

STIMULATING THE SENSES: AESTHETIC LEARNING ENVIRONMENTS FOR BABIES

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ABSTRACT

This paper provides a brief overview of research about the importance of aesthetic learning environments for babies. Based on brain and aesthetic preference research, this article provides some suggestions and examples of setting up an aesthetic multimodal-learning environment. Insights are provided into the types of interactions that may be had between educators and babies to foster nurturing relationships based on aesthetic experiences.

INTRODUCTION

"Early environments matter, and nurturing relationships are essential"

(Sluss, 2015, p.23)

Babies enjoy looking at art that is bright, bold, colourful and shiny (Cacchione, et al., 2011; Danko-McGhee, 2010, 2011). Knowing the aesthetic preferences of infants can help parents, early childhood practitioners, and early childhood art educators to select imagery that is aesthetically appealing to them. Because a stimulating environment is important for early brain development, providing infants with visually engaging works of art that they prefer could have a positive impact on this growth process, making the creation of a multimodal nurturing environment one of the most important considerations for early childhood practitioners. A carefully prepared environment, that includes works of art, can nurture many skills that include visual perception, tracking, and problem solving. If designed in a provocative way, an aesthetically pleasing environment can entice a young child to look, ponder and become engaged in discovery - like in the example that follows.

Twelve-month-old Sarah cannot contain her excitement. Something has piqued her interest. She giggles and squeals as she crawls towards a vibrantly coloured abstract painting that is propped up against the wall. With the help of an early childhood

practitioner, she sits down with the painting in her lap. Sarah's tiny fingers run across the textured surface, as the practitioner points out and names the different colours and describes the textures. They sit together for a long time as Sarah absorbs the provocative painting with a smile of delight on her face.

Sarah is in a carefully created learning environment where works of art are placed around the room at the child's eye level for easy access. Children in this space are free to explore these works, taking as long as they desire. In the middle of the floor are sensory materials that directly relate to the art works. When the child is ready, an attentive adult facilitates the visual and verbal connections between the art works and sensory materials.

The scenario describes an aesthetic multimodal-learning environment designed for babies. Keeping this in mind, it follows that the aesthetic engagement of very young children in sensory learning environments play an important role in early growth and development. A visually stimulating environment affords the young child with opportunities for exploration and play, which results in bursts of high frequency brain activity (Wass, Noreika, Georgieva, Clackson, Brightman, Nutbrawn, Covarrubias, & Leona, 2018).

This paper presents ways to utilize works of art that visually engage babies and to use them as a springboard in creating a sensory environment that extends the learning experience. It starts with a discussion of the nature of aesthetic response, and a literature review that suggests the kinds of art that pique the interest of babies. Its key focus is to examine how adults can extend babies' aesthetic engagement using visual art materials.

A SENSE OF WONDER – AESTHETIC RESPONSE

An aesthetic response is a sense of wonder or that feeling we get by being overjoyed or delighted by something 'beautiful' that we experience or see. Aesthetic responses are seated in the neural architecture of the brain that involves the integration of emotion, perception, memory and language (Starr, 2015; Chatterjee, 2003; Jacobsen, Schubotz, Hofel & Cramon, 2006; Nadal, Munar, Capo, Rossello & Cela-Conde, 2008; Zeki & Stutters, 2012). Works of art can serve as some of the many stimuli that can generate an aesthetic response. Studies have found that the medial orbito-frontal cortex tends to be more active during observations of art work. This neural activity is also present during the perception of pleasant stimuli in different sensory modalities that include touch, taste, and hearing (Francis et al, 1999; Ishizu & Zeki, 2011; Small, Zatorre, Dagher, Evans, & Jones-Gotman, 2001).

Because sensory modalities are formed very early in life, little children (as young as babies) are very capable of having aesthetic responses and they seem to experience this 'sense of wonder' in a more pronounced way than adults (Wilson, 2010). Even though

young children have aesthetic responses, aesthetics are often not considered as a goal when designing an environment for them. Yet, “Children are more apt to grow up with an appreciation for beauty if the adults around them demonstrate that they value aesthetics.” (Gonzales-Mena & Eyer, 2015, p.123). Early aesthetic experiences can have powerful and long-lasting effects (Kemple & Johnson, 2002).

LITERATURE REVIEW

An initial literature review identifies key areas that can support a baby’s aesthetic explorations. These include: vision and early aesthetic responses to works of art, aesthetics and the learning environment. It suggests the kinds of art that can pique the interest of babies.

Vision and Early Aesthetic Responses to Works of Art

At a young age, babies have the visual tools that they need to view a work of art. According to Sluss (2015), “Infants are observers of art when they are born.” (p.98). “Their entire body is involved in the encounter with the ‘art’ object offered to them” (Gandini, 2011, p.5). Within just a few weeks after birth, babies can discriminate among colours. While it is difficult for them to focus on an object at first, by two months infants can see a single image that still may be slightly blurred. More clarity arrives around 4 months with 20/20 vision developing by six months (Simmons, 1993).

In conjunction with vision, visual perception is also necessary. While vision is the ability to ‘see’, visual perception refers to the brain’s ability to make sense of what the eyes see. “During the early stages of cognitive development – when learning is dependent on concrete perceptual experiences – perception conducts thought” (Wilson, 2010, p.25). Thus, the seeds can be planted early for art viewing experiences.

Taking a closer look at the types of art works that babies prefer to view, Zemach & Teller (2007) found that 12-week old infants demonstrated preferences for coloured visual stimuli as opposed to white. A study conducted in a museum setting found that babies enjoy looking at shiny metallic surfaces as well as large expanses of colour (Piscitelli & Smith, 2009). Cacchione, Mohring and Bertin (2011) observed that infants had strong preferences for paintings by Picasso. Even when color was removed and the contours blurred, babies still preferred works by this artist. In 2010 and 2011, additional studies were conducted where 115 babies (ages 2-18 months) were shown a series of art works – abstract and representational – two at a time. The image that the baby fixated on the longest was determined to be the favored one. The findings suggest that they prefer both abstract and representational paintings, images that are bold in colour and are of high contrast, as well as portraits with large eyes (Danko-McGhee, 2010, 2011). Additionally, Krentz and Earl’s (2013) research found that babies showed a preference toward more complex abstract paintings.

With this research in mind, a variety of visual imagery can encourage babies to explore their world (Gonzalez-Mena & Eyer, 2015). If a child sees something that engages him/her, that child is more likely to reach out or crawl towards it and interact with it by touching. What is important here is the multimodal approach where the child not only looks at an image but can also interact by touching it. The habit of observation and the lack of involvement could stifle development and sensory integration (Gonzalez-Mena & Eyer, 2015). “When infants find their world interesting and are allowed to explore it at their own pace, they learn to entertain themselves in the process of discovery” (Gonzales-Mena & Eyer, 2015, p.122).

Adult facilitation is another key factor when one is designing an aesthetic environment for babies. Knowing the aesthetic preferences of infants can help adults, whether parents or early childhood practitioners, to select imagery that is aesthetically appealing to them. Brain research indicates that infants are born with hard-wired neurological pathways that can be strengthened by interacting with others (Garstein, Bridgett, Young, Panksepp, & Power, 2013; Luby, et al, 2012). Because a stimulating environment, that includes works of art, is important for early brain development, providing infants with engaging imagery that they prefer could impact this important developmental process. As Tinmannsvik and Bjelland (2009) point out, “aesthetic stimulation represents a positive influence on children’s emotional and cognitive development...Varied aesthetic expressions and the richness of the sensory experiences should be the overall goal” (p.370). Thus, aesthetic encounters in a carefully prepared learning environment can become quality learning experiences when adults facilitate the viewing process, as they play a vital role in facilitating young children’s learning (Munley, 2012).

Aesthetics and the Learning Environment

Environments and the way they are set up by educators should become invitations for children to explore and construct knowledge (Gandini, 1998). If designed in a provocative kind of way, an aesthetically pleasing environment can entice a young child to look, ponder and become engaged in discovery as visual perception and problem-solving skills are being developed (Danko-McGhee, 2009, 2016; Kerka, 1999; McKellar, 1957; Gandini, et al, 2005). Images and objects should be displayed that relate to the interest of young children (Eyestone-Finnegan, 2001).

It is important to note that while an aesthetically stimulating environment is important, babies need opportunities to, “perceive their own involvement in these sensory experiences. Their involvement comes when they are able to have some effect on, that is interact with the people and things that are part of the experience.” (Gonzales-Mena & Eyer, 2015, p. 24). The human interaction is very important for social-emotional growth and art engagement with an adult and child can afford such an opportunity. The sensory channels are an infant’s way of learning about their world and they help to create those neural pathways. If environmental stimulation and human interaction is absent, the developmental process and brain growth can slow down (Bergen & Coscia, 2001). Affording babies an opportunity to look at art and engage in aesthetic

explorations that include visual and tactile stimulation can have an impact on cognitive processes during the first years of life and are critical with regard to learning.

PUTTING THEORY INTO PRACTICE - CHOOSING ART FOR BABIES

Keeping in mind the aesthetic preferences of babies – high contrast, colorful and shiny – there are many places to find reproductions of works of art. One place is in the gift shop of an art museum. Such shops typically have a variety of price points that include framed and unframed prints. All their prints are typically of high quality and are on heavy paper stock.

Another place to get images is the Google Cultural Institute (see <https://www.google.com/culturalinstitute/project/art-project>). This is a collaboration of art museums from all over the world. There are works from well over 6,000 artists and these works can be viewed in extraordinary detail. To use the site, one can look up art works by museums or artists, and if looking for a specific art work with a known title, this can be located as well. It is possible to build an online gallery and select babies' favorite art works. Infants can help in choosing which ones they like. If using a computer and a projector, these images can be projected as large as wanted on the wall. This way, images can be changed on a daily basis. For good viewing, it may be best to keep the lights dimmed in the early childhood setting. Viewing art on websites such as these provides opportunities for babies to "interact with people and things" (Gonzales-Mena & Eyer, 2015, p.24) and may provide meaningful aesthetic engagements for long spans of time for educators and babies. These approaches to accessing and viewing artworks may be most economical and a readily available choice.

Working with artists to show their work in the baby's environment is really the best choice for many reasons. The artist can interact with the children and they will have an opportunity to experience the art work in a more multi-sensory kind of way. This is very different from looking at art prints or projected images. When working with an artist, it needs to be made clear that babies will be touching, licking and crawling over their art work. Some artists may not want any part of this, but many will be very intrigued. Where can artists be found? There are a number of possibilities. Checking with local community arts agencies is a good start. They have their finger on the pulse of what is happening in the art community. Typically, these agencies have a bank of artists that they work with, so this can be a great resource.

Going into the local art galleries is another option. The owners of these galleries will know many artists in the area. In fact, many works in the gallery might include those that babies will like. That will make it easier to talk to the gallery owner about getting access to the artist. Access to colleges and universities may be another avenue. It might be possible to have college students display some of their art work in the baby's learning environment. Parents are always a good resource as well. Some of them might be practicing artists themselves or they may have a family member or a friend who is an artist.

Once a connection with an artist is made, they can then display their work in your learning environment. Obviously, be sure that the materials used to create the art are not toxic for babies. When talking to the chosen artist, be sure to mention that safety is of utmost importance. If the artist is bringing in sculpture pieces, be sure that they are securely anchored. Babies like to crawl on them, so you want to be sure that the sculpture piece is stable. Two-dimensional pieces such as paintings, drawings and photographs can be in frames with a glass or plexi-glass panel covering the work. Unframed canvases are also great for little fingers to explore textures.

The next section of this paper provides ideas that can be implemented in the learning environment for babies. These have already been tested out and can be used as a jumping off point for early childhood practitioners. The ideas can be tailored to meet the specific needs of your specific children in any learning environment.

DISPLAYING ART IN THE LEARNING ENVIRONMENT

Since the selected art work is for babies, be sure to display it at their eye level (Figure 1). Larger paintings hung on the wall should be secured because the babies will want to pull them off of the wall. If the works are small, you might consider propping them up on the floor against the wall. In addition, there are many professionally manufactured display systems that can be attached to a lower wall (baby eye level). Art work can then be slipped between two sheets of plexi-glass for protection.



Figure 1 - Art Works Displayed Low on the Wall for Better Viewing by Babies

Sculpture pieces do not have to be placed on a pedestal. They can sit directly on the floor. If a pedestal is chosen, just be sure that it is low and at the eye-level of babies, as

seen in Figure 2. The sculpture pieces should be safely secured so that they do not pose a safety hazard. When possible, go for the larger pieces that can be placed throughout your classroom and will be like a sculpture playground. Babies can crawl to pieces that interest them and interact with them as they choose.



Figure 2 - Playing with a large clay vessel placed on the floor

CONNECTING THE LEARNING ENVIRONMENT TO ART WORKS ON DISPLAY

Making the learning environment relate to the works of art on display is fun and easy to do, and it can also extend and enrich the learning experience. Here are a variety of examples that include art works such as paper cuts, glass objects, clay vessels, and abstract paintings.

Black and white

Figure 3 is a paper cut by the artist Mary Gaynier. As noted previously, high contrast art work was found to engage babies. Therefore, works such as these paper cuts are likely to be of interest to babies. Look for artists that work in black and white in the local community. If none are available, try getting Franz Kline or Kathe Kollwitz prints or similar artists.



Figure 3 - The Cow Came Crashing Over the Moon by Mary Gaynier

Using a black and white theme, there are many things that can be done in the learning environment. For example, by giving babies a play area such as the one shown in Figure 4. This is a black padded area with lots of manipulatives for multi-sensory experiences that directly and indirectly relate to the paper cuts on display.



Figure 4 - Black & white sensory materials



Figure 5 - Black & white button rattles

Manipulatives can consist of a variety of black and white boxes with see-through lids that are filled with black and white buttons (see Figure 5). Babies tend to love the noise that the buttons make as they clang against the box when shaken. Black and white

beads can also be used, but other black and white materials that make noise could be used as well. The lids can be secured with a permanent adhesive in addition to black and white decorative tape so that the buttons do not present a choking hazard. With regard to the art image in Figure 3, interacting with babies may involve pointing out how the roundness of the buttons is similar to the roundness of the paper cut images.



Figure 6. Black and white patterned ribbons

A variety of black and white ribbons with different textures and patterns can pique the visual and tactile interest of babies (Figure 6). Once again, working with the babies to make visual connections between the patterns on the ribbons with patterns found in the related art work while verbally describing zig-zag and/or curvy lines is important. Rich descriptions by the adult can build babies' early receptive language. Research has shown that lots of talking with children in the first 3 years of life builds the brain architecture that will be needed later to support reading and thinking skills (Shillady, 2014). For more details about the importance of talking while looking at art with a baby, please refer to Danko-McGhee (2016).



Figure 7 - White feather boa

Feathers are always fun and the fuzzy texture (Figure 7) can be alluring to babies. So, offering many opportunities like this is important. While there is no direct connection to the art work in this case, other than the colour white, children may likely enjoy the fuzzy texture. A circle with the feather boa can be formed and an educator can interact with a baby while pointing out the roundness that is similar to the round paper-cut images. Another approach may involve describing the fuzzy texture while guiding the baby's hand to feel it.



Figure 8 - Black and white mobile



Figure 9 - Window curtain with pockets filled with black paper cuts

Creating a mobile out of black and white foam sheets is another way of connecting to the art work (see Figure 8). A variety of shapes can be cut out and then strung together with clear fishing line and beads. Once again, remember to make connections with similar shapes and colours found in the mobile and the art work. In the photograph, various sizes of circular shapes are repeated.

Utilising a window space is an additional way to make connections to the art work. Little pockets can be sewn on a sheer curtain and hung in the window and the pockets can be filled with individual black paper cuts. As evident in Figure 9, these show up nicely on a sunny day and create beautiful patterned shadows on the floor. In terms of interaction with infants an educator might point out the similarities in shapes found in these patterns and in the art work on display.

The discussion so far has provided a few examples of how to provide multi-modal experiences for babies that relate to the black and white paper cuts that are displayed in this space. Other ideas will evolve out of the interactions had with children, and with their families, and in relation to culturally significant events and other influencing factors. Taking into consideration the socio-cultural milieu is an important consideration when designing an environment. Art works that mirror the cultures represented in the babies who will use the space will help them to feel more comfortable.

Glass Art Objects

While babies and glass don't seem to go together, in my experience of working with babies, I have noticed how they are actually intrigued by the properties of this art form. If colourful and sturdy glass paperweights are displayed, there is less likely to be an accident of breakage (see Figure 10). To highlight the beautiful transparent features of these objects, they can be displayed on lighted cube pedestals (see Figures 11 a & b). There are relatively inexpensive ones available that are lightweight, made of plastic, and are child height. Since they are battery operated, charging them up beforehand resolves the issue of extension cords that can pose a tripping hazard. The light within the cubes can be controlled to display one colour or the colours can intermittently change and enhance the glass objects that are placed on them.

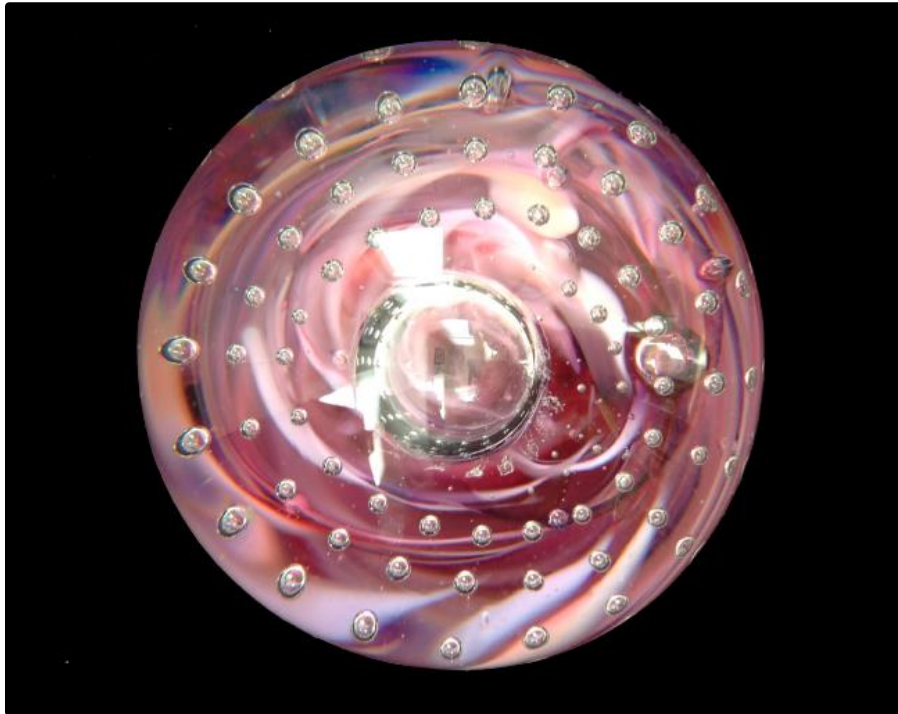


Figure 10 – Pink paperweight (photo by Jimmy McGhee)



Figures 11 a & b - Glass objects displayed on small light cubes

As seen in the image above (see Figure 12), these light cubes are at the perfect height for babies. Placing coloured plexi-glass blocks on the pedestals can be used as well. The light coming from below provides a different experience when compared to displaying these transparent colour blocks on wooden tables. As the child explores the glass, talk about the colours, the feeling of cold, hard glass and how you can see through it. Glass affords many opportunities for rich learning experiences. The child can take a closer look at the glass pieces by using a magnifying glass (see Figure 13) and talk about all of the interesting lines and patterns that can be seen.



Figure 12 - Caroline playing with colored glass objects

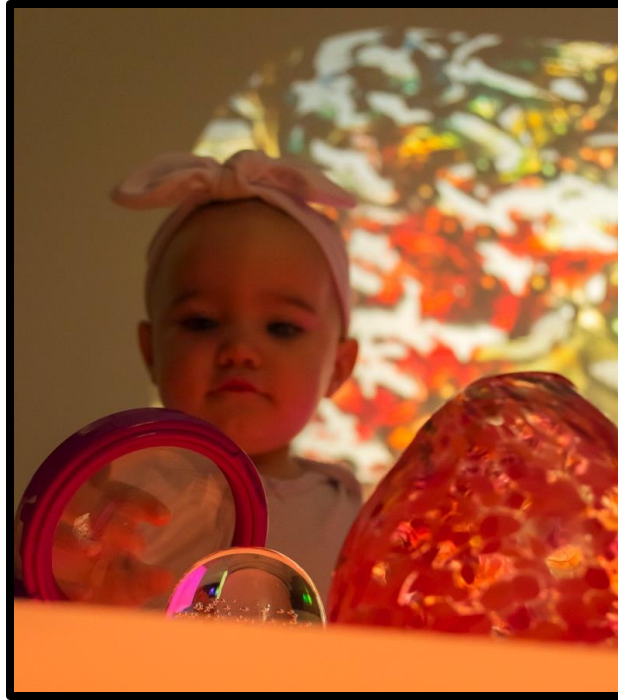


Figure 13 - Using a magnifying glass to take a closer look

The display of glass pieces can be enhanced with other elements in the space. For example, filling sturdy glass jars with coloured water beads, which can be illuminated from within and placed around the room. Dehydrated beads can be found in the floral section of a craft store. When water tinted with your choice of food colouring is added, the little beads expand over time. The beads can be placed in a clear jar, and a battery-operated light can be added to better illuminate the beads (see Figure 14). A secure lid will prevent a potential choking hazard.



Figure 14 - Glass containers filled with water beads and a small battery-operated light

Other options include the use of an overhead projector. These are wonderful tools to use in your learning environment but should be placed out of the baby's reach. Use a clear glass pan and fill it with clear hair gel or fizzy water. Both are good, but choose one or the other. Then add coloured transparent items such as drops of food colouring, cellophane, beads, feathers, etc. An entire wall can be filled this way with a beautifully projected image (see Figure 15 & 16). Play some interesting music in the background and you have created a captivating environment for babies who will spend a lot of time exploring. The end result looks like a giant abstract painting on the wall.

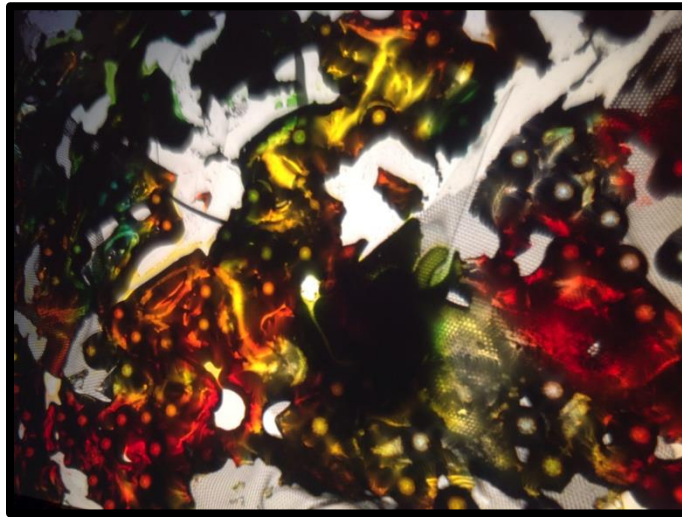


Figure 15 - The projected image using food colouring, cellophane, beads, feathers



Figure 16 - Light cubes hair gel, food coloring, cellophane and water beads.

Clay Vessels

Large clay vessels can provide a wonderful engaging experience for babies. Vessels with lots of colour and texture are especially intriguing to them. If the objects are large enough, they can be displayed on the floor. That way, babies can explore them better by crawling over, around and inside them (see Figure 17 & 18). Be sure to talk about the textures and colour of the clay vessel.



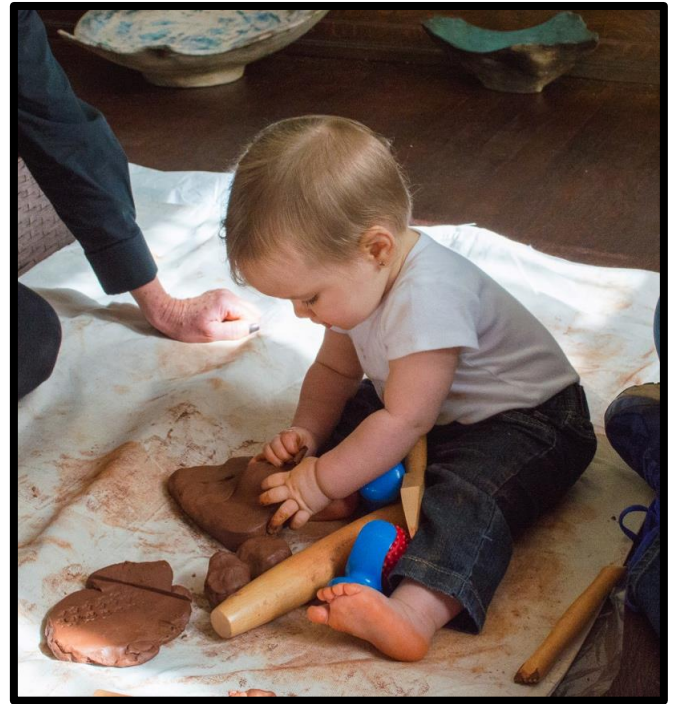
Figure 17 - Anna Sitting in a Clay Vessel



Figure 18 - Anna exploring the textures of a clay vessel

In addition to looking at clay vessels, babies love to play with clay as well (see Figure 19 a & b). Real, authentic clay is better because of the texture and clay can easily be recycled and is more economical to use.

Simple tools can be provided that will leave marks on the surface of the clay. Combs, large dowel rods cut to fit baby's hands, and brushes are all good to explore with. Experimenting with different objects that leave textured impressions is fun as well.



Figures 19 a & b - Exploring clay with wooden tools

Colorful Abstract Paintings

Paintings like this one are great for babies (see Figure 20). This image is full of colour and interesting surface textures. Working with artists that create bright, bold, colourful canvases, preferably large ones, are good choices for baby's learning environment and meet the needs of their aesthetic delight.

When art works are placed at the eye-level of the child, it is easier for them to choose the one that they want to explore (see Figure 21). Be sure that the artist is alright with little hands exploring the textured surfaces. Also, be sure that the painting materials used are non-toxic. Babies have a tendency to want to taste everything!

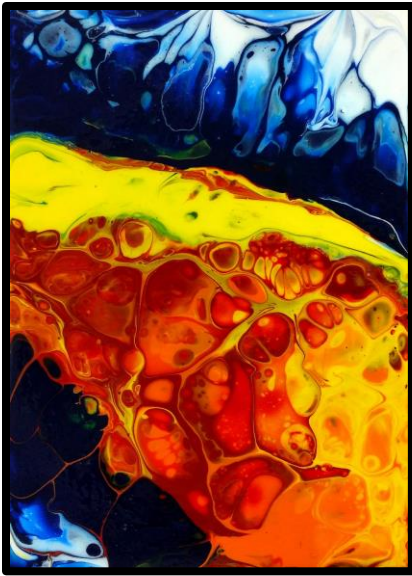


Figure 20 - Untitled by Jen Muse



Figure 21 - Looking at a painting at child's eye level



Figure 22 - Looking at a painting together

When possible, the best choice is to provide the opportunity for the child to handle the painting like the one in the photograph above (see Figure 22). This way, they can really explore the colours, lines, and textures in the manner that comes natural to them.

Sensory and textured materials

In addition to exploring the paintings, providing children with related colourful and textured materials can extend the learning experience. Tulle in a variety of colours has a wonderful texture that children love to explore (see Figures 23 & 24). It is transparent and fun to play peek-a-boo. Choosing colours that are similar to the ones found in a painting will help in making better connections to the art work.



Figure 23 - Assorted colours of tulle



Figure 24 - Babies love to play with the texture.



Figure 25 - Assorted coloured ribbons



Figure 26 - Sensory bottles

Creating sensory bottles that have similar colours and shapes to those found in the painting can be a nice way to make connections as well (see Figure 26). These bottles can be easily created by using mixtures of oil and water along with a variety of small items such as beads and feathers. Moving the bottles slowly back and forth as the contents move has a very calming effect. If one is near the art work, similarities in colours and shapes can be pointed out. Since the bottles contain small parts that can be

a choking hazard, securing the lids with a permanent adhesive is strongly recommended.

CONCLUSION

Early childhood educators and care providers are the custodians of the learning environment for young children. They should be seductive in their efforts to provide aesthetic elements that serve as an invitation for sensory exploration. Access to original works of art in the carefully designed learning environment can become the child's first experience with art (Ewing, 2013).

Utilising works of art as a launch pad to create an aesthetic multimodal learning environment for babies can be a rewarding experience for both the child and the care provider. Keeping in mind the aesthetic preferences of babies can help to guide the selection of art works and the creation of related learning experiences. Offering a variety of art works can enrich the learning experience.

Fostering aesthetic growth at a young age can reap many benefits for the child that include enhanced visual perception abilities, visual acuity, and problem solving. Giving young children the freedom to explore art and related sensory items helps in fostering these skills.

This article has argued that "early environments matter, and nurturing relationships are essential" (Sluss, 2015, p.23). Suggestions for setting up an aesthetic learning environment for babies have included the display of original works of art such as paintings, glass objects and clay vessels. In addition, this article has offered insight into the types of interactions that may be had between educators and babies including the facilitation of viewing a work of art and describing it while pointing out similar colors and textures found in the environment. As noted by Ewing (2013), "teachers should be aware of what infants can see, touch, and hear, and carefully manage the environment to create aesthetically engaging spaces" (p.55).

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Biography

Dr. Danko-McGhee is Director of Art Education & Pre-Art Therapy at the University of Saint Francis in Fort Wayne, Indiana. Formerly the Director of Education at the Toledo Museum of Art, she created Baby Tours and spearheaded the publication of two books, *The Art of Seeing Art: A, B, and See* as well as the *Art of Seeing Art for Babies*. Prior to her museum post, she served as Early Childhood Art Education Coordinator at the University of Toledo. During her tenure, Kathy conducted research in countries around the world studying the aesthetic preferences of babies. Cultural agencies in England and the Netherlands have developed programs for babies based on Kathy's research, which has been highlighted in *The Washington Post* and the *Wall Street Journal*. The author of two books, *The Aesthetic Preferences of Young Children (2000)* and *The Impact of Early Art Experiences on Literacy Development (2007)*, she has published numerous journal articles and has presented papers nationally & internationally.

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