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Graduate Student Research Competition

EXHIBIT A

Research Prospectus

Word Count: 973

Effects of Graphic Structure on Visual Narrative Comprehension

Much of children's exposure to cultural and educational material comes in the form of visual media (television, film, picture books, apps and computer programs). However, little is known about the ways in which children make meaning from such visual communication. In the United States, we live in a visually dominated culture, with the average citizen seeing between 3,000-4,000 mediated images every day (Williams, 2005). These mediated—or man-made—images represent a form of communication in which the maker “intends” meaning (Dake, 2005) and the viewer “makes” meaning, which matches up with the intended message to varying degrees (Barbatsis, 2005; Jackendoff, 2012). This study will explore how children make meaning of various forms of mediated images (i.e., illustrations) in picture books.

Perception of mediated images has been theorized in multiple ways: as a unique intelligence (Gardner 1983; Barry, 1997); a discrete mode of literacy (Messaris & Moriarty, 2005; Arizpe & Styles, 2003); and a form of neuronal recycling analogous to reading (Dehaene, 2009). All of these constructs have in common the nature of *development* over the lifespan. In order to understand visual communication in our culture, it is fundamental to understand how it develops throughout childhood.

Many developmental scholars justify the study of visual narrative through its connection with

literacy, as well as its use in assessing comprehension removed from basic skills like decoding. Images are a powerful tool in supporting linguistic communication. However, the underlying message within these curricular justifications is that images function mainly as support systems for language. While theorists have shed invaluable light on our understanding of visual narratives, few social science studies have considered visual communication—let alone children's picture book illustration—as valuable in its own right. This study will begin to fill that void.

The focus of this study is to uncover how differing visual features—or *graphic structures*—mediate children's comprehension of a visual narrative. Additionally, it will explore how the effects of graphic structure may change through a child's development. Children (ages 4, 5, and 7) will be shown an original wordless picture book with either (a) black-and-white line drawings with no background detail (simple condition), or (b) identical drawings with color and background detail added (complex condition). These manipulations are intended to add ambience (color) and context (background detail). Narrative comprehension measures, including the one used in this study, assess children's understanding of events and inferencing-ability regarding causal structure, and characters' goals and emotions. All of these structures are identical between the two conditions. Only the graphic structure, which is *not* directly considered in comprehension measures, is manipulated. I expect that children who view the simple condition will prioritize *events* in the meaning they make from the narrative, while children who read the complex version will be more attune to *character states and emotions*. Their comprehension will be different even when the story is the same.

The sample will be stratified according to reading ability, then randomly divided among the two conditions. First, children will view the picture book freely, encouraged to say aloud everything they think. The researcher will then ask children to retell the story in their own words, followed by prompted comprehension questions that refer to explicit aspects of the narrative, such as events, and implicit aspects, like emotions. This procedure was developed and validated for use with 5-8-year-olds

by Paris & Paris (2003) and used effectively with 4-year-olds (Dempsey, 2005; Tompkins et al., 2012). Comprehension will be measured by coding observed viewing behaviors, accuracy of retelling, and inferencing ability.

While this study uses a familiar procedure, it is original in its manipulation of graphic structure to determine how visual form influences children's comprehension. Past studies have used books with only simple black-and-white line drawings. Brookshyre et al. (2002) created an original picture book in which they manipulated the illustrations to explore children's preferences and comprehension across styles. However, while the central manipulation was a shift from "bright" to "somber" coloring, the comprehension measure did not include inferences of emotion, the aspect of meaning that is directly activated by color.

If differences in comprehension are found between the differing graphic structures, this study will provide empirical evidence in support of children's sensitivity to formal "codes" used in visual communication, underscoring the viewer's active role in the meaning-making process. It is essential that we understand the processes by which children make meaning of the images and narratives they see. Comprehension of visual media is now understood to be a complex process involving multiple cognitive efforts, from object recognition to interpreting character states and predicting future events. The more we know about the influence of visual form on these aspects of meaning-making, the more we will be able to support learning by selecting and creating materials that facilitate particular cognitive processes. By exploring how such influence may change over development, this study can provide much needed scientific support for visual communications theory.

The proposed study is the core of my thesis for completion of a Master of Arts degree in Child Development. Furthermore, it will provide the groundwork for doctoral research as I hope to pursue a PhD in the field beginning next year. By establishing a main effect of graphic structure in children's meaning-making in picture books, this study will enable my future research to highlight specific visual

features and their roles communication. Adequate funding is essential to the success of my project, as needing to pay for materials with personal funds will negatively affect the authenticity of the original picture books, which is a significant contributor to the validity of this study. Furthermore, the funds will allow me to actively recruit participants to build a robust sample, and acquire equipment that will ensure reliable data collection. By contributing to the scientific rigor of this project, the Graduate Student Research Award is essential to the success of my current research and its foundational role in my future work.

EXHIBIT B

Itemized Budget

Equipment: \$385

- *Digital voice recorder:* Sony Digital Flash Voice Recorder (ICD-PX312), \$60 (based on Amazon.com 10-2-13)
 - Allows for recording of children's comments and accurate data collection
- *Video camera:* Sony HDR-CX190 High Definition Handycam 5.3 MP Camcorder (2012 Model), \$185 (based on Amazon.com 10-2-13)
- *Memory Card:* Transcend 32 GB Class 10 SDHC Flash Memory Card (TS32GSDHC10E), \$25 (based on Amazon.com 10-2-13)
- *Tripod:* Lightweight 57-inch Professional Camera Tripod For various Sony Handycam Camcorders, \$25 (based on Amazon.com 10-2-13)
 - Video equipment allows for observation of non-verbal reading behaviors to be coded according to Paris and Paris (2003). Such equipment is not consistently available through existing departmental resources.
- *External Hard Drive:* WD My Passport Ultra 1TB Portable External Hard Drive USB 3.0 with Auto and Cloud Backup - Black (WDBZFP0010BBK-NESN), \$90 (based on Amazon.com 10-2-13)
 - Hard drive has capacity for password protection and hardware encryption, allowing for secure storage of confidential information in digital format

Materials: \$230

- *Picture Books* (20 pages): 2 hardcover copies of each condition, \$180 (<http://www.lulu.com>)
 - Professional quality printing and binding of the picture books will add to the authenticity of children's viewing and interpretation. Removing comprehension measures from the authentic experience (e.g. using photocopies or picture cards) is a common critique of empirical studies.
- *Reading experience survey form* (1 page): 50 copies, printed at \$0.10 per page (Tisch Library), \$5
- *Teachers' rating of students' readings form* (2 pages): 50 copies at \$0.10 per page, \$10
 - Reading experience and ability measures will compose a literacy profile for each child, aiding in the stratification of the sample in order to control for external factors such as experience with picture books and general comprehension ability.
- *Recruitment letters* (1 page each): 200 copies, printed at \$0.10 per page, \$20
- *Child participant consent forms* (3 pages): 50 copies printed at \$0.10 per page, \$15
 - Necessary in order to find subjects and obtain consent.

Total Cost: \$615