Design Principles for Developing Visual Literacy Programs for Pre-K Children

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Abstract
In a world where the influence of visual culture is increasing, it becomes critical to develop visual literacy skills early on in life. However, programs designed for pre-kindergarten children are largely lacking. This paper reviews several trends in current visual literacy programs, outlines design principles for visual literacy programs geared toward children, and provides a visual example of using artwork to introduce children to colors, shapes and other basic visual literacy elements.

Keywords: Visual literacy; design principles; children; education; program development

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1 Introduction
In recent years, definitions of literacy have expanded far beyond the traditional text-based interpretation. The digital revolution created a new paradigm regarding how we think and interact with the world. Instead of receiving information from one source and accepting it as fact, we are required to synthesize and connect disparate elements of information presented in a wide variety of forms (Jenkins, 2006).

Visual information is just one of these forms, but it is rapidly becoming the primary way that we take in information. In 2009, young people spent 7 hours and 38 minutes a day with one or more forms of media, during which they were exposed to 10 hours and 45 minutes worth of content (Kaiser Family Foundation, 2010). This represents an increase of 2 hours and 15 minutes of media engagement over a comparable study done just five years before; the only form of media that participants spent less time with was print. Time spent with image-based, visual media—television, computer, and video games—increased significantly (Kaiser Family Foundation, 2010).

In a world where the influence of visual culture is increasing (Flynt & Brozo, 2010), it becomes critical to develop visual literacy skills early on in life. In its broadest sense, visual literacy is defined as the ability to “interpret and construct meaning from visual images” (Eckhoff, 2010). Development of visual literacy skills from an early age has been linked to “improved verbal skills, more highly developed self-expression and ordering of ideas, motivation and engagement in a variety of subjects, self-image and relationship to the world and self-reliance, independence and confidence” (Flynt & Brozo, 2010). The importance of developing visual literacy in young children is recognized by the National Association for the Education of Young Children (NAEYC) and the National Art Education Association (NAEA), as well as in a number of the Common Core standards (Common Core State Standards Initiative, 2015). However, in an absence of a universal preschool (pre-K) education and curriculum standards for visual literacy, there are major gaps in the early visual literacy education.

This paper reviews current research and initiatives in the area of visual literacy, outlines several design principles for developing visual literacy programs for pre-K children, and provides an example of using artwork to introduce basic visual elements to children.

2 Relevant developments
Visual literacy makes an important contribution to expanding general literacy (Rice, 1988; Edwards & Willis, 2000) and leads to “a fuller understanding of the way we derive meaning from what we see and the way we interact with our visual environment” (International Visual Literacy Association, 2011). However, visual literacy does not come naturally to most people, as it requires the ability to contemplate and analyze (Rice, 1988). Developing basic visual literacy in pre-K children prepares them to better “read” and “write” messages, ultimately allowing more possibilities for creativity and freedom (Edwards & Willis, 2000).

A number of authors outline design principles for visual literacy programs. For example, Eckhoff (2010) proposes the use of games involving artworks to encourage young children to “read” visual images and help them develop an understanding of the communicative power of visual art. Programs that combine art making with an art viewing and reflection sessions could also help children connect their own...
creative expressions to those of the artist, deepening understanding and appreciation for the artwork (Eckhoff, 2010).

Several authors stress the importance of selecting appropriate artwork to introduce to early learners (Eckhoff, 2010; Yenawine, 2003). Eckhoff (2010) cites research that recommends creating experiences that expose young children to works of art that are meaningful and relevant to their everyday experiences.

Yenawine (2003) writes that "very young children...are usually satisfied with finding, naming, listing, counting, scouting out - and to some extent making up stories about what they see. Overall, images for them should be fairly simple, even spare - so as not to overwhelm."

The most representative examples of current visual literacy programs for children can be found in a museum context. For example, the Toledo Museum of Art has done innovative work incorporating visual literacy instruction into its educational programming. With the help of local partners, the University of Toledo and the Toledo Public Library, the museum engages learners of all ages by teaching visual literacy through workshops, tours, and gallery experiences. The Whitney Museum of American Art introduced a dedicated space in the new Laurie M. Tisch Education Center where it offers a range of programming for visitors. While the museum has developed and currently supports a wide range of programs for K-12 students (Whitney Museum of American Art, 2015), as well as for adult and infant patrons (0-18 month olds), it has not yet established a program dedicated to the needs of the pre-K demographic. The Metropolitan Museum of Art supports learning through art and play with various programs for children. The #MetKids website was recently launched to engage 7-12 year old children with an interactive map of the Museum, behind the scenes videos, fun facts, a “time machine” feature which helps children explore over 5000 years of art history, and creative art project suggestions (The Metropolitan Museum of Art, 2015). While there are also many programs offered onsite for children ages six to twelve and families (e.g., suggested itineraries, tours, art making workshops and festivals), programs designed for children younger than age six are lacking. A similar lack of programs geared toward young audiences is evident in other museums. For example, the Museum of Modern Art (MoMA) developed an Art Lab iPad App that is available on the Apple Store. The app, intended for children ages seven and up, helps children explore the use of line, shape, and color to understand artists’ processes (Art Lab iPad App, 2015). The Getty Museum hosts a gaming website called GettyGames which provides interactive ways to introduce children to lines, shapes, and colors in artwork (GettyGames, 2015).

In summary, while there are examples of programs that aim to introduce elements of basic visual literacy to children, most programs tend to be developed for children ages 7 and up. However, from birth to about age five, children take in more information than any other time in their lives, and build a foundation for future achievements--this is the primary reason why more visual literacy programs are needed for this age group (Kennedy, 2015; Cunningham, 2015).

3 Proposed design principles

Based on the reviewed literature and analysis of the current visual literacy programs, we propose to introduce young children to the basic elements of visual literacy using fine arts objects (e.g., paintings). Introducing visual literacy in an art context has multiple benefits. One of the benefits is domain knowledge and unique positioning of art experts, educators and institutions who offer most of the current visual literacy programs for children and other age groups. Basic visual literacy programs for younger children can build on programs designed for older age groups and benefit from expertise of museum experts. Another benefit of using fine art for visual literacy instruction is development of aesthetics, creativity, art appreciation and general intellectual curiosity early in life (Kotlier, 1999; Kindler & Darras, 1997; Boughton, 1986).

Using artwork for engaging pre-K children in visual literacy, we propose the following recommendations for developing visual literacy programs:

1. Use age-appropriate images. Based on prior literature, age-appropriate images should include clear, relatable subject matter, vivid colors, and visual literacy elements (Gardner, 1970; Yenawine, 2003; Eckhoff, 2010).

2. Introduce children to the basic visual elements and link them to more abstract principles. For instance, through examples and discussions about lines, shapes, color and other “concrete” elements of art, children can be introduced to more “abstract” design principles, such as emphasis and movement (Table 1).
Elements of art | Principles of design
---|---
Line | Balance
Space | Emphasis
Shape | Movement
Form | Pattern
Color | Repetition
Texture | Proportion

| Rhythm |
| Variety |
| Unity |

Table 1. Elements of art and principles of design based on the J. Paul Getty Museum (2011) recommendations

3. Take into account the following principles when designing interactive experiences for children (Nielsen, 2010):
   a) Children like to have a sense of control and want their experience to follow standard user interface (UI) conventions.
   b) Children are first and foremost seeking entertainment from these experiences; they learn through play. Visual literacy games could include developmentally appropriate activities such as finding an object/color/shape within an artwork, matching images, identifying opposites, adding color, and completing puzzles.
   c) Children seek instant gratification, therefore the programs should aim to reward them for their active engagement.
   d) Children might prefer symbols to text (Wu, 2015).
   e) The overall design and intended outcomes of the design need to take into account the age of the user.

4. Encourage a conversation around an artwork as a way to help children develop critical thinking strategies (Cole & Schaefer, 1990). For example, ask the children to describe what they see, and manipulate image based on children’s feedback.

5. Develop art appreciation, connect virtual visual literacy programs to physical objects, and encourage on-site museum visits (Funch, 1997; Kotlier, 1999; Kindler & Darras, 1997).
4 Example of introducing basic visual literacy elements to Pre-K children

To illustrate how basic visual literacy can be introduced to pre-K children, we describe a high level design of a visual literacy program. First, a program will identify the type of image(s) that elicits the most interest/excitement in a young user(s). This can be done by showing a user a sample of images and asking her/him to identify her/his favorite images, describe the images and/or her/his feelings associated with the image. The program might integrate emotion recognition features to make automatic determinations of the most engaging images for the user. Before introducing visual elements, the program will determine the baseline of a child's previous knowledge of visual literacy elements. This can be done by asking the child to name/select the colors, shapes and other visual literacy elements s/he already knows. This step will boost a child's confidence, will keep her/him engaged and will ensure that the child receives appropriate subsequent instruction. After determining a user’s current level of visual literacy skills, the program can offer games around specific visual literacy elements. For example, after asking a user to identify/select known colors, the program can show which of these colors are “cool” and which are “warm,” define these concepts in the age-appropriate terms (e.g., “warm” colors are like sun), and ask the child to find these colors on the image. Through the discussion of “simple” visual literacy elements that the user already knows or can easily learn, the program can introduce her/him to more complex concepts. For example, discussion about lines and shapes can lead to introduction of a perspective and salient point. Figure 1 illustrates how a famous painting can be used to initiate conversation about colors, shapes, lines (e.g., horizon), perspective (e.g., size of objects in a painting) and vanishing point. Further game activities might focus on helping a child learn and identify newly learned elements and earn rewards and move to more advanced levels. Optionally, additional program features might focus on developing language, problem-solving and other skills.

5 Conclusion

In a world largely dominated by visual culture it is important to develop basic visual literacy in young children the same way we develop their traditional text-based literacy skills. This can be accomplished in parallel with developing children aesthetics and art appreciation by integrating fine art objects into basic visual literacy programs. Whether through face-to-face or virtual game-based programs, young children can learn to connect knowledge of basic colors, shapes and lines to perspective, balance, and other more sophisticated visual literacy concepts that are essential for engagement with visual information in their everyday lives (Williams, 2007; The Task Force on Children's Learning and the Arts, 1998; Douglas, Schwartz & Taylor, 1981; Eckhoff, 2010). Due to the subject matter and unique characteristics of the intended user group, future success for visual literacy programs will depend on shared expertise and collaboration between art specialists, information professionals, educators, and parents.

6 References


