to make music and dance that related to a work of art. In addition, survey respondents said that they incorporate the musical intelligence through relating music to art, listening to music, and singing and/or creating music. The Orff approach is a way that these categories could be utilized and would create deeper connections to works of art for those with a strong musical intelligence.

Logical-Mathematical Intelligence

During the survey, respondents were asked to identify how they incorporate the logical-mathematical intelligence in their programming. As a result, 2 of the 25 respondents said they incorporate this intelligence with STEAM-programming. STEAM stands for science, technology, engineering, art + design, and math.¹⁴⁸ As an effort to improve state education in science, technology, engineering, and mathematics (STEM), the United States National Academies developed teacher training in these fields.¹⁴⁹ The

¹⁴⁶ Adam Perlmutter, "General Music," *Teaching Music* 16, no. 5 (2009): 48.

¹⁴⁷ Adam Perlmutter, "General Music," *Teaching Music* 16, no. 5 (2009): 48.

¹⁴⁸ STEM to STEAM, "About," <http://stemtosteam.org/about/> (accessed October 28, 2014).

¹⁴⁹ David Sousa and Thomas Pilecki, *From Stem to Steam: Using Brain-Compatible Strategies to Integrate the Arts*, (California: Crowin: A SAGE Company, 2013), 1.

Rhode Island School of Design is working to change STEM to STEAM.¹⁵⁰ In the book *From STEM to STEAM: Using Brain-Compatible Strategies to Integrate the Arts* by David Sousa, International Consultant in Educational Neuroscience, and Tom Pilecki, former Executive Director of the Center for Creative Education, explains “how art develops cognitive and social growth, enhances creativity, capture attention through novelty, reduce stress, and make teaching more enjoyable.”¹⁵¹ It would be beneficial for art museums to create more STEAM-friendly programs, specifically for visitors with strong logical-mathematical intelligences. Respondents stated that they also incorporate the logical-mathematical intelligence with math tours and relating math to art. It is evident that art museum educators are already incorporating STEAM-related ideas, yet by marketing and publicizing this idea would be beneficial to encourage someone with a strong logical-mathematical intelligence to the museum.

Spatial Intelligence

Using Visual Thinking Strategies or VTS would also be helpful for those with strong spatial intelligences. VTS is a process of looking at objects and drawing conclusions about them without having deep knowledge about a work of art or object.¹⁵² This strategy encourages visitors to look deeply at a work of art and address what they are seeing visually. Visitors with a strong spatial intelligence have an understanding of spatial relationships, as well as, how to transform these spatial relationships.

¹⁵⁰ STEM to STEAM, “About,” <http://stemtosteam.org/about/> (accessed October 28, 2014).

¹⁵¹ David Sousa and Thomas Pilecki, *From Stem to Steam: Using Brain-Compatible Strategies to Integrate the Arts*, (California: Crowin: A SAGE Company, 2013), 4.

¹⁵² Visual Thinking Strategies, “What is VTS?” <http://www.vtshome.org/what-is-vts> (accessed October 28, 2014).

Incorporating VTS in programming would be beneficial for those with a strong spatial intelligence because they would be encourage to verbalize the spatial relationships and transformations that they see in works of art. This would also be beneficial because those with a weaker spatial intelligence would be able to see things from the perspective of someone with a stronger intelligence. In addition, visitors would be able to understand objects from their own perspective and learn how others perceive an object without necessarily hearing background information. Using VTS with someone with a strong spatial intelligence would help them create deeper connections with art and create personalized relationships with different works.

Bodily-Kinesthetic Intelligence

Visitors with a strong bodily-kinesthetic intelligence can be reached by incorporating the psychomotor domain in Bloom's Taxonomy. In 1956 Benjamin Bloom, then Associate Director of the Board of Examinations of the University of Chicago, along with a few of his colleagues, developed what is now known as Bloom's Taxonomy.¹⁵³ This taxonomy introduced three domains– the cognitive domain, affective domain, and the psychomotor domain.¹⁵⁴ Each domain has different stepping-stones, as a student masters the first ability they can move on to the next more difficult concept.¹⁵⁵ The psychomotor domain involves motor-skills.¹⁵⁶ The final level of this domain is being able to perform an activity naturally and effortlessly. Incorporating the psychomotor

¹⁵³ David R. Krathwohl, "A Revision of Bloom's Taxonomy: An Overview," *Theory Into Practice* 41, no. 4 (2010): 212-218.

¹⁵⁴ Benjamin S. Bloom et al., *Taxonomy of Educational Objectives: The Classification of Educational Goals* (New York: David McKay Company, Inc., 1956), 7.

¹⁵⁵ Anna Johnson. *The Museum Educator's Manual: Educators Share Successful Techniques* (Lanham, MD: AltaMira Press, 2009): 62-63.

¹⁵⁶ Benjamin S. Bloom et al., *Taxonomy of Educational Objectives*, 8.

domain with those with a strong bodily-kinesthetic intelligence will allow visitors to build better control of their body and movements and relate them to the art. Art museum educators could develop programs for those with a strong bodily-kinesthetic intelligence based on the psychomotor domain. For example, a program could be created that invites visitors to mimic a work of art with their body. This program could start off very simple and follow the psychomotor stepping-stones to more difficult poses and more abstract art. Those with a strong bodily-kinesthetic intelligence would develop strong connections to works of arts by developing an understanding for artistic renderings of the human body.

Interpersonal Intelligence

To reach visitors with a strong interpersonal intelligence, museum educators could incorporate Bloom's cognitive and affective domains. The cognitive domain deals with the development of intellectual skills, eventually developing judgments and opinions.¹⁵⁷ The cognitive domain fits within the interpersonal intelligence because people with a strong interpersonal intelligence would be able to use rationale to form judgments about works of art through discussion with others. When respondents were asked how they incorporate the interpersonal intelligence, the largest response was discussion (10 out of 21 respondents). The cognitive domain can develop in art museum education through discussion with other visitors and museum educators. This would be beneficial for those with a strong interpersonal intelligence since it involves one's relationship with others and would encourage those to discuss artworks with others to create connections with art.

¹⁵⁷ Benjamin S. Bloom et al., *Taxonomy of Educational Objectives*, 7.

In the book, *Taxonomy of Educational Objectives: The Classification of Educational Goals*, Benjamin Bloom states, “A second part of the taxonomy is the affective domain. It includes objectives which describe changes in interest, attitudes, and values, and the development of appreciations and adequate adjustments.”¹⁵⁸ Those with interpersonal intelligence are able to understand feelings and emotions of others, including other visitors, artists, or objects with people in them. Incorporating the affective domain would challenge those with a strong interpersonal intelligence to really consider the value judgments others are making when assessing art.

In addition, those with a strong interpersonal intelligence are very similar to ideas from John H. Falk and Lynn D. Dierking, Professor’s in Free-Choice Learning at Oregon State University. In the book, *The Museum Experience* John H. Falk and Lynn D. Dierking identified five different types of people that visit a museum.¹⁵⁹ These are the explorers, facilitators, professional/hobbyists, experience seekers, and rechargers.¹⁶⁰ The facilitators are visitors who visit for others, which is very similar to those with a strong interpersonal intelligence since they have a strong understanding of others feelings and intentions. The facilitators want others to learn about concepts in the museum and this is beneficial for art museum educators to anticipate, so they can create programs that encourage facilitators to learn through teaching others.¹⁶¹

¹⁵⁸ Benjamin S. Bloom et al., *Taxonomy of Educational Objectives*, 7.

¹⁵⁹ John Falk, “Museum Visitor Experience: Who Visits, Why and to What Effect?” in *Reinventing the Museum: The Evolving Conversation on the Paradigm Shift*, ed. Gail Anderson (Lanham, MD: AltaMira Press, 2012): 325.

¹⁶⁰ Falk, “Museum Visitor Experience: Who Visits, Why and to What Effect?” 325.

¹⁶¹ John Falk, “An Identity-Centered Approach to Understanding Museum Learning,” *Curator* 49, no. 2 (2006): 151-166.

Intrapersonal Intelligence

Visitors with a strong intrapersonal intelligence would also benefit from incorporating programs based on Bloom's affective and cognitive domains. Although these visitors are not making judgments or opinions about others, they are instead reflecting upon themselves. The survey responses revealed that respondents believe it is important to allow for time for self-reflection and personal responses. By incorporating programs that allow for time to develop value judgments through self-reflection would be beneficial for those with a strong intrapersonal intelligence.

In addition, someone with a strong intrapersonal intelligence is very similar to Falk and Dierking's rechargers, who are looking for a spiritual or restorative experience at a museum.¹⁶² Being able to identify the visitors who are looking to recharge or have this personal connection will help better prepare for interpersonal intelligence visitors. Creating programs that allow for a self-reflection and alone time allows for visitors with strong intrapersonal intelligence to create connections in the galleries or exhibitions.

Naturalistic Intelligence

Incorporating STEAM-related activities would also engage visitors with a strong naturalistic intelligence. Investigating the different types of trees that are represented in paintings or discussing how long sculptures would last outdoors would be an excellent way to incorporate STEAM.

¹⁶² Falk, "Museum Visitor Experience: Who Visits, Why and to What Effect?" 325.

Conclusion

In the book, *Teaching in the Art Museum: Interpretation as Experience*, Rika Burnham states, “As Inez Wolins, assistant coordinator of education at the Herbert F. Johnson Museum of Art at Cornell University, remarked, the profession was long overdue for a ‘solid theoretical framework.’”¹⁶³ The claim that multiple intelligences can be used as a guideline and framework in art museum education is an important concept to be considered. Acknowledging that visitors are different and developing programs that allow for multiple ways to learn the same things is how multiple intelligences can be incorporated into the museum field.

¹⁶³ Rika Burnham and Elliott Kai-Kee, *Teaching in the Art Museum: Interpretation as Experience* (Los Angeles, CA: J. Paul Getty Museum, 2011): 39.

Chapter VI: Implications for Further Research

Further Research

Given the limited time frame to research a topic, conduct an online survey, and analyze the results of this master's thesis, there is still more research that could be done. If the researcher were to continue the thesis, a new survey would be created with more focused questions regarding multiple intelligence theory and art museum educational programs to avoid conflicting and confusing responses. It would also be interesting to further investigate the ages or generations of respondents who incorporate the multiple intelligence theory and those who do not. It would also be beneficial to conduct in-depth interviews with a sampling of the respondents from the survey to get a better understanding of why they answered questions a specific way or why specific patterns recurred in the survey. This would be helpful in understanding some of the responses and to receive opinions and perspectives for a variety of sources.

Another possible way to continue the research is to develop MI programs that utilize different ways the survey respondents incorporated the theory. The surveys could then be evaluated as to how successful or unsuccessful these different programs were. This would be based on the responses that have already been collected, which are represented in the following chart:

Multiple Intelligences	How to Incorporate Intelligences in the Museum
Linguistic Intelligence	Labels and Texts Storytelling Reading Writing Discussion
Musical Intelligence	Relating Music to Art

	Singing/Creating Music Listening to Music
Logical-Mathematical Intelligence	Discussion Math Tours STEAM Relating Math to Art
Spatial Intelligence	Art-Making Activities Addressing Spatial Relationships Looking at Art
Bodily-Kinesthetic Intelligence	Moving (Unspecified as to how) Hands-on Experience Moving to Keep Visitors Engaged Moving to Understand Art
Interpersonal Intelligence	Discussing Emotions in Relation to Art Social Programs Discussions Visitors Working Together
Intrapersonal Intelligence	Working Individually Personal Responses Self-Reflection
Naturalistic Intelligence	Incorporate Landscape of Museum Hands-On Experience Environmental Considerations Nature-Related Artwork

Figure 17. How respondents stated that they incorporate individual intelligences

Represented in figure 23 is how respondents from the survey stated that they incorporated the eight different intelligences. In order to determine if these ideas work in art museums and art museum programs, they could be evaluated through additional surveys or focus groups. Developing programs based on ways to reach visitors with these different intelligences and evaluating these programs would help determine how effective this theory is in the museum space.

It would be also be helpful to develop a way to determine visitor's strengths and weaknesses in different intelligences. Perhaps finding that visitors with specific types of intelligences are more likely to visit an art museum or participate in an art museum

program would be beneficial when developing programs. Recognizing that visitors have different intelligences is one thing, but determining which intelligence visitors have is a more difficult task. Since there is no test to measure specific intelligences, museum educators could develop programs for each intelligence and publicize and market these programs so that visitors could choose which they felt reached their intelligence and fit their needs.

It would also be interesting to develop programs that use other educational ideas or/and theories in relation to multiple intelligences. This would be based on the following chart:

Multiple Intelligence	Theories/Ideas
Linguistic Intelligence	Visual Thinking Strategies ¹⁶⁴
Musical Intelligence	John Dewey's Experiential Learning ¹⁶⁵ The Orff Approach ¹⁶⁶
Logical-Mathematical Intelligence	STEAM ¹⁶⁷
Spatial Intelligence	Visual Thinking Strategies ¹⁶⁸
Bodily-Kinesthetic Intelligence	Bloom's Taxonomy: Psychomotor Domain ¹⁶⁹
Interpersonal Intelligence	Bloom's Taxonomy: Cognitive and Affective Domain ¹⁷⁰ John Falk and Lynn Dierking's Facilitators ¹⁷¹
Intrapersonal Intelligence	Bloom's Taxonomy: Cognitive and Affective Domain ¹⁷²

¹⁶⁴ Visual Thinking Strategies, "What is VTS?" <http://www.vtshome.org/what-is-vts> (accessed October 28, 2014).

¹⁶⁵ John Dewey, *Experience and Education* (New York: Kappa Delta Pi, 1938).

¹⁶⁶ Adam Perlmutter, "General Music," *Teaching Music* 16, no. 5 (2009): 48.

¹⁶⁷ STEM to STEAM, "About," <http://stemtosteam.org/about/> (accessed October 28, 2014).

¹⁶⁸ Visual Thinking Strategies, "What is VTS?" <http://www.vtshome.org/what-is-vts> (accessed October 28, 2014).

¹⁶⁹ Benjamin S. Bloom et al., *Taxonomy of Educational Objectives: The Classification of Educational Goals* (New York: David McKay Company, Inc., 1956), 7.

¹⁷⁰ Benjamin S. Bloom et al., *Taxonomy of Educational Objectives: The Classification of Educational Goals*, 7.

¹⁷¹ John Falk, "An Identity-Centered Approach to Understanding Museum Learning," *Curator* 49, no. 2 (2006): 151-166.

	Falk and Dierking's Rechargers ¹⁷³
Naturalistic Intelligence	STEAM ¹⁷⁴

Figure 18. How other theories and ideas can be used with the different intelligences

In order to test this, focus groups could be held after each program in order to determine how successful or unsuccessful they are at reaching specific intelligences.

Other theories could be applied to the different intelligences as well.

In order to allow a larger population of art museum educator to learn about how MI theory can be used as a guideline, a website, pamphlet or informational brochure could be developed. This would allow for more art museum educators to learn about the theory and apply it to their programs. The idea of incorporating MI theory as a guideline in art museum education could be expanded into other types of museums, such as science museums or history museums. It would be beneficial to compare which theories other types of museums utilize and perhaps how they fit within the multiple intelligence theory.

Conclusion

Based on the research that has already been conducted, it is evident that art museum educators feel that multiple intelligence theory is foundational in art museum education: 26 of 30 respondents believed that the theory is foundational. Although the data collected were helpful for reaching the claim that multiple intelligence theory can be used as a guideline in art museum education, there is still continual research and

¹⁷² Benjamin S. Bloom et al., *Taxonomy of Educational Objectives: The Classification of Educational Goals* (New York: David McKay Company, Inc., 1956), 7.

¹⁷³ Falk, "An Identity-Centered Approach to Understanding Museum Learning," 151-166.

¹⁷⁴ STEM to STEAM, "About," <http://stemtosteam.org/about/> (accessed October 28, 2014).

evaluation that could be conducted. Based on MI theory, developing and evaluating programs would help to better understand how this theory can be used. As David Ebitz, then Professor of Art Education at Pennsylvania State University, recognized, there is no definitive theory that is being used by art museum educators. However, evaluating how effective multiple intelligence theory is at reaching a variety of audiences could help establish this definitive theory to be used by art museum educators.

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Appendix I: Survey

Please help me conduct research for my master's thesis by answering questions regarding the use of Howard Gardner's theory of multiple intelligences in art museums. Completing this questionnaire and submitting this survey indicates that you have agreed to participate in this study. Thank you!

Howard Gardner proposed his theory of multiple intelligences (MI) in the 1980s. The MI theory suggests that there are eight or more different types of intelligences that people possess based on research in cognitive science and neuroscience. The intelligences include: linguistic, musical, logical-mathematical, spatial, bodily-kinesthetic, interpersonal, intrapersonal, and naturalistic.

- 1) Are you an art museum educator?
 - ☐ Yes
 - ☐ No
- 2) Are you familiar with Howard Gardner's theory of multiple intelligences? If so, please explain how you heard about this theory and what you think about this theory.
(Open-ended)
- 3) Do you incorporate all or part of Howard Gardner's multiple intelligence theory in your museum's programs? (Open-ended)
- 4) If so, please indicate which intelligences and why?
 - ☐ Linguistic Intelligence _____

- Musical Intelligence _____
- Logical-Mathematical Intelligence _____
- Spatial Intelligence _____
- Bodily-Kinesthetic Intelligence _____
- Interpersonal Intelligence _____
- Intrapersonal Intelligence _____
- Naturalistic Intelligence _____

- 5) Do you have any programs that incorporate ideas similar to multiple intelligence theory? If so, please explain in detail. (Open-ended)
- 6) Would you consider Howard Gardner's multiple intelligence theory foundational in art museum education? Why or why not? (Open-ended)
- 7) Is your institution working with any local schools or institutions that use the multiple intelligence theory? If so, could you explain anecdotally how? (Open-ended)
- 8) Does your institution publicize to local schools and institutions that you use multiple intelligence theory? If so, please explain how. (Open-ended)
- 9) Do you have any additional comments you would like to share? (Open-ended)

Museum Educator Demographics:

- 10) What role do you play in the institution? (Open-ended)
- 11) How long have you been working in museum education?
 - 0-5 years
 - 6-10 years
 - 11-15 years
 - 16-20 years

- 21+ years

12) What is your gender

- Male
- Female
- Other

13) Which category below includes your age?

- 20 or younger
- 21-29
- 30-39
- 40-49
- 50-59
- 60 or older

14) What is your race/ethnicity?

- African American
- Asian
- Hispanic
- Pacific Islander
- Multiple Races
- White
- Other

15) What is your educational background? (Please fill in appropriate blanks)

- a) Bachelors Degree, if so in what? (Please include any majors and minors.)

b) Masters Degree, if so in what? (Please include any majors and minors.)

c) Doctorate or any other terminal degree, if so in what? (Please include any majors and minors.) _____

Museum Demographics:

16) What type of museum is your institution?

a) Art

b) History

c) Science

d) Natural History

e) Archeology

f) Anthropology

g) Children's

h) Culturally Specific

i) Other (Please Specify) _____

17) City and state of the institution: (Open-ended)

18) Is your institution associated with a college or university?

a) Yes

b) No

19) What is your institutions annual budget?

a) \$499,999 and under

b) \$500,000-\$1.9M

c) \$2M-\$9.9M

d) \$10M-\$19.9M

e) \$20M and over

20) How large is the part-time and full-time professional staff of your institution's education department?

a) 1-5

b) 6-10

c) 11-20

d) 21-40

e) 41 and over

21) Would you be interested in participating in a more in-depth interview about education in the museum setting in late July/early August?

22) Contact Information

Name: _____

Email Address: _____

Phone Number: _____

23) If you would like to learn additional information about the outcome of this study please leave your e-mail. Thank you!

Email Address: _____

Appendix II: Research Question Chart

To ensure the questions asked in the survey were answering the research questions, this chart was created:

Survey Questions	Research Question 1 ¹⁷⁵	Research Question 2 ¹⁷⁶
1. Are you an art museum educator?	X	X
2. Are you familiar with Howard Gardner's theory of multiple intelligences? If so, please explain how you heard about this theory and what you think about this theory.	X	X
3. Do you incorporate all or part of Howard Gardner's multiple intelligence theory in your museum's programs?	X	X
4. If so, please indicate which intelligences and why?	X	X
5. Do you have any programs that incorporate ideas similar to multiple intelligence theory? If so, please explain in detail.	X	X
6. Would you consider Howard Gardner's multiple intelligence theory foundational in art museum education? Why or why not?	X	X
7. Is your institution working with any local schools or institutions that use the multiple intelligence theory? If so, could you explain anecdotally how?	X	X
8. Does your institution publicize to local schools and institutions that you use multiple intelligence theory? If so, please explain how.	X	X
9. Do you have any additional comments you would like to share?	X	X
10. Would you be interested in participating in a more in-depth interview about education in the museum setting in late July/early August?	X	X
11. If you would like to learn additional information about the outcome of this study, please leave your e-mail. Thank you!	X	X

¹⁷⁵ Research Question 1: Are art museum educators using concepts of MI theory or individual intelligences purposefully or unintentionally in their programming?

¹⁷⁶ Research Question 2: Why and how are art museum educators using Howard Gardner's theory of multiple intelligences?

Appendix III: Museum Demographics

1) Are you an art museum educator? (Question 1, n=42)

All of the respondents identified themselves as art museum educators.

2) What type of museum is your institution? (Question 16, n=48)

Respondents were able to choose more than one response, however, it is important to note that all of the institutions identified as art as well as multidisciplinary. As a result, 30 respondents identified their museum as an “art museum,” while 11 stated, “other” but all of these included art.

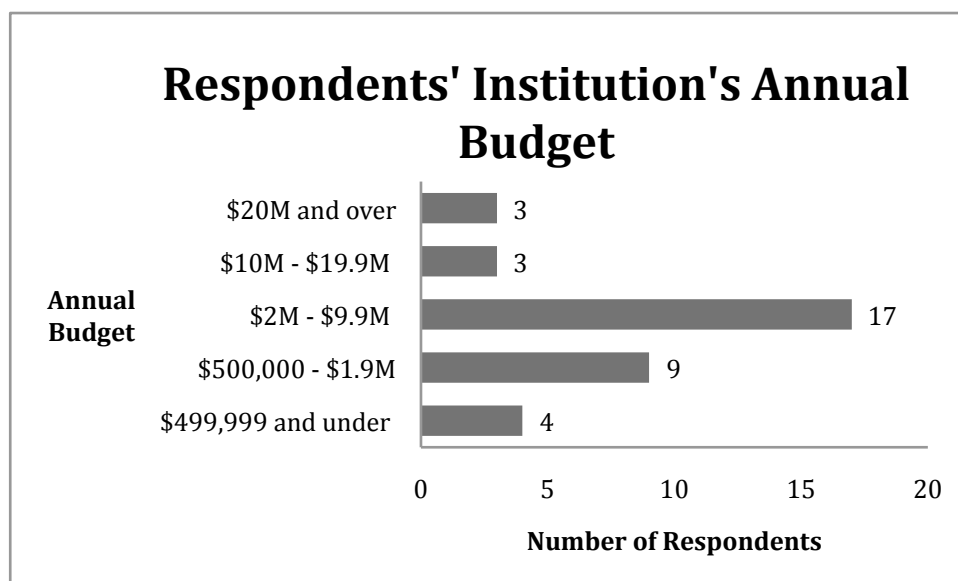
3) City and state of the institution. (Question 17, n=38)

Of the 38 responses, 8% came from Canada, while the remaining 92% came from the United States. Respondents came from throughout the United States.

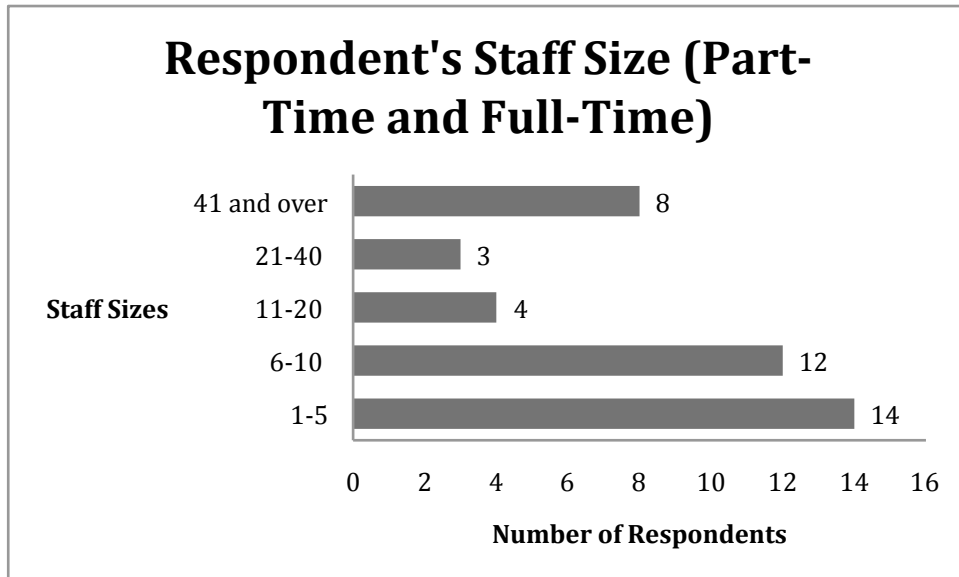
4) Is your institution associated with a college or university? (Question 18, n=42)

33% of respondents said “Yes” they are associated with a college or university.

5) What is your institution’s annual budget? (Question 19, n=36)

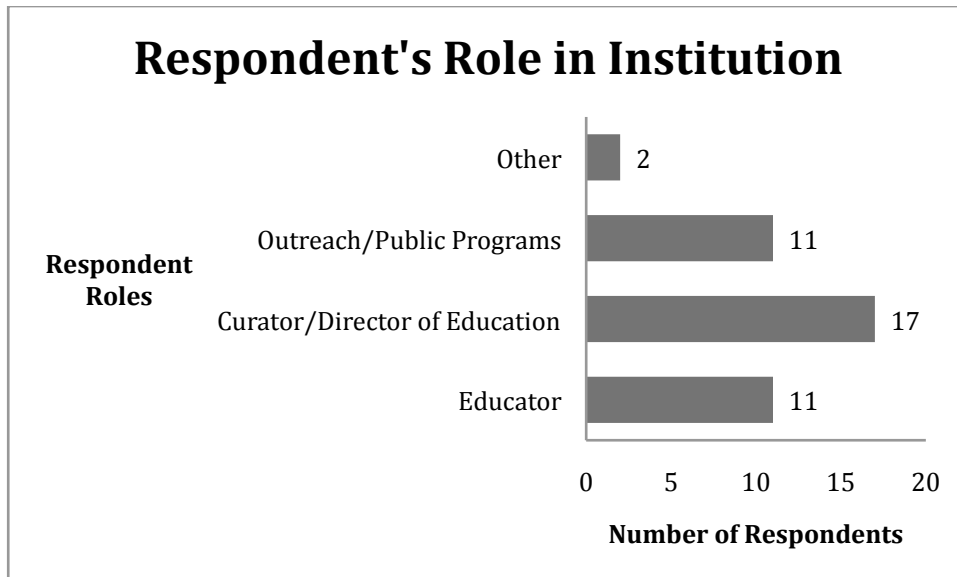


- 6) How large is the part-time and full-time professional staff of your institution's education department? (Question 20, n=41)

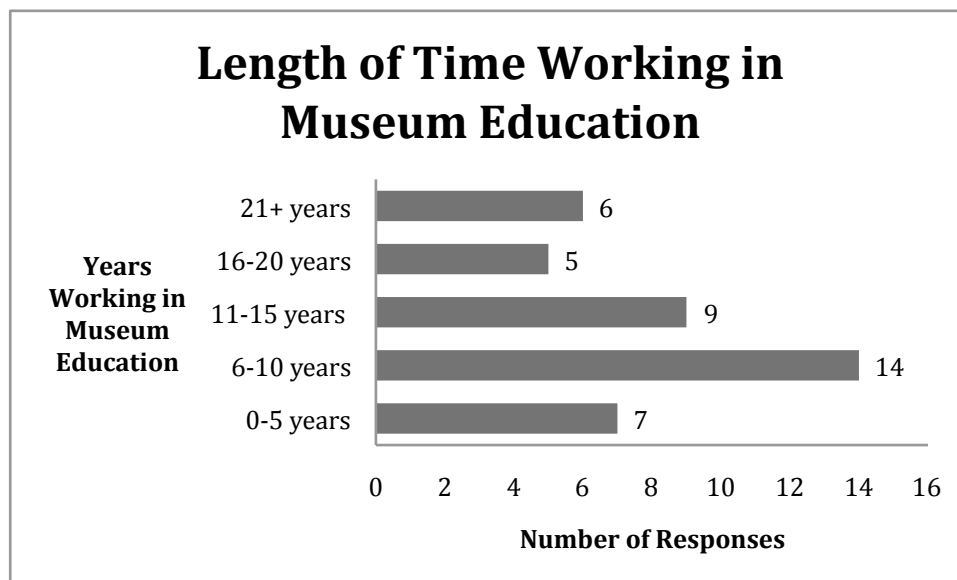


Appendix IV: Museum Educator Demographics

1) What role do you play in the institution? (Question 10, n=41)



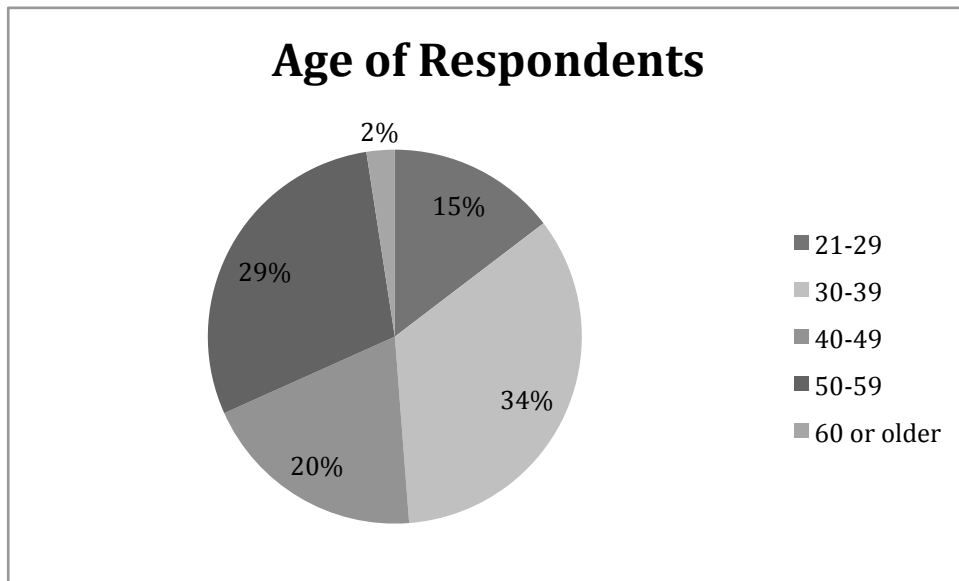
2) How long have you been working in museum education? (Question 11, n=41)



3) What is your gender (Question 12, n=41)

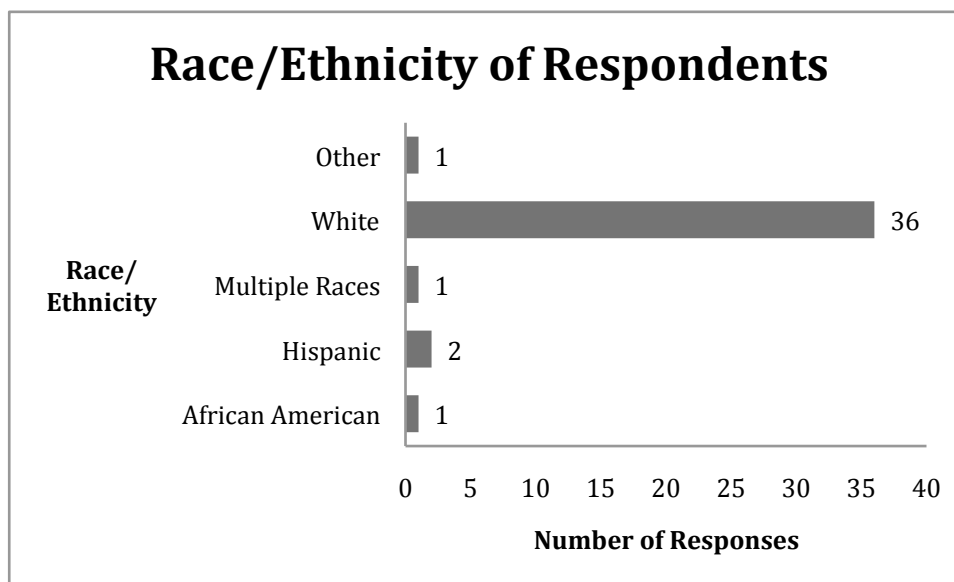
95% of the respondents identified as female, while the remaining 5% identified as male.

4) Which category below includes your age? (Question 13, n=41)



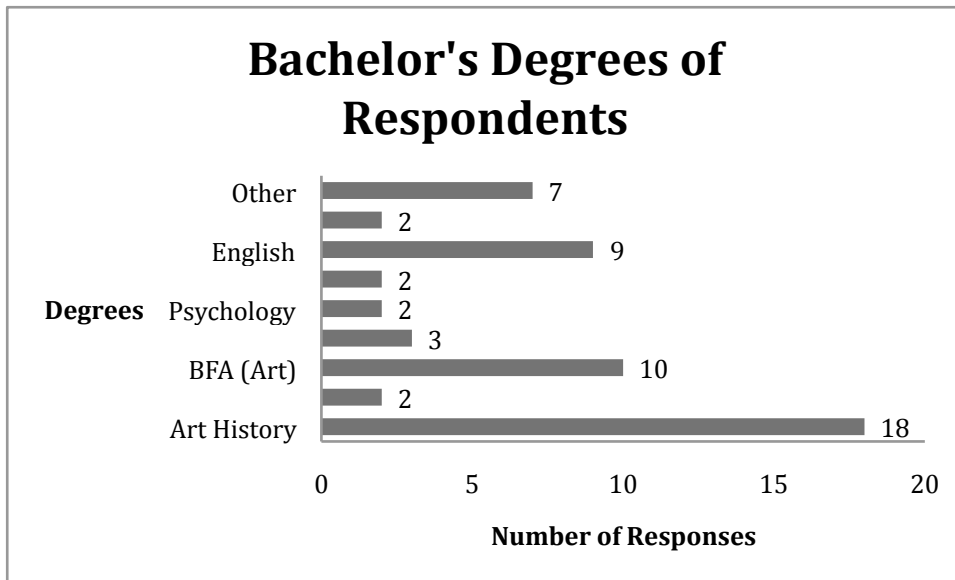
5) What
is
your

race/ethnicity? (Question 14, n=41)

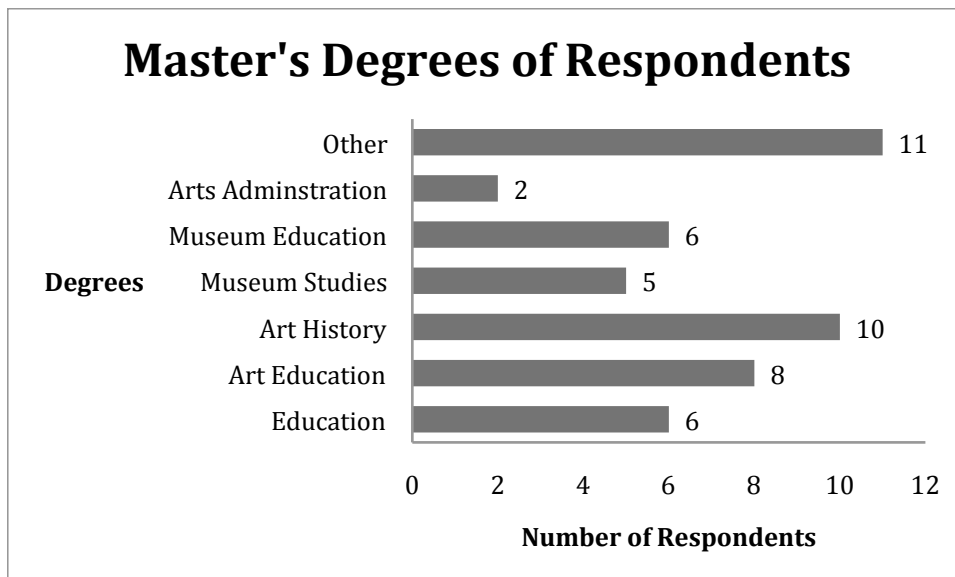


6) What is your educational background? (Question 15)

a) Bachelors (n=34)



b) Masters (n=36)



c) Doctorate or any other terminal degree (n=3)

There were only three respondents with any doctorate or terminal degrees. These degrees included: ABD Art History; Ed. D in Curriculum and Instruction (candidate); and Educational Leadership (Working On)