CHILDREN COMMUNICATING VISUALLY THROUGH PHOTOGRAPHS

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ABSTRACT

Photographs provide visual representations without requiring structured syntactic language skills. They facilitate another means of communication in addition to the traditional oral and written communication approaches, especially for children in the process of cognitive development. As the photography field has matured, it is worthwhile to explore their potential as a communication tool; in terms of how children communicate visually through photographs. This exploratory study researches on the potential of photography as a means of communication for children from the perspectives of (a) capability of children with a camera, (b) the types of photographs children take, (c) the subjects of children's photographs with respect to children's social environments, (d) the intentions of children when they take photographs, and (e) the patterns in photographing behaviors among different age groups and gender. Twenty-seven elementary school students participated in this study and captured their perspectives visually with the help of one disposable camera each.

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Introduction

Statement of the Problem

An old adage states: a picture is worth a thousand words. A photograph or photographs can tell a story. The image in the photograph directly comes into the viewer's eyes, while a verbal message relies heavily on both the sender's language skill to compose the message and the receiver's interpretation of the message based on his/her experiences and knowledge. The interpretation of the image could vary depending on the viewer's perspective. However, the visual message is likely to reduce the level of uncertainty or vagueness of the message compared to that of verbal messages. For example, when Soviet cosmonaut Yuri Gagarin witnessed Earth from space in 1961 for the first time in human history, he remarked that the Earth is blue. Previously people had a vague idea of what Earth looked like because they had never seen it from space. One picture of Earth from a spacecraft enhanced the understanding of the planet: round, blue, and no mark of country border lines on the surface. Seeing this picture provided people with an opportunity to see Earth. With visual images, complex stories can be communicated with just one or two still frames instead of using a substantial amount of text or spoken words. If a teacher explained orally to the students how leaves turn into various colors and look beautiful in autumn, students who have never seen autumn leaves would have a hard time imagining how beautiful the leaves would look. If the teacher showed the students a photograph of the colorful autumn leaves, the students could then appreciate the beauty of autumn leaves instantly in a concrete manner.

Photojournalism and documentary photography are the most well-known and popular genres of the visual communication field. In addition, use of still photography in social science is not uncommon. Photographs are mainly used as interview stimuli or for systematic

recording purposes. Photographs have been proven to facilitate communication effectively in these fields. In some cases they may replace verbal forms of communication, as visual communication accommodates a different function or role from verbal communication. Visual communication can complement verbal communication skills by broadening the aspect of the message, or changing the quality of the message. Messages in the visual form might not come across in the same context if conveyed in words. Certain groups of people communicate better in visual form rather than in the verbal form, because different abilities are involved when people acquire verbal and non-verbal communication skills.

Neuropsychologist and Nobel Prize laureate Roger W. Sperry advances split-brain theory to account for human brain-hemisphere functions, which states that the left hemisphere of the brain is verbal and rational, while the right hemisphere of the brain is non-verbal and intuitive (as cited in Edward, 1999). Photography activates the right hemisphere of the brain in this case. Canadian phototherapist Weiser (1975) advocates, “Photography is not (an) end-all technique – but it supplements far better than linear, verbal, and logical methods, especially in people whose worlds are more oriented in right hemisphere perspective dominances” (p.34). Children are one of those people. According to some cognitive theorists, images can encourage the learning process. They believe the use of imagery combined with written words is an influential tool for teaching literacy skills to children. Many educators (Berthoff, 1984; Duncum, 2004; Emig, 1983, Ewald, 2001) have taken into account the visual dimension to cognition development as inspiration to the acts of reading and writing. They found pictures useful as stimulus for creative writing.

Ewald (2001), who has worked with children for decades, emphasizes the importance of using pictures that children have taken themselves and have something to do with their

own lives. Increasingly, a camera has become a voice for youths in recent years. With the advent of a variety of digital cameras, taking photographs has become even more popular among younger generations. Even people unfamiliar with a camera can take photographs of what they see by pressing the shutter button. By taking pictures, a photographer can frame the world that interests him/her onto an image. Taking photographs requires observing and selecting a subject, understanding and analyzing the conditions of the subject, and applying visual elements. Susan Sontag (1977) wrote in *On Photography*, "Although the camera is an observation station, the act of photographing is more than passive observing" (p.12). Weiser (1975) claims, "Language blinds us, in that we are restricted to our choice of descriptions; the visual means of expression is much more encompassing."

Photography is long overlooked in the field of personal visual communication. Usage of photography can be leveraged to the personal level where it can assist verbal means of explanation. There are clear differences between verbal communication that largely depend upon structural features, interpretive processes of both the sender and the receiver of the message, and the photographic visual communication that are free from those processes. Photographs provide visual representations precisely without requiring structured syntactic language skills. This right-brain oriented activity helps nurture creative cognition development, especially for children in the process of cognitive development. It facilitates another means of communication in addition to the traditional oral and written communication approach. As the photography field has matured, in terms of accessibility of cameras and immediacy of obtaining results, it is worthwhile to explore its potential as a communication tool for children.

Objectives

In this study, the overall objective is to identify the potential of photography as a means of communication for children. The specific goals are to explore (a) how capable children are with a camera, (b) what types of photographs do children take, (c) what do the children's photographs reveal about them, and their social environments, (d) what are children's intentions as they take photographs, and (e) what are the patterns in photographing behaviors among different age groups and gender?

Literature Review

The role of photography progressed with the transformation of camera technology and accessibility. From the time photojournalism established itself as a visual communication medium, the purpose of usage and the function of photography has expanded to a broader range of people and fields. In this section, a brief history of photography in communication is discussed, followed by the introduction of current photography usages in different fields. Subsequently, the studies that discuss the meaning of visual communication described from the cognitive perspectives will be discussed for further understanding on the visual communication.

Photography as a Professional Tool

Photography developed rapidly as a commercial service in the nineteenth century. During the twentieth century, photography further developed as both fine art and for documentary purposes. Photojournalism, which uses a series of photographs to illustrate a story or idea and documentary photography, became increasingly popular in the mass media

to illustrate public events visually. Photojournalists, as communicators, deliver the visual message mediated by the photographs to their mass audience.

Some of the prominent photojournalists from the twentieth century explored and established the metaphoric and symbolic photographs as a means of expression. Good photographers have a great deal of sensitivity towards their subjects. They explore the potential of visual messages via photographs to influence relationships, both in society and culture. Two influential photographers of the twentieth century, Dorothea Lange (1895-1965) and Ansel Adams (1902-1984) documented and portrayed stories of the internment of Japanese Americans at Manzanar. They used photographs to visually communicate the internees' lifestyles at the relocation camp. A pioneer of photojournalism, Margaret Bourke-White, also showed the superiority of photographs as a means of communicating the visual messages. She photographed the drought victims of the American South during the Depression in 1936 and said, "Faces (on the photographs) that would express what we wanted to tell" (Sternsher, 1990). Lewis Hine's photographs even changed society. Between 1908 and 1924, he photographed the industrial exploitation of children in American mills, glass factories, mines, canneries, agriculture, street trades, and tenement sweatshops (Library of Congress, 2005). His images explicated the problems faced by immigrant children, which helped Congress pass protective child-labor laws (Kobré, 2004). This example illustrates the impact of photojournalism in the course of American history. What Hine accomplished with his photographs, he would have not been able to do in the traditional verbal communication approach. As he puts it, "If I could tell the story in words, I wouldn't need to lug a camera" (as cited in Sontag, 1977, p.185). Another characteristic of photography is its metaphoric

expression to convey messages to viewers. In the Pulitzer Prize winning photograph, “Raising the Flag on Iwo Jima” by Joe Rosenthal, a flag raised by American soldiers is seen as a symbol of America’s victory (Lester, 2005). Without words, a photograph is able to tell a story. Photography can also be a visual ethnography, as the award-winning photographer David Douglas Duncan exemplified. His work is filled with first-hand visual reports. Duncan established rapport with renowned painter Pablo Picasso, which can be witnessed in his books about Picasso’s life (Newton, 2001).

All these photojournalists studied and illustrated humankind through their visual reportage. These professional photographers successfully communicated historical events visually to the mass audience. They contributed to the field of communication to show that images tell a story by conveying messages. Although photography has long been considered a part of visual communication, the conventional arguments about photography as a means of communication are limited to the field of photojournalism.

While photography established its function as a communication tool within mass media, the practice to utilize a camera in the professional fields has become more common. As a photographer and a researcher, John Collier established a research method by using photography in anthropology, called *photo elicitation*. Collier (1957) explains photo elicitation as “the material obtained with photographs was precise and at times even encyclopedic; the control interviews were less structured, rambling, and freer in association” (p. 856). Researchers utilize photographs in the research field due to the photographs’ richness in exposing visual communication clues. Many anthropologists, followed Collier’s visual anthropology in the 1990s and found photo elicitation superior to the traditional verbal communication approach in the field of social science. Photography defines communicators’

emotions or feelings of the "momentary affective state" more than verbal interviews (Cohen & Rau, 1972), and images allow researchers to make the kinds of statements that cannot be made by words, enlarging people's consciousness (Harper, 1994). It has played a greater role in recent developments in visual sociology (Harper, 2002).

In photo elicitation, the usage of the camera is applied in two ways. The researchers either take photographs of the subject or ask the participants to photograph what they choose within given topics. Samuels (2004) found the latter approach, what he called *auto-driven photo elicitation*, very effective, reinforcing John Berger's (1972) explanation of the relationship between memory and seeing:

> The relationship that Berger drew between memory and seeing something we once knew is why I believe auto-driven photo-elicited interviews provide an even better opportunity for reflection, recollection, and description than inserting photographs that were taken by someone other than the interviewee (p. 1539)…In addition to breaking my own frame through their photographs of an important temple activity, the rich and focused descriptions that emerged from auto-driven photo elicitation resulted in the monks making more novel and interesting associations (Samuels, 2004, p.1545).

In an ethnography study in Sri Lanka, Jeffrey Samuels found auto-driven photo elicitation research more helpful in conducted understanding monastic culture than were the verbal interviews he had conducted with monks three times previously. He asked the monks to take pictures according to the list of topics that he provided. The interviews with pictures taken by monks themselves evoked greater descriptions and details from the monks, and helped to

recall their own ideas as well as to construct meaning out of their everyday experiences. He remarked that what he found particularly interesting about the research was "how the photograph functioned to focus the monk's responses to specific ideas and as a result, led the monks to provide more concrete and emotionally grounded description" (Samuels, 2004, pp. 1538-1539). Clark-Ibáñez (2004) conducted similar auto-driven photo-elicitation interviews with 55 children of South Central Los Angeles. Her participants took pictures of what was important to them with disposable cameras, and then each was interviewed by the researcher. She stated that:

> Using the photo elicitation alone or with other qualitative methodologies such as interview or participant observations can illuminate dynamics and insights not otherwise found through other methodological approaches. In addition, the photo elicitation empowers the interviewees to teach the researcher about aspects of their social world otherwise ignored or taken for granted (Clark-Ibáñez, 2004, p.1524).

For research on young people and children, Morrow (2001) also suggested applying the auto-driven photo-elicitation interview. She investigated young people's perspectives on their social context and environment to explore the implications of their health-related issues with students from two schools north of London. It was a successful way of engaging the research participants and the data showed clearly that they had views and were well - able to be articulate about their social environments (Morrow, 2001).

The photo elicitation approach has influenced the fields of education and psychology. Especially among therapists and counselors, photography has been their aiding tool to facilitate treatment and deepen people's insights about themselves and their families. For

instance, Dr. Akeret, who practices *photoanalysis,* uses pictures as a tool to diminish resistance to therapy, correct a distorted self-image or memories of events, document important changes in a family or individual, and help people to acknowledge otherwise "unacceptable" feelings and thoughts (Brody, 1984). The photo elicitation interview is not simply an interview process that elicits more information, but rather one that evokes a different kind of information (Harper, 2002). The photo elicitation approach suggests an advantage of using visual communication to aid people who have a language barrier, and release people from restrictions of verbal expression.

Akeret (1973) affirms that photographs contain valuable information regarding relationships and personal values, cultures, and ideals. Wheeless and Grotz (1976) assert that one's self-concept can be constructed based on perceptions of the message and claim non-verbal communication is as important as verbal communication. In addition, the development of the self-concept is not simply internal, but evolves through interaction with the environment, including the social environment (Ziller, 1990). Photography is perceived as an important non-verbal communication tool, especially among educators and therapists as it allows their students or patients to portray their perspectives of the worlds around them. Barrett (2000) states, "People's knowledge, beliefs, values, and attitudes – heavily influenced by their culture – are reflected in the photographs they take; each photograph embodies a particular way of seeing and showing the world" (p. 36). One successful story was Weiser's (1975) experience with her deaf patient Debbie, an Indian girl who lived with a foster family. Through photography, Debbie developed confidence by learning about herself via photographs and helped her communicate her world of silence with people around her.

Scrapbook photo albums assist trained professionals in treating patients with Alzheimer's disease; photographs from the present help patients relate to their current situation, and families relate to the patient through photographs and memories as well. Krauss and Fryrear (1983) found phototherapy is an effective means of eliciting non-verbal behavior as well.

Photography in Visual Communication

How can photography be an actual communication tool? How can photographs be used as catalysts of communication? What are the theories of visual communication, photography in particular? What can be obtained from a photograph? How do photographs differ in their function from traditional verbal communication? To clarify these points, the literature related to the photography in visual communication is reviewed in the following section. The cognition development aspects are also discussed, as they are closely related to visual communication.

Philosopher Susanne Langer (1957) stated, "The picture is a symbol" (p.70). She asserted that any symbols communicate a concept, a general idea, pattern, or form, and the concept is a meaning shared among communicators. This assertion was later validated by many other scholars. Lester (2005) described various visual media, including photography, as the visual communication in association with perceptual theories, such as semiotic and cognitive theories, which state that we relate meanings to objects through learned behavior or intelligent assumptions. Gardner (1982) summarized the various perspectives on the cognitive studies by his predecessors, "the basic unit of human thought is the symbol, and the basic entities which humans operate in a meaningful context, are symbol systems" (Gardner, 1982, p.39). Barry, a visual communication theorist affirmed, "What our eyes register is not a

picture of reality as it is. Rather our brains combine information from our eyes with data from our other sense, synthesize it, and draw on our past experience to give us a workable image of our world" (Barry, 1997, p.15). From the cognitive neuroscience aspect, Atkinson and Shiffrin's (as cited in Phye & Andre, 1986) model explained that registered visual information goes through eyes into the short-term memory in the brain and looks up the references from stored knowledge and experience located in a separate long-term memory. Therefore, making sense of the meaning of symbols or objects depends on one's knowledge and experiences stored in their memory. Using verbal language requires the same process because symbols, in the form of language, are also used in verbal communication. Words themselves do not construct any meaning. Language is only meaningful when symbols of words are combined with the rule of syntax, or grammar, and the concepts of the language context are understood. Verbal communication is primarily dominated by language that largely depends on this system that makes sense of symbols. In addition, concept attainment requires empirical knowledge of the physical and social world, therefore also forming and comprehending spoken and written sentences demand the construction of meaning (Klausmeier & Allen, 1978, p.107).

The meaning of the object is constructed within the culture. Sometimes people from different cultures recognize an object in diverse meanings for this reason. Therefore, language is largely affected by culture. Verbal communication requires not only language skills, but also the culture that surrounds it. Small children do not have sufficient language skills or full acquisition of their cultures. In the period between the ages of two and five, the child acquires an incipient mastery of the symbol systems of his culture (Gardner, 1982). These children

have less reference making sense of what they see, and so, to a child, both words and pictures are simply symbols without an accompanying meaning.

By applying the above discussions to photography in visual communication, subjects in photographs can be explained as symbols as well. Those symbols are associated directly with the photographer's personal experiences, knowledge, and the photographs as symbolic representations are constructed while going through meaning-making process. Then what is the difference between the verbal communication of language and visual communication? There are served distinctive differences. Some linguistic philosophers argue that pictures cannot function as language to communicate because they do not have common elements nor syntax to understand the meaning universally. However, visual communication theorists disagree. They believe that pictures supply information without having a language of their own (Berger, 1972; Moriarty, 1994; Worth, 1981), and "visual thinking is freer and less stereotyped than verbal thinking…there are thoughts that can be visualized without being verbalized" (Gibson, 1971, p.34). In the study of Harrison (2002), her respondent who took a photograph remarked, "photography is as much about recording our life emotionally as it is about recording something that happened" (p. 99). In a commentary paper on the Harrison' study, Rich (2002) also noted that "much of their (images) richness as data derives from their ability to capture elements that can not be quantified with numbers or fully described by words" (p. 410). This visual language form is particularly useful for language-disadvantaged people as well. Many language educators highly recommend using pictures and images to teach language effectively as they offer learners firsthand experience (Jones & Kimbrough, 1987; Ur, 1988; Wright, 1989). Visual images stimulate ideas and curiosity, and convey information to share with others. In Gallo's study (2002), immigrant workers took auto-driven

photographs and made them into curricular materials with their own English-written photo essay. They not only learned English fast, but they also built social relationships, shared experiences with co-workers, and became active in the class for discussion.

What types of information do photographs provide us with? Collier (1967) states, "a considerable variety of reliable evidence can be inferred from photographs of social scenes, for we find in them the complex dimensions of social structure, cultural identity, and psychological expression" (p. 33). Ray Birdwhistell (1952) used photography to systematize the study of culturally patterned facial expressions, posture and arm and hand gestures, which he termed *kinesics*. He developed methods for decoding this visual language. It is a field virtually impossible to approach without photography (Collier, 1957). The details of person-to-person relationships through the use of still pictures help the researcher observe how people mingle and help to analyze the dynamics of the micro-culture.

These empirical studies illustrate that photographs can reveal the social and cultural world the photographer lives in visually. Photographs can be non-verbal communication catalyst with their own language, especially useful for those who are in the process of acquiring verbal language.

Photography as Children's Personal Communication Tool

Photography has become an ordinary medium used among a wider range of people in today's society as a social rite; people take photographs of others, special occasions, beautiful scenery, and so forth. During the early twentieth century, technological improvements made photography more accessible to the public. Today, along with the introduction of the digital camera in the 1980s and the emergence of the mobile phone with built-in cameras in recent years, photography has become even more personal and accessible to a wider range of people,

especially younger people. Business research marketing company NPD pegged global digital camera shipments to rise 24 percent to 100.5 million units in 2006 ("U.S. Digital Camera," 2006). Nearly 82 million stand-alone digital still cameras are expected to be sold worldwide in 2007 (McGrath, 2006). Most of the exhibitors have been emphasizing on their new digital camera lineups at PMA in recent years, the largest photo tradeshow in the U.S. organized by Photo Marketing Association International (PMAI). A report from Gartner analysts predicts that 70% of mobile phones sold will have a camera feature by 2008 (Parry, 2005). These industry movements are tied into the current social networking sites' popularity where pictures can be easily shared online in their personal page such as MySpace, which according to ComScore Media Metrix attracts more than one-third of the entire social networking audience in the United States (Siklos, 2007). User-generated content sites, including platforms for photo-sharing, video-sharing and blogging, comprised five out of the top ten fastest-growing web brands overall in July 2006 (Bausch & Han, 2006). Besides the traditional photo-sharing sites, (i.e. Snapfish or Kodak Gallery) photo-finishing sites (i.e. Shutterfly or Smugmug), and more interactive sites (i.e. Flickr) allow users to tag (assign an item to a piece of information, such as picture, article, or video clip) and have more control over their images. Each photograph is used as a personal statement in the new digital era. Without film or developing costs, it is practically free. Thus, photography has become a very approachable medium for all ages and transformed into an effective method of capturing and sharing events casually.

New technologies are changing the ways in which photographs are made and used, making photography even more accessible to children than ever before. At the Center of Photography in Manhattan, the *phototherapy* program was created in collaboration with the

Friends of Island Academy to lower the recidivism (relapse into prior criminal habits) rate of young girls (Kennedy, 2006). Digital photography offers immediacy, and instantaneous images are proving effective for groups of girls similar to ones in this program. The cameras allow them not only the rare chance to channel their energy into a creative project, but also to control images of themselves (Kennedy, 2006). Increasing use of mobile phones in leisure and communication with digital images even changed the usage of photographs, "Digital images were not used as memories of past events or relationships but as tools for creating playful stories, expressing affection, and creating art" (Mäkelä, Giller, Tscheligi, & Sefelin, 2000, p. 554).

Children could possibly benefit from the photographic communication from visual communication perspective as explained in the previous section. While there are anecdotal accounts of children being spontaneous, immature, informal, and wasters of film, little is known about children taking photographs - what they try to communicate through their photographs, what their photographs convey, how much they are capable of using a camera to convey what they intend to communicate through photographs, and how their photographic interests and abilities change with age. Children's photographs are not just their "view of the world" but are also a construction of their identity in relation to their parents and their peers (Sharples, Davison, Thomas, & Rudman, 2003). Ching & Wang (2006) examined this with young children focusing on their social cognition through their photographs. They found gender and age specific social views. Flavell and Miller (1998) explain that children begin to shift their interests from a primarily egocentric perspective to peer centered perspective around five years of age and they develop their social relationships as they get older. Peers represent significant sources of socialization within the child study, as Corsaro (1985) puts it,

"I see peer play as essential for children's acquisition of social knowledge and interactive skills" (p. 61). Age influences their socialization behaviors. In general, peer relationships increase during adolescence (Rice & Dolgin, 2005). In the study of Sharples, Davison, Thomas and Rudman (2003) on children's photography across five European countries, they found that the photographs taken of their family decreases with age, and the photographs taken of their friends increases with age. Their result identified marked differences in children's understanding, behavior, and intensions as photographers across the three age groups (7, 11, and 15). For example, children took more photographs of their possessions in their home environment. Older children also had some control over their subjects (Thomas, Davision, & Sharples, 2001; Sharples, Davison, Thomas & Rudman, 2003).

Gender is another topic that has received attention in studies of children's peer relationships, as there have been many findings about the particular behavioral differences between girls and boys. Girls and boys react in qualitatively different patterns of play and social interaction (DiPietro, 1981, p. 56). Smith & Inder's study (1993) showed that boys' groups in the kindergarten were outside a lot more of the time than girls and boys were less likely to involve adults in their plays than girls. Some studies found that boys interact in larger groups of peers than do girls (Belle, 1989; Fabes, Martin, & Hanish, 2003; Freedman, 1974; Gottman & Mettetal, 1986). Ching and Wang's (2006) digital photo journal project with children revealed the same result. Smaller and more intimate groupings appeared in the girls' photographs. Some studies found that gender difference has been observed to emerge after five years of age (Benenson, Apostoleris, & Parnass, 1997; Freedman, 1974, Weisfeld, Omark, & Cronin, 1980).

Are small children capable of taking photographs? Does technical skill matter for children to enjoy taking photographs? Clark-Ibáñez (2004) points out the mundane challenges of photo elicitation as participants unskilled in photography could experience technical difficulty with the flash or be frustrated with not being able to capture an up-close or faraway image. However, Sharples, Davison, Thomas and Rudman (2003) found that there was little sign of children at any age disliking a photograph because of technical imperfections, nor of them especially liking a photograph because of its technical merit (p. 12). What do they communicate through photographs? The *Shooting Back* project is one example of photography that was employed to depict children's worlds with SLR (single-lens reflex) cameras. A photojournalist Jim Hubbard taught photography to low-income Native American youths between the ages of 9 and 16 who lived on isolated reservations. These children found a new freedom in expressing themselves and were able to learn a creative skill, work with others, and nourished a growing feeling of pride (Hubbard, 1994, p. XI). Another photography project is Mecum's *God's Photo Album* (2001). Students between the ages of 5 to 10 years old went on a "search to find God" all over the island of Oahu, equipped with a simple Fuji disposable camera. Their photographs were published in an international best-selling book, whose profit saved their school from closure. The Academy Award winning film "Born Into Brothels" also depicts a story of children learning photography with point-and-shoot cameras. Photographer Zana Briski taught photography to children in Calcutta aged from 10 to 14. The children's fascination with the camera was fed by the triumph of self-discovery (Briski, 2004, p. 18). Traditional film cameras were used in the early stage of these photography projects with children.

These projects not only empirically explored the identification of children's cultural values, but also proved that children older than five years old are capable of taking photographs. They showed the great potentiality of wider usages of photographic communication at the interpersonal level, especially for those populations whose cognition development or language skill are low (i.e. children). These projects and studies do not highlight the primacy of visual communication; but rather its ability to complement traditional verbal communication. Although, these studies found that a broader view of the communicators' messages or the implications can be derived from their photographs, the relationship between the cognitive development, or lack of language ability, and the photographic communication skill has not yet been thoroughly examined.

Summary

Throughout its brief history, photography has always been a medium that tells a story of the events or the news. It has been used to capture lifestyles and people. The advent of technology in recent years has shaped the positioning of photography and broadened its usage by reaching out to a wider range of people. Correspondingly, through many studies, photography built its status as a valid catalyst for a communication tool in the public.

There have been some general discussions over photography in visual communication to affirm its superiority of delivering the visual representations of the messages to verbal communication. However, all these studies and discussions have been within limited scopes of interest areas. In the field of psychology, photography has become an important assisting tool for many therapists. The majority of their research participants are patients with varying degrees of mental disability. Therefore, the communication effects at the

interpersonal level for samples with regular mental status have not been fully explored. The photo elicitation approach in anthropology has also become more common. Most studies were oriented to use photography as a "research tool" to conduct interviews on their subjects, or to use photographs as a "trigger" to evoke the interviewees' memories and feelings. In these cases, photographs were used as a "research tool," not as a visually communicated message. Exploring the relationship between the participants (who take the photographs) and their photographs' contents coupled with the photographers' intentions has been extremely understudied. Furthermore, the participants of these studies were from limited populations - most of the studies that explored the participants' value in their photographs were done with adults, rarely children. Although some researches have been conducted on children taking photographs, the meaning of the visual communication of children's thoughts and feelings and children's usability of photographs as a means of communication have not been elaborated upon enough. Children, whose cognitive and language skills are not fully developed, may possibly benefit from visual communication if taking the hemispherical theory into consideration. The literature related to the relationship between the age and gender of children and the photographic communication is extremely scarce as well. This study asks to what extent are children able to express their messages through photographs. More importantly, what kind of messages do they try to convey?

Research Questions

Subject Matter of Communication:

RQ1: What are the relationships between the demographic characteristics of the child (age and gender) and their subject matters?

RQ2: What do photographs show about children's social development?

Familiarity in Taking Photographs:

RQ3: What are the relationships between the demographic characteristics of the child and their familiarity in taking photographs?

RQ4: What are the relationships between the demographic characteristics of the child and their challenges in taking photographs?

Intentions of Communication:

RQ5: What are the relationships between the demographic characteristics of the child taking the photographs and the purpose of the photographs taken by the child?

RQ6: What are the relationships between the demographic characteristics of the child and the child's satisfaction level with the result of the photograph?

Method

Data analysis utilized both quantitative and qualitative methods. The quantitative methods were employed to provide the participants' demographic description and their familiarity with photography by using frequency analysis. The relationship between the participants' demographic characteristics and the dependent variables were evaluated by cross-tabulations. Qualitative analysis was also employed to illustrate in more details of the observations of the children taking photographs. Semi-structured interviews allowed the children to speak freely in order to gather additional information. Furthermore, children's own explanations complemented the content analysis.

Participants

Quota sampling was employed. Students from a public school in Hawai‘i, Waikiki Elementary School, participated in this project. The students' ethnic composition was 73% Asian/Pacific Islanders, 24% White (non-Hispanic), and 2% Hispanic (National Center for Education Statistics, 2003-2004). The school was opened in 1880 and received the No Child Left Behind - Blue Ribbon Schools Award in 2006. Since the present study required minimum writing skills and children still in the cognition development stages of maturation[1], the participants were limited between the ages of 6-12 years old. The school was requested to draw 8 students, composed of 4 males and 4 females, from 1st, 3rd, and 5th grades. The teacher of after-school hours program A+ (A plus) sent the parental consent form to the possible participants from three grades to finalize the participants. As a result, a total of 27 participants were drawn. There were five girls and five boys in 1st grade, four girls and five boys in 3rd grade, four girls and three boys in 5th grade, and one boy from 6th grade. From gender perspective, 13 students were female and 14 males were male. Students who participated in the pre-test were not included to avoid biased responses.

In regard to human subject concerns, under the policy of the University of Hawai‘i, the researcher obtained an approval on the photography project from the Institutional Review Board prior to the research execution. Furthermore, the informed consent (Appendix D) was sent to parents or legal guardians of the minor participants prior to the research. A model release form was also requested to be filled out by all students who participated in this project

[1] The cognitive development levels defined by Jean Piaget (1972) states that those ages of 11 years old and older are the formal operational period, whereas children up to 11 years old are in the cognitive development stages.

in case their work is published. The participants were told that their disclosed information during the project will be kept confidentially.

Materials

One 35mm film disposal camera with 27 exposures was provided to each of the 27 participants.

Instrument

The instruction on their photography assignment was provided by the researcher. The questionnaire that was used was made in both open-ended and closed-ended questions. This questionnaire was eight pages long and included questions that asked about the participants' subjects in the photograph, their intentions for capturing those photographs, and their experience in taking photographs. These questions were mainly utilized in the process of the content analysis of photographs, and closed-ended questions for the quantitative analysis. Many researchers (Banks, 2001; Bolton, Pole, & Mizen, 2001; Clark-Ibáñez, 2004; Morrow 2001) who employed the photo elicitation interview suggested utilizing the written format combined with photographs to bring an order and clear meaning of the visual message. Open-ended questions from the questionnaire and another list of questions used for the interview included questions that asked about their experiences in taking photographs for qualitative analysis. A coding chart, based on the study done by Sharples, Davison, Thomas and Rudman (2003), was also provided. The chart was used to decode the main subject matter in the photograph taken by the participants into quantifiable categories.

The instruction, the questionnaire, and the coding chart were pre-tested by 19 female students in the 5th grade from the same school. Some questions that caused some confusion

were revised for more clarification. The categories of the subject matter were also adjusted according to the pre-test feedback. Nineteen participants from the 5th grade were selected and then divided into two classes. Coincidentally or not, they were comprised of 19 females. The classes were held on Mondays for Group A and Tuesdays for Group B during the lunch hour (11:45-12:15) for eight weeks, from October 23 to December 12, 2006. The original lengthy questionnaire caused students to not be able to complete it within the class hours so they took it home as homework. It resulted in a lack of the accuracy in their answers as some of them did not follow the instructions properly. Therefore, the researcher reduced the number of questions and revised the questions for clearer content based on this pre-test feedback.

Procedure

Approval was obtained from the school principal, and participants' parents in advance of the following sessions. In the consent form (Appendix C), participants were informed of their rights as voluntary and anonymous participants in this study.

The main challenge identified during the pre-test was managing the schedule. The school's schedule sometimes caused the workshop to be rescheduled for other days and not all students could attend all the classes. Lunch hour was not also appropriate for this study due to constraints by the time and various distractions during lunch. Therefore, the schedule was set for the after class program (A+). The participants were requested to sit down with the researcher for one hour at the school cafeteria. The 1st graders met on Wednesday, 3rd graders on Thursday, and 5th graders on Friday. Monday was avoided for class days because students likely to forgot things after the weekend.

Each participant was given a 35mm disposable camera with 27 exposures. The participants were asked to take pictures of what was important to them. The following written instructions were given to the participants:

What you will do:

Take pictures of the people, places, things, or activities that are most important to you. You have 27 exposures to take pictures. Take photographs of what YOU think are most important. Do not let anyone else tell you what to take a picture of, because this is your project. Please do not risk yourself in any situation when taking pictures. This project is free; it will not cost you or your parents anything. Have fun! Call me with any question: [the researcher's phone number].

- This camera belongs to you. Please do not lose it.
- You can take up to 27 photographs; however, it is not a problem even if you cannot finish taking all of them. Take at least 10 photographs.
- Please return the camera when you are done. I will develop the film.
- After the photographs are developed, I will give them to you unopened so you will be the first to view your photographs.
- Please select your five best photographs and label them; (1) 3Ws (what, who, where) about the subjects in the photographs, (2) why you took those photographs, and (3) why you think the subjects you chose are important.
- We will take some time to talk about the photographs that you took.

Each participant was taught how to operate the disposable camera (a) how to use a flash, (b) how to wind film, and (c) not to get too close to the subject to avoid blurry pictures. Everyone had an opportunity to take one picture by using a disposable camera for practice purposes. Then the researcher handed out a disposable camera to the participants. They were given one week to complete this assignment. Clark-Ibáñez (2004) mentions the concerns that parents of the child could sometimes predefine concepts of photographic content and may affect the child's photographs. To avoid this, the researcher requested the participants to remember this point and the above instruction sheet was sent to their parents as well.

After they completed taking photographs, all participants returned their cameras to the researcher to develop. Collecting cameras and developing pictures prior to the interview required administrative time and attention. Reminders had to be given repeatedly to the many participants who forgot to bring back their cameras. In the week after the collection of the cameras, the activity was already planned to fill out the questionnaire so that the photographs had to be printed in one week. For this reason, the researcher had to travel to the photo lab many times. As one film was lost by Longs Drug, where the films were developed for the pre-test, the researcher used Wal-Mart which delivered better quality prints.

The researcher gave back the developed prints to the participants. Then a self-administered paper-based questionnaire (Appendix A) was distributed to the participants from the researcher after having films developed. During the questionnaire session, one assistant joined to help the researcher to pay closer attention to the participants. The participants selected the best five pictures first and labeled each picture from 1 to 5. Then the researcher went over the questionnaire with the participants together. In the questionnaire,

they indicated the 3Ws (what, who, where) about the subjects in the five photographs that they selected. The well-defined subjects in those selected photographs were labeled by the participants and categorized by the researcher in terms of main themes implicitly. The questionnaire also asked about the emotions of people in the photographs that participants tried to photograph to see their intentions. The types of relationships children have with the people captured in the photographs were also asked about to better understand their social development. For all people in the five selected photographs, participants were asked the intimacy to the person in the photograph, “How much time do you spend with the person?” Moreover, participants’ were asked about their experience in taking photographs to evaluate their familiarity with photography. This information was used to evaluate the relationship between their experiences in taking photographs and how many technical difficulties the participants faced while taking photographs. From a communication perspective, participants were asked their satisfaction level of attainment of what they tried to convey through their photographs. Unlike the other many studies that studied the aesthetic perspective on children’s photography, this study is solely focused on children’s intentions in making photographs.

The researcher also conducted semi-structured qualitative interviews in groups of four. A list of questions (Appendix B) was provided for the researcher to conduct the semi-structured interview. Pia and James (2000) found that children should be interviewed in restricted age groups, as older children dominate. They also found that boys and girls have different communication styles, and that more than eight children in the interview were not

effective. Therefore, the group interview was conducted within the same age group, same gender, and four children in each group.

Results

All 27 participants returned their disposable cameras and two sets of prints were made, so that one set could be given to the child and one retained by the researcher. Not all participants used the all exposures. First graders took more pictures than children in older grades as shown in Table 1. After excluding unclear pictures that had subjects that were unidentifiable or accidentally taken (N = 17) as well as excluding pictures taken by another person other than the participant (N = 15), 558 out of the 590 collected pictures were decoded into the category chart.

Table 1.

Number of Picture Taken by Grade.

Range of number of picture taken	N by Grade		
	1	3	5
25 - 27	7	2	2
20 – 25	2	5	2
15 – 20	1	1	4
Less than 15	0	1	0
Total	10	9	8

Each participant selected their five best photographs and labeled them with additional information. Therefore, 135 photographs have comments attached for further

analysis of the participants' intentions. In the following analysis I have looked for age, in terms of grade level, and gender differences.

Quantitative Analysis

Descriptive statistics on the participants' demographic characteristics.

The descriptive statistics of age showed in normal distribution. The frequency and percentage of the participants' demographic characteristics by age group (see Table 2) were reported. Two additional 1st graders participated in the study. One male student from 6th grade participated; he was classified as a 5th grader to provide an exploit comparison for the analysis. There were three pairs of brothers in the study, although no specific data analysis was conducted from that perspective.

Table 2.

Frequency and Percentage Distribution by Grade.

Grade	N	P	Valid P	Cumulative P
1	10	37.0	37.0	37.0
3	9	33.3	33.3	70.4
5	7	25.9	25.9	96.3
6	1	3.7	3.7	100.0
Total	27	100.0	100.0	

The counts for gender are almost even, N = 14 males (1st grade N = 5, 3rd grade N = 4, 5th grade N = 3, 6th grade N = 1) and N = 13 females (1st grade N = 5, 3rd grade N = 4, 5th grade N = 4).

Descriptive statistics on the subject matter.

"RQ1: What are the relationships between the demographic characteristics of the child (age and gender) and their subject matters?" was analyzed by assessing: (a) Frequency of main themes identified in the photographs taken by the participants, and (b) the relationship between the participants' demographic characteristics and the tendency of the main themes that appeared in their photographs. The subject matter means the types of main themes of the photographs that were taken by the participants. The subject themes in the photographs were categorized by the pre-tested main theme categories implicitly. The types of main themes are: (a) People, (b) Animal, (c) Building, (d) Manmade/Crafted Object, (e) Fixed relief, (f) Fireworks/Lighting effects, (g) Nature, and (h) Sports.

The researcher went through all the pictures with the students to clarify the categories except for those with an obvious theme as it filled a whole picture frame. This confirming process with the participants was time consuming yet necessary for more reliable categorizations. For instance, I asked one male student about one picture that was taken at a school yard to clarify what was the main theme. He answered "I wanted to take a picture of an orange construction cone that fell on the ground." The cone in the picture was so small that it could barely be recognized by the researcher without asking the participant. In another case, the picture of food on the table and the participant's parents with their heads cut off, caused confusion. Was the participant's main theme his parents or the food? Often younger participants shook their camera while pressing the shutter button; this caused some people pictures to have cut off heads in them. The main theme in the picture turned out to be the food on the table and the parents' torso happened to be included in the frame.

Detailed information on “People” photographs was collected for five photographs selected by the participants. Detail information was collected based on (a) number of people, (b) type of person, (c) how intimate the person was with the participant, (d) gender of the person, (e) if the person was either a child or an adult, and (f) if the person was posed or not. While the number of people in the photograph was counted, several rules were applied:

1. If the focus was on one person that filled the frame, it was counted as one person and did not consider people in the background.
2. Even though people were in the photographs, if the participants confirmed the focus of the photograph was something else but people in the photograph, it was not considered as a people photograph.
3. If a part of the body, for instance hand, finger, foot, was captured in the photograph, this was still categorized into “People.”
4. Each photograph was exclusively categorized into one person, two people, or more than three people only once. The same rule was applied for the categorization process of the identification of gender of the person/people in the photograph.
5. If there was more than one person in the photograph, the principally chosen person by the participant was considered for the categorization.

Therefore, the coding process involved thorough confirmations with the participants. Inter-rater reliability was calculated by a set of 30 photographs. The overall rate for content coding was 0.83. The researcher built a working relationship with the participants and became

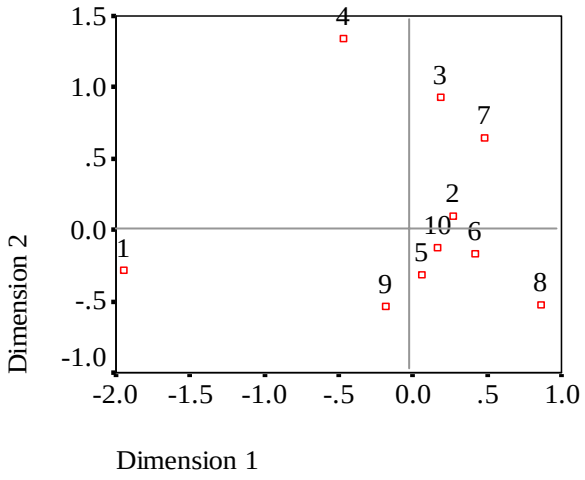
acquainted with their social lives that helped to recognize the main theme of the pictures while the other coder did not have the same knowledge.

The main subjects in the photographs were coded and the frequency of themes types was then determined. Correspondence Analysis (CA), which is often used for principal components analysis of qualitative data, was performed to analyze the trend of the type of main theme in the photographs to describe the relationships between two nominal variables in a correspondence table. In Figure 1, the rows are coded photographs by grade (cases) and the columns consist of the presence or absence of particular content features (categories) for those photographs. A correspondence map displays two of the dimensions that emerged from principal components analysis of point distances. Points are displayed in relation to these dimensions based on chi-square calculation and by symmetrical normalization method. A summary table indicates that the relationship is significant [x^2 (df = 16, N =558) = 50.547, $p <$ 0.05]. If the row and column points are in the same quadrant, two variables have the higher relations. It facilitates visual data exploration on the closeness of any two cases, with an indication of their overlap of features. Figure 1 shows each CA plot of all the coded 558 photographs of for grades 1 (N= 215), 3 (N = 180), and 5 (N=163). The correspondence table also provided further understanding of the meaning of map distances. Row points and column points for all cases were performed and displayed separately for the three grades to show the results as more visible.

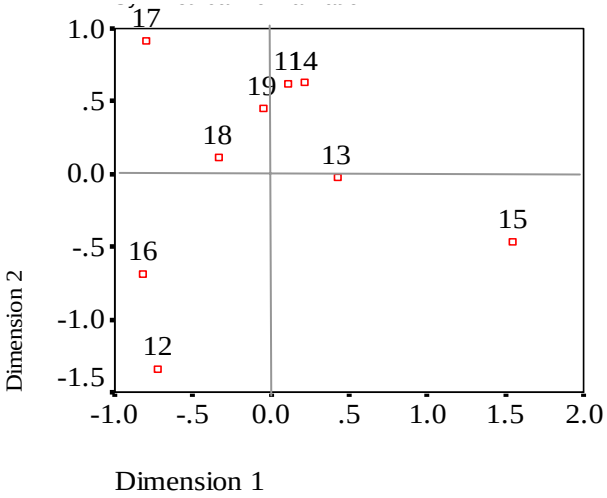
Three graphs in Figure 1 show the relations between different grades and the subject matters each grade tended to photograph. The older participants get, the more spread out their main themes were, even though “People” was the most common theme in the photographs

among all grades. First graders' themes were less distributed than those of 5th graders, which means many 1st graders took similar types of themes while 5th graders' types of themes are spread out and not so similar to each other.

Grade 1



Grade 3



Grade 5

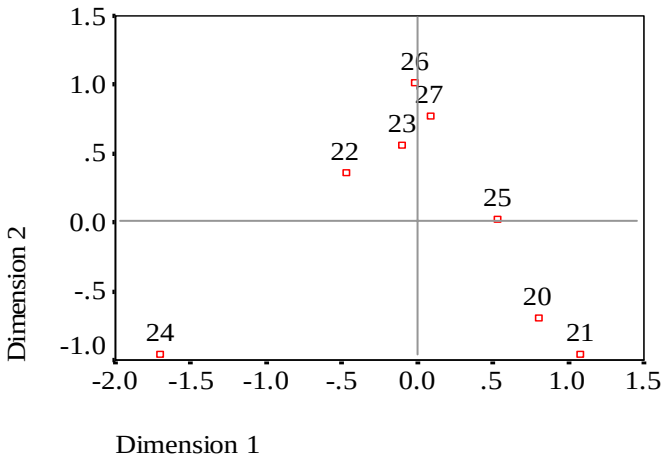
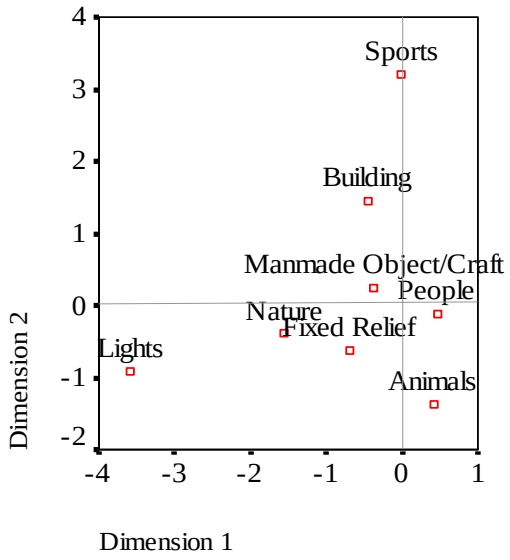
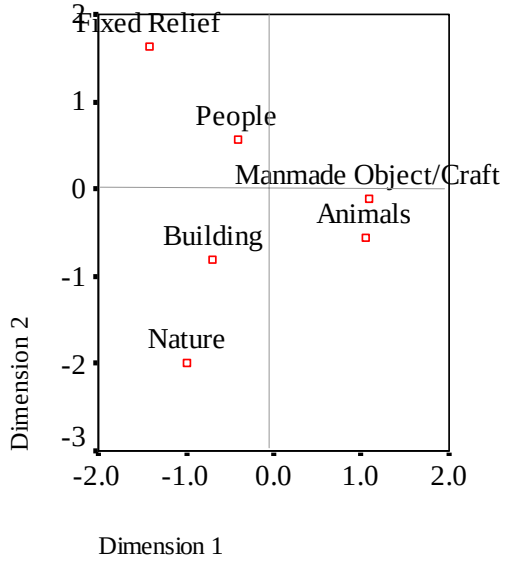


Figure 1. Correspondence Analysis plots show the relations among the participants in each age group. Row points for case number, symmetrical normalization. From top left clockwise: Grade 1, 3, and 5.

Grade 1



Grade 3



Grade 5

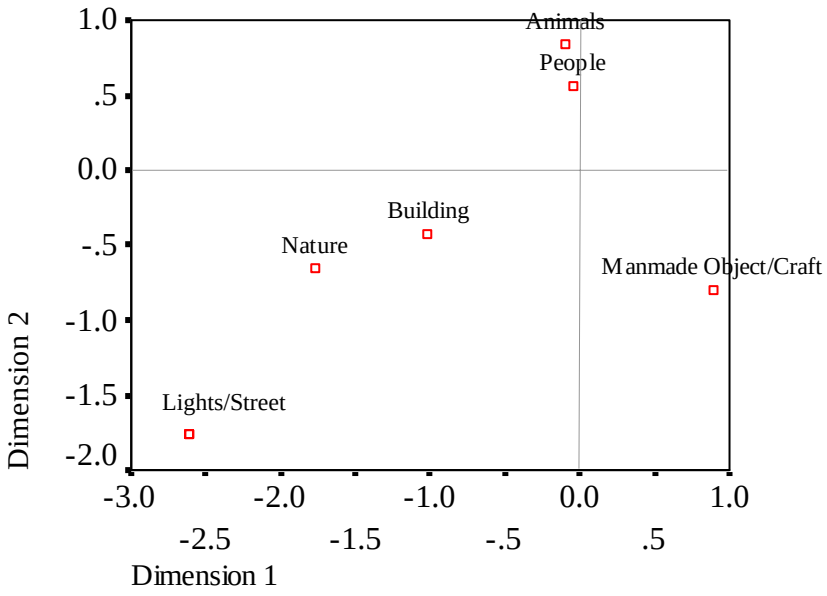


Figure 2. Correspondence Analysis plots show relations between the types of themes taken in the photographs. Column points for type of main themes in the photographs, and symmetrical normalization. From top left clockwise: Grade 1, 3, and 5.

Figure 2 shows four clusters of cases in relation with their types of themes in the photographs that the students took. There are no photographs lying at the center of the plot, which means that "there are no instances of a 'prototypical' or 'average' child photograph" (Sharples, Davison, Thomas & Rudman, 2003, p. 7).

As Figure 3 shows, the two major themes which appeared to be evident in all grades are "People" and "Manmade Objects/Crafts." The two major themes which appeared to be evident in all grades are "People" and "Manmade Objects/Craft."

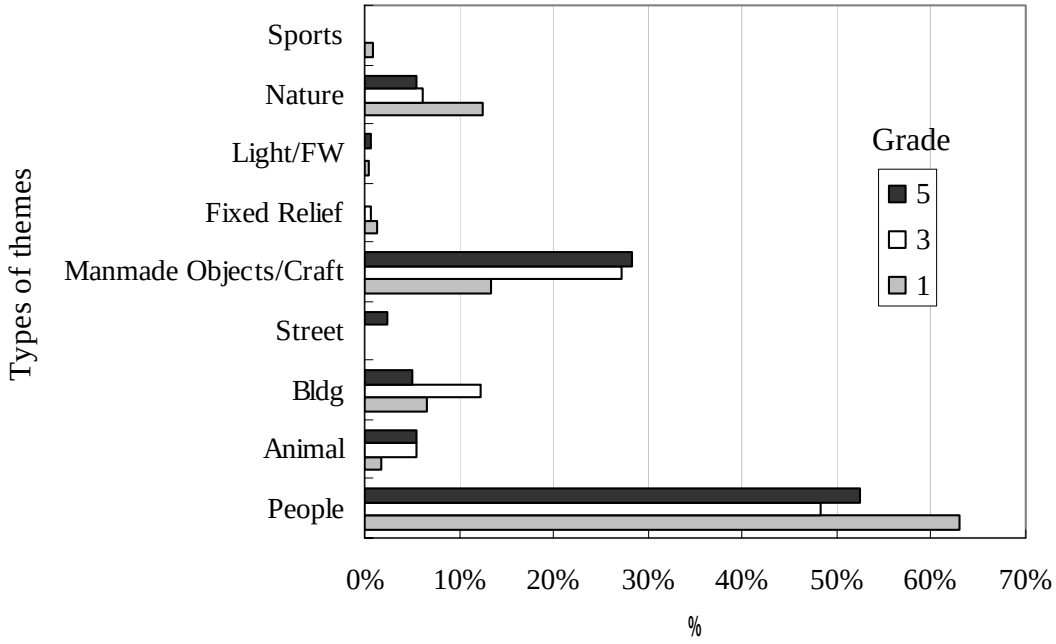


Figure 3. Frequencies of type of themes in the photographs by grade.

As for 3rd graders, although "People" ranked the most popular theme, the second most popular theme "Manmade Objects/Crafts" was more closely ranked to "People" when compared to the other grades. As Figure 4 shows, within the "Manmade Object/Crafts"

category, “Toy/Stuffed Animals/Game/Software” was the most common subject to photograph for 3rd graders. Fifth graders took more pictures of “Activity Goods/Books/Magazines.”

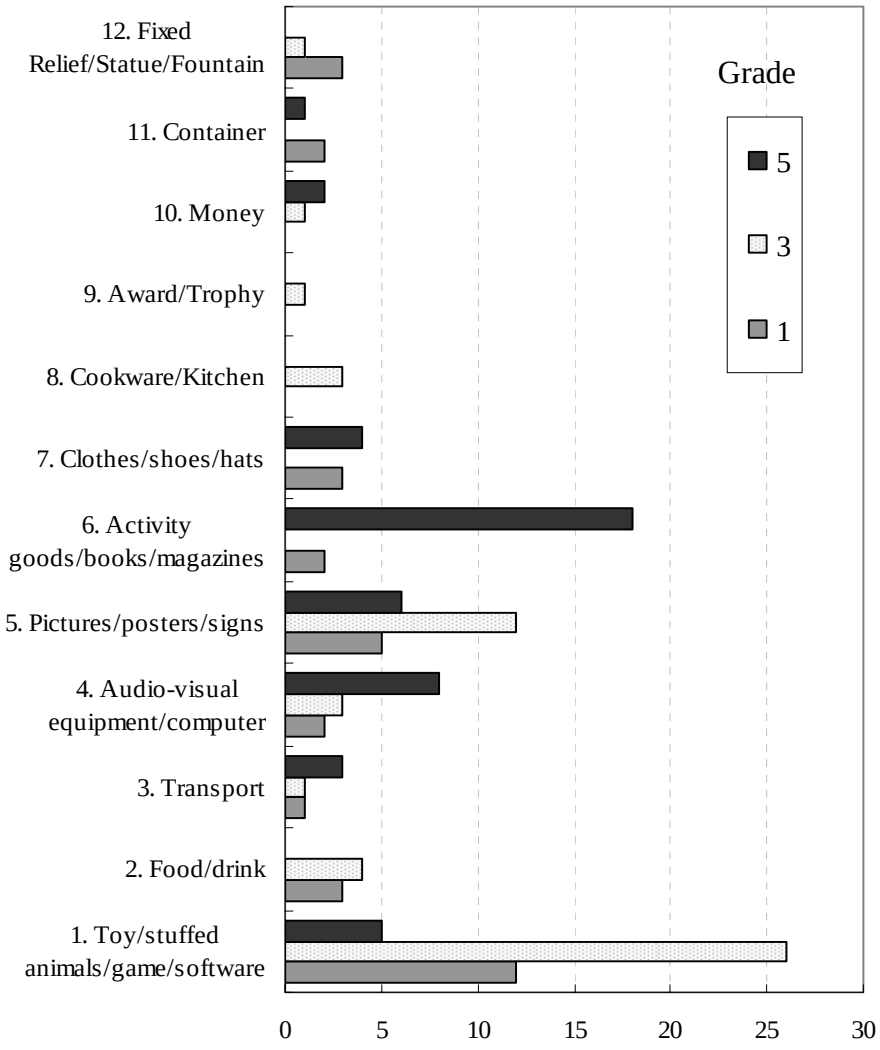


Figure 4. Frequencies of type of Manmade/Objects/Crafts subcategories in the photographs.

In the majority of “People” photographs, people are posed. Third graders’ photographs had the highest ratio of posed “People”, 79.31% out of their total photographs of people, followed by 5th graders’ 70.59%, whereas 1st graders’ posed photographs was at 52.90%. Almost half of 1st graders’ “People” photographs have less controlled photographs and are spontaneous or candid shots. The less controlled aspect of 1st graders’ photographs could also be observed in the arrangement of their subject as well; the ratio of photographs where their subjects were arranged is low for younger children, 28.13%. While older children arranged their subject at higher rate, 3rd graders at 54.10% and 5th graders at 56.52%. This implication tells their ability to control their situation increased along with their age.

From a gender perspective, Table 3 summarized the frequency of the types of themes in the photographs by summing up all grades (Male N = 300, Female N = 258).

Table 3.

Frequency of Types of the Theme in the Photographs by Gender.

Gender	Ratio of Types of the Theme				
	People	Animals	Buildings	Manmade	Nature
Male	58.0	4.3	7.3	25.0	5.3
Female	52.7	3.9	8.5	20.5	14.3
Total	55.6	4.1	7.9	22.9	9.5

Note. The values represent percentage of the type of the theme of the photographs taken by the participants.

Chi-square was performed by Fisher's Exact Test as the table has small expected frequencies at less than 5. The sub-categories of types of theme in the photographs were summarized. The relationships were analyzed between the types of theme in the photographs and gender as shown in Table 3. The result shows the significance at the 95% confidence interval [x^2 (df = 4, N =558) = 14.07, $p < 0.05$].

"RQ2: What do photographs show about children's social development?"

Children's social development was assessed from the perspective of how their social lives are varied in terms of socialization and geographic variation that can be observed in the photographs that were taken by children. Based on the type of people captured in the photographs, the role relationships of the children were measured from several perspectives. Those photographs categorized under "People" were analyzed (N = 310). Chi-square was performed to see if there was any significance to the number of people in the photograph by gender of child. The result shows no significance and all grades had mostly one person (P = 71.0%) in the photograph [x^2 (df = 4, N =310) = 3.082, $p < 0.05$]. Also, there is no significance of age difference whether they took more pictures of children or adults [x^2 (df = 4, N =310) = 3.082, $p < 0.05$]. Most of the adults in the photographs are the children's parents or teachers. Another analysis shows an interesting result in which children take photographs of the same gender and this tendency becomes stronger as the age increases (see Figure 5). Also, male students took more photographs of the same gender than female students did (Male P = 75, Female P =63).

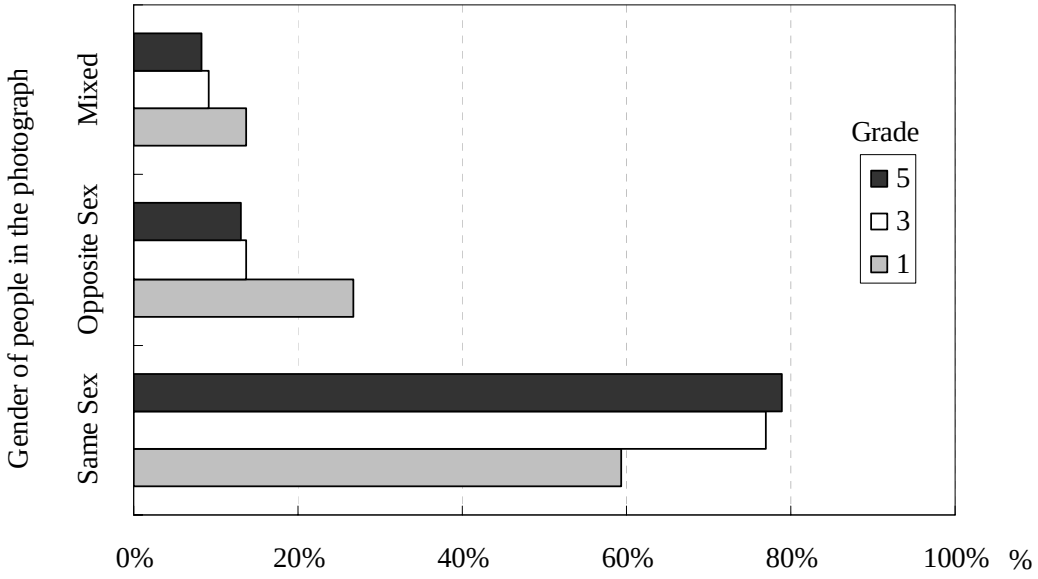


Figure 5. The gender percentage of people subject in the photographs by grade

Participants defined who were in the photographs. If there were more than two people in the photograph, the participants selected the principal person as their main focus. Then crosstab analysis was performed to see the significance of the relationship between age group (grades) and the type of person that they photograph, thus reflecting children's social network. Out of 310 "People" photographs, "Friend" (P = 49.4) ranked the most common person to photograph, followed by siblings (P = 15.2). The chi-square value exceeded the critical value and showed the significance [x^2 (df = 12, N =310) = 34.023, $p < 0.05$]. Participants were then asked the intimacy to the person (other than the self) in the photograph, "How much time do you spend with the person?" This was rated using a Likert-type scale on a scale from 1 to 5. The result showed that "all" people in the photographs that they selected as their best five are people the participants either "see almost every day" or "everyday."

Table 4.

Types of the Person in the Photographs

Grade	Ratio of type of the person in the picture						
	Self	Sibling	Parent	Friend	Classmate	Teacher	Other
1	3.6	15.2	11.6	57.2	5.1	4.3	2.9
3	4.6	18.4	10.3	49.4	5.7	6.9	4.6
5	10.6	11.8	4.7	36.5	10.6	8.2	17.6
Total:	5.8	15.2	9.4	49.4	6.8	6.1	7.4

Note. One cell (4.8%) has expected count less than 5. The minimum expected count is 4.94. The values represent percentage of the type of the person in the photographs taken by the participants.

It was clear from the data that the experience of their friendships was central to their everyday experiences (see Table 4). Interestingly, the result was the opposite of Morrow's (2001) finding that children often spend more time with their friends than they do with their families, especially as they get older. In this study, younger children took their friends' pictures more often than did older children. However, 5th graders took the least number of their parents' photographs.

To measure their social network from a geographical perspective, the locations where the photographs (N = 558, excluding unidentifiable N= 16 and N = 16 taken by non-participants) were taken was analyzed to see if they were related to the age group. The sub-categories of location were summarized into (a) Home, (b) School Environment (School, Car/Train) and (c) Extended Indoors (Friend's House, Neighbor's House, Relatives' House, Parents' Workplace, Shopping Mall/Store, Museum/Theatre, Restaurant,

Church/Temple/Community Center), and (d) Extended Outdoors (Street/Neighborhood, Park, Amusement Park, Mountain/Forest/Lookout, Beach, Recreational Area).

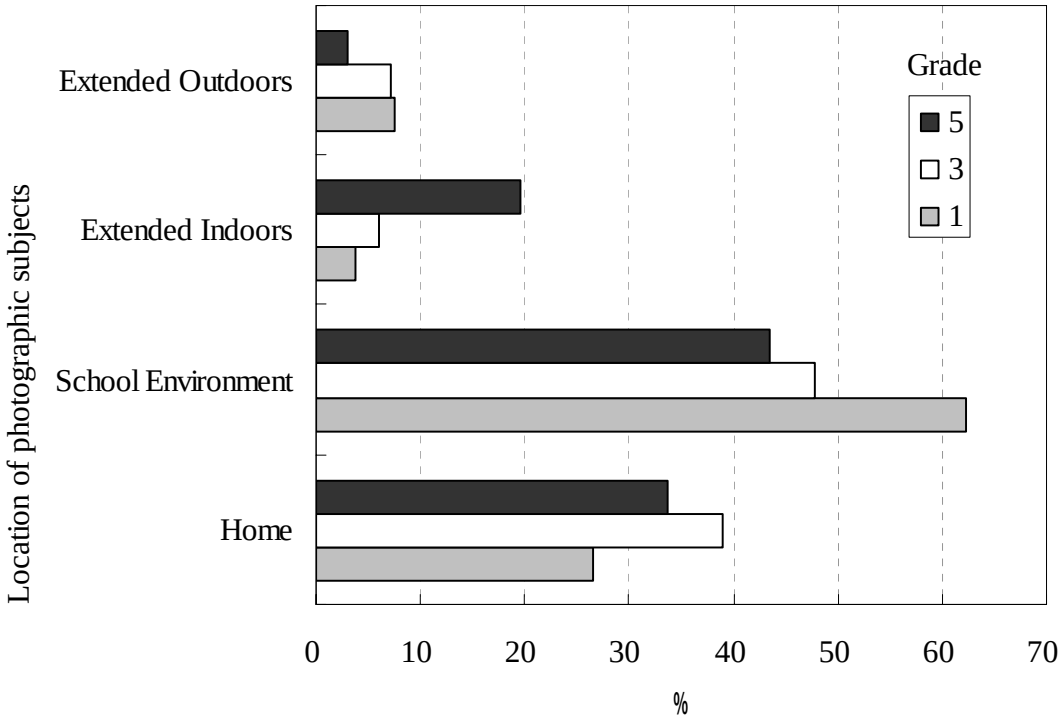


Figure 6. Descriptive frequency of the location of photographic subjects by grade.

As shown in Figure 6, the result shows that "School" (P = 43.56) is the most common site for pictures taken by all grades. Contrary to expectations based on previous study (Sharples, Davison, Thomas & Rudman, 2003), younger children took the least number of photographs at "Home" compared to older children. Unpredictably, more indoor photographs were taken as the age increased. The result from chi-square also showed the difference is significant in age [x^2 (df = 6, N =558) = 43.741, $p < 0.05$] and gender x^2 (df = 3, N =558) = 45.830, $p < 0.05$]. In both cases, the minimum expected count exceeded 5. Male

participants took more photographs at school (P = 63.33) than did female participants (P = 39.15) whose photographs were taken more at the extended locations.

Descriptive statistics on the familiarity in taking photographs.

"RQ3: What are the relationships between the demographic characteristics of the child (age and gender) and their familiarity in taking photographs?"

The familiarity in taking photographs was evaluated by years of experience in taking photographs and frequency of taking photographs. Participants were asked whether they have ever taken any photographs before, "How long have you been taking photographs?" They were also asked how often they used a camera to take photographs, "How often do you take photographs?" Both questions were analyzed using Likert-type scale numbered 1 through 5 and then summarized into two categories.

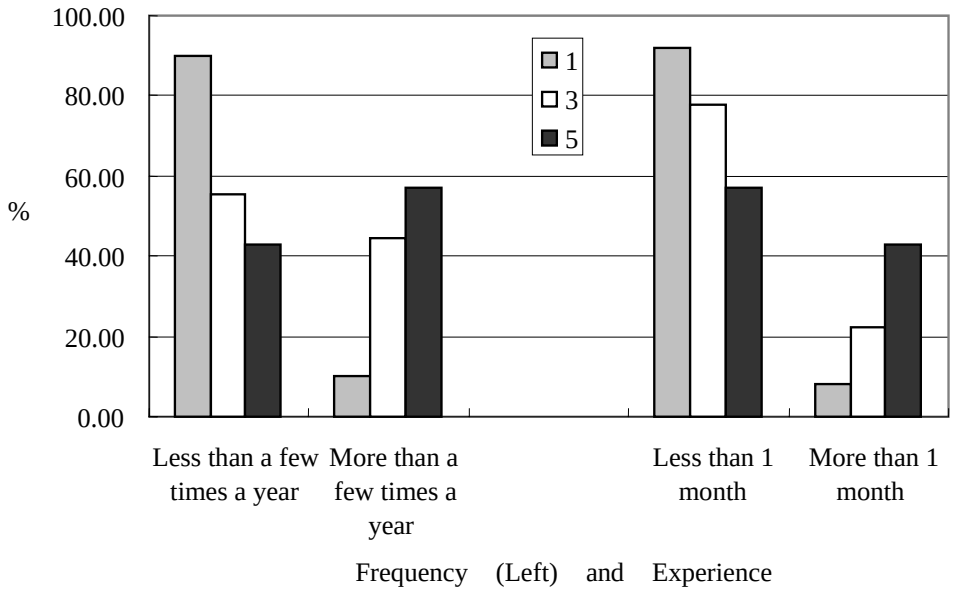


Figure 7. Frequency and experience of taking photographs by grade.

First graders had some photographs with people's heads cut off. This was caused by the lack of experience and opportunities in using a camera, as shown in Figure 7. Both experience (for how long) in taking photographs and frequency of taking photographs (how often) increased as the age increases. Only 22.48% of total participants were experienced in using a camera.

"RQ4: What are the relationships between the demographic characteristics of the child (age and gender) and their challenges in taking photographs?"

Descriptive analysis of the participants' experience in taking photographs and the frequency of taking photographs were analyzed. How many technical challenges the participants perceived while taking photographs were measured. They were asked, "What were the difficulties that you faced while taking photographs?" The number of the difficulties that the participants selected was counted to evaluate their challenges in taking photographs. The average numbers of perceived challenges increased as the age increased; M = 2.3 for 1st graders, M = 2.7 for 3rd graders, and M = 3.75 for 5th graders. Regarding the type of challenge, 1st graders chose "Wind Film" (P = 20) as most frequent answer while 3rd (P = 29) and 5th (P = 24) graders chose "Flash."

Then, the relationship between the familiarity with taking photographs and the number of the participants' perceived challenges was evaluated. As the sample number was too small, chi-square analysis could not be performed. Instead, the observation was made by comparing a ratio of the number of perceived challenges to the participants' experience in taking photographs among the different grade levels. The most inexperienced 1st graders perceived a lesser number of challenges in taking photographs. The level of familiarity in taking photographs and the number of perceived challenges while taking photographs seemed

to be correlated. Furthermore, 5th graders who possess a digital camera (P = 75) might feel the quality of disposable film prints were not as good as digital photo quality.

Descriptive statistics on the child's intention of photographic communication.

"RQ5: What are the relationships between the demographic characteristics of the child taking the photographs and the purpose of the photographs taken by the child?"

Participants were asked "For what purpose did you take the photograph?" for five selected photographs. As shown in Figure 8, the most common purpose for 1st and 3rd graders was "To remember." These two grades have similar patterns in terms of the variety of purpose. The pattern of 5th graders' answer was relatively different from the other grades. Interestingly, older children answered that their photographs were more spontaneously taken or they answered that they did not remember why they took the photographs.

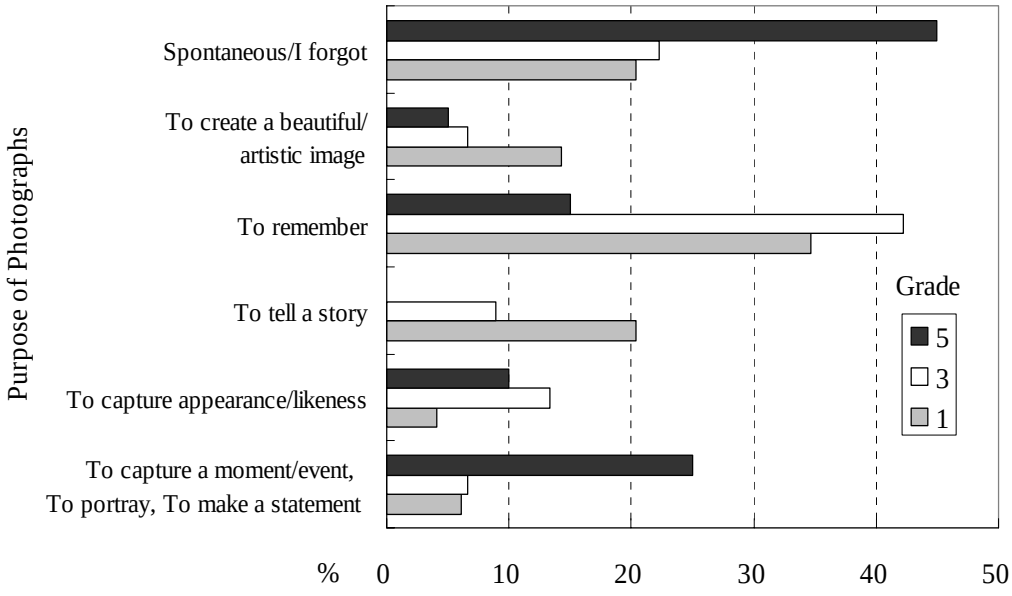


Figure 8. Purpose of photographs by grade. N = 134 (one picture that was taken by someone other than the participant was excluded.).

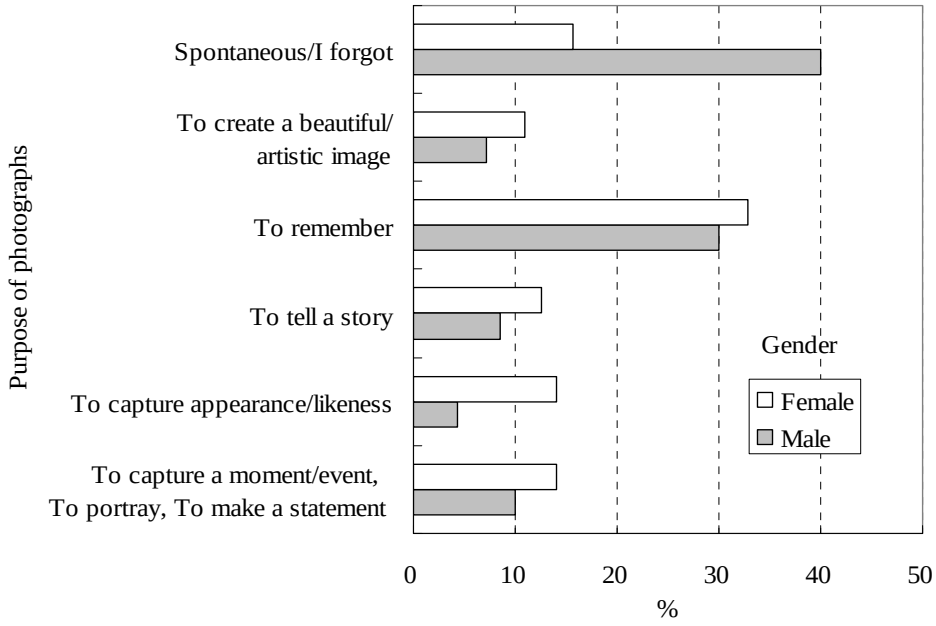


Figure 9. Purpose of photographs by gender. N = 134 (one picture that was taken by someone other than the participant was excluded.)

As for gender difference (see Figure 9), male participants took photographs more spontaneously (P = 40) than did female participants (P = 15.63).

As for the "People" photographs selected as the five best photographs by the participants, the emotion of the person the participants tried to capture was asked. It was analyzed from a grade and gender perspective to see if any patterns emerged. The most salient emotion observed common was "Happiness" followed by "Silly" as shown in Figure 10. Older children tried to capture "Happiness" (P = 51.85 for 3rd graders, P = 33.33 for 5th graders) whereas "Silly" (P = 29.03) was more popular for 1st graders.

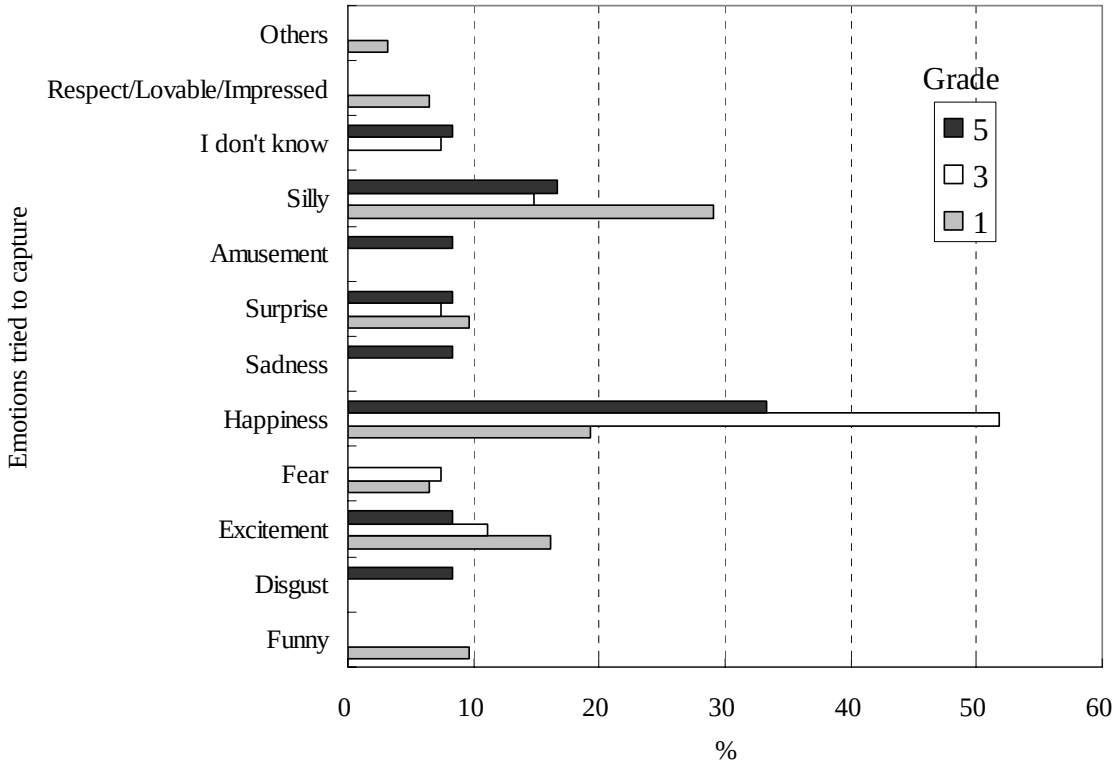


Figure 10. Emotion tried to capture for people photographs by grade. N = 134 (one picture that was taken by someone other than the participant was excluded.) Valid N = 70. N = 64 is non-people category photographs.

Descriptively, there is a significant difference between male and female participants across all grades which emotion they tried to capture (see Figure 11). Female participants tried “Happiness” (P = 56.76 for female, P = 9.09 for male) while male participants tried “Silly” (P = 36.36 for male, P = 8.11 for female).

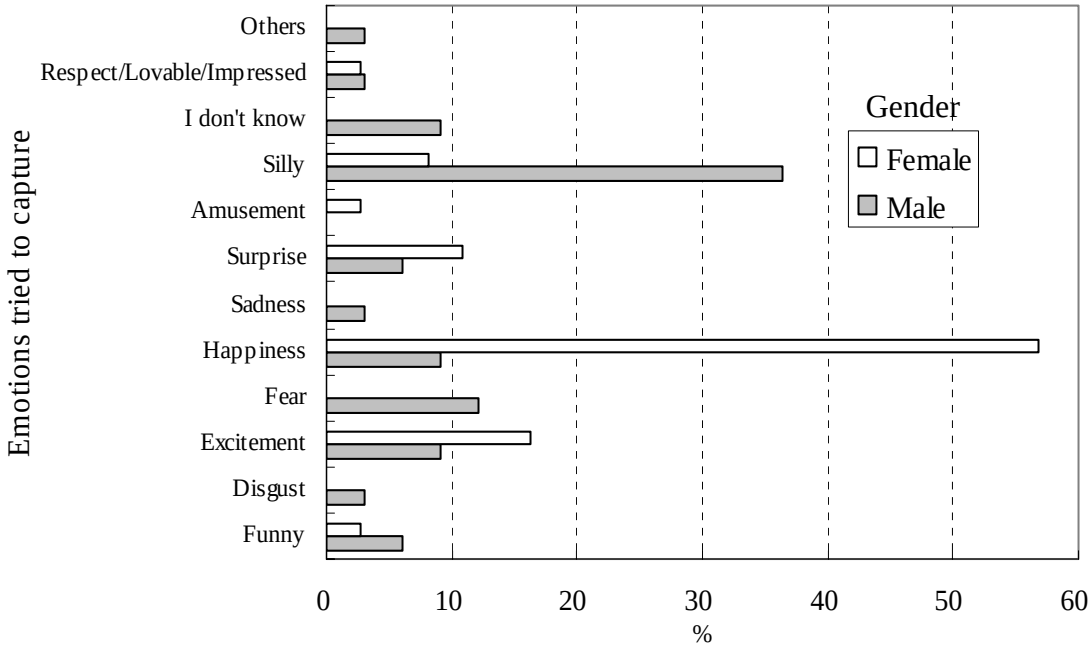


Figure 11. The emotion the participants tried to capture for people' photographs by gender. N = 134 (one picture that was taken by someone other than the participant was excluded.) Valid N = 70. N = 64 is non-people category photographs.

RQ6: What are the relationships between the demographic characteristics of the child and the child's satisfaction level with the result of the photograph?

Participants were asked the level of attainment of their intentions in their attempt of making photographs. They were asked, "What is your satisfaction level?" for the five selected photographs with answers chosen from Likert-type scale numbered 1 through 5.

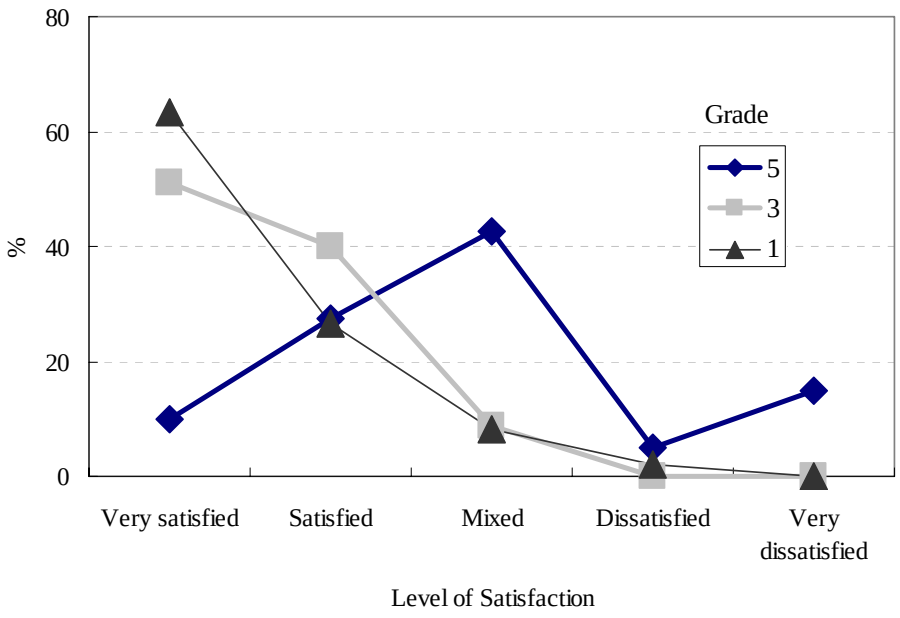


Figure 12. Level of satisfaction with the results of the photographs by grade level. N = 134 (one picture that was taken by someone other than the participant was excluded.)

As Figure 12 shows, younger children are more satisfied with their result than are older children. The chi-square also indicated the significance in relationship between the age group and the level of satisfaction [x^2 (df = 8, N =134) = 50.881, $p < 0.05$]. On the other hand, there is no significance in relationship between gender and the level of satisfaction [x^2 (df = 4, N =134) = 7.355, $p < 0.05$]. The satisfaction level is higher for those children with less familiarity in taking photographs.

Qualitative Analysis

In this section, interpretative analysis is carried out to provide further observations that would not be discernible from numbers and figures.

What does it mean to take photographs for children?

Open-ended questions were asked to better understand the meaning of taking photographs for children. The group interview was also conducted to let children talk freely about their experience in taking photographs. The researcher had a short interview with six groups divided by gender and grade. Based on these two approaches, the following observations were made.

The majority of reasons that children like taking photographs are either “because you can remember things” or “because it is fun.” From the interview, 1st grade female participants provided similar answers. They said, “Happy!” “It’s fun!” and “It’s exciting.” On the other hand, a participant from the male group said, “I felt independent!” besides, “It feels super good!” The other comments from the questionnaire are: “I like taking pictures because I can see how the pictures come out,” “I can keep pictures forever,” and “I love it.” In general, the answers from 1st graders were relatively short; normally they were expressed in one word and no more than one short phrase. Third graders’ answers were more descriptive; though many answered taking photographs is “fun.” Coincidentally or not, the older brother of the 1st grade male participant who said “I felt independent,” also said, “I felt good that I did it all by myself.” One male participant from 6th grade said “I like taking photographs because it’s like taking a picture of your mind.” Next, the participants were asked, “How did you feel about taking photographs?” Approximately 80% of the answers were either “it feels good” or “I felt happy” from both questionnaires and interviews.

The answers to the question “What do you dislike about taking photographs?” were more diverse. The highest ranked reasons are mainly “flash” and “blurry.” There were some other answers such as “The subject can’t stay still,” “the rules,” and “pressing the button

(because I wish it could go automatically)," most of them answered "I don't know" or "I do like it." During the interview, 3rd grade participants mentioned "winding film" can be troublesome. Some male students from 3rd and 5th grade said they prefer digital cameras because they do not need to wind and they can check the preview on the screen. These comments are not directed to the experience of "taking photographs" but "taking film photographs." One female participant from 5th grade said, "There were some people who didn't want to be in the pictures." The answer indicates her concern with the relationship with the subject.

Here are some more comments on how taking photographs make them feel different from the traditional communication method of writing and speaking to express what they want to communicate:

- It takes a picture and talks
- You capture the moment
- It makes it nice like someone draws it
- It is easy
- It is faster
- You can actually see what happens

Meaning of the photographs for children

The participants were asked why they chose the five photographs as their best ones. Some answers were listed in Table 5 in their own words. Younger children selected their best five photographs based on the subject matter rather than on aesthetic considerations. This

corresponded with previous studies (Clark-Ibáñez, 2004; Glyn, Davison, & Sharples, 2001; Sharples, Davison, Thomas, & Rudman, 2003).

Table 5.

Reasons the Participants Selected their Best Five Photographs listed by Grade.

1	3	5
• My younger brother's hair is like that (sticking up) • She was going to make something • It's beautiful • I like her necklace • I like the cloud a lot it is beautiful • It looks cute • It looks funny • It looks silly • He is smiling • It looks cool • I like my dad	• I love my baby sister • I can remember my friend • My grandma takes me in her car and takes me to school • A construction cone fell on the ground • It (fish in a tank) may die and we can forget about it • I like games • I like golfing • My mom takes care of me • He taught me how to ride a bike • I don't see him (a dog) a lot • I am his big fan (animation character) • I cannot forget the birds that I see	• It has all of my baseball things • I need my glove for baseball • It looks demented • I like to skateboard • Other pictures had no flash • I love my dog • It's my car • My cat is important in my life • I like playing piano • I want a laptop • I need a car • She is so cute! • I like money • I got it (television) in the middle of the photo • I use it (iPod) all the time

At the same time, it was apparent that their dominant interest in their photographs was “People” which indicates that children in this grade level are already shifted from an ego-centric perspective to a peer-centered perspective. It shows the same result as a study done by Flavell and Miller (1998).

Also, younger children took more pictures of aesthetically beautiful natural phenomena, especially with the lighting effects such as sunset scenes. Female 1st grade students took pictures of natural phenomena the most. They also took photographs of outside views from their home the most. Figure 13 is an example of a photograph taken by a 1st grade female participant that includes both aspects; natural phenomenon and a silhouette view taken from her house. There were indications of an emerging interest in environmental photography for the 1st grade females.

Figure 13. A silhouette view from house taken by 1st grader female participant.

Younger children explained the reasons that they selected their best five mostly based on the appearance or likeness of the subject in the photographs. One female participant from 1st grade chose her younger brother’s picture (see Figure 14) because his hair looked funny. The photograph looked like a normal portrait if the participant did not explain about his hair.

Figure 14. “My brother’s hair is like that (sticking up),” by a female participant in 1st grade.

Figure 15. Taken by 1st grader (male). Funny pose.

Many of them chose photographs in lots of laughter with big smiles on their face because the subjects looked funny to them. The photographs with participants' friends making funny poses were very commonly observed in this age group (see Figure 15). At the 3rd grade level, the reasons why they selected the photographs varied more. They chose the best five photographs not simply because of the subjects' appearance. Some children chose the subject in the photographs because of the social meaning or stories attached to the photographs.

Figure 16. "I like skateboarding. I asked my friend to do this." A photograph taken by 5th grade female.

Photographs with the arranged objects and objects that are important in their lives were two of the common characteristics for both 3rd and 5th graders. Distinctively, the photographs taken by 3rd grader participants (both females and males) were arranged games, toys, and stuffed animals. It shows the control ability of subjects by children at this grade level. In these age groups, they also chose the photographs with subjects that they "wish" to get such as an iPod, laptop, or car. Among 5th graders, many chose the photographs which related to the activities that they like to do (see Figure 16). With increasing age, tendency to select photographs based only by subject matter, older children showed their concerns about the aesthetic perspectives

of their photographs. One male participant took many similar photographs of a television. He explained, “I wanted to take a picture of the television in the middle of the frame.” He considered the composition in his framing process.

During the decoding process of the main subject in the photographs, the researcher asked one male 1st grader what he tried to capture. “I wanted to take a picture of the helicopter.” The helicopter in the photograph was so tiny that it was difficult to see. In this example, amongst the selected photographs that children have chosen, adults may think those main subjects are too tiny in the photograph or a substantial portion of the image is obscured. Yet these images have been seen as important images by children because of the subjects and what they remember from the time that took those photographs.

One first grader took a picture of a water fountain at the school (see Figure 17). The researcher asked, “Why did you take that picture?” He answered, “Because water is very important for me. If I don’t drink water, I get thirsty.” This is an example of a child taking pictures of a symbol that associates with the child’s personal experiences. His picture was a symbolic representation of what is important to him. Older children tended to talk more about their photographs,

Figure 17. “Water is very important for me.” A symbol picture taken by 1st grade male.

"why" they took such photographs and shared stories with the researcher. A third grade female participant described the importance of a person in her picture, "I picked this picture because he taught me how to ride a bike." Another female participant from 5th grade selected a piano picture and said, "I didn't like playing piano before because the teacher was really mean. But I like playing piano 'now' because I changed the teacher and she is really nice." These examples imply that the photographs trigger some stories for older children that relate to the subject in the photographs.

Discussion

Conclusion

Using a combination of quantitative and qualitative methods was a useful way of exploring the importance of things in young people's lives and highlighted the relevance of their social relationships. Analyzing photographs and discussing with children enhanced nonverbal cues and guided the way for firsthand observation of nonverbal communication.

Images carry connotation. This study's data indicated that children's point of views can be shown through their photographs. Often times, a photograph has no meaning by itself; the children's explanations further illustrated the stories behind the photographs. The participants mostly took photos of people and their possessions that had social attachment and meaning. Children's photographs and "understanding" the implications of photographs provide rich information about their social life and beliefs, even for those photographs that adults might consider flawed images. As Clark (1999) reported that photographs capture and introduce content area that otherwise (from an adult viewpoint) might be poorly understood or even overlooked. As a means of communication, photographs are helpful to learn children's perspectives of their social world and provide them with a visual tangible stimulus. For the

children in the study, school was the central site of social interaction and their photographs were their unspoken visual evidence.

There were some distinctive trends observed in the photographs at each grade level and gender, although the findings were not always in agreement with those of previous studies (Ching & Wang, 2006; Clark-Ibáñez, 2004; Glyn, Davison, & Sharples, 2001; Sharples, Davison, Thomas, & Rudman, 2003). The differences that occurred between this research and those previous studies might be due to the environmental differences, such as where the research took place in terms of the country, or whether the students came from a school district that was city or rural. Also, the size of the sample could have been another difference. In this study, the ratio of experienced and inexperienced photographers was approximately fifty-fifty. This contributed to the study by illustrating interesting results, whereas the inexperienced children photographers were innocently happy with their experience in taking photographs, not worrying about technicality of the camera operation or aesthetic concerns. Additionally, inexperienced children captured a wider variety of subjects, which could be assumed that they enjoyed their unique experience of taking photographs on their own (as some children described “being independent.”) Photography may have been a trigger for them to explore their world and to capture in a visual form and “crop out” their world in a meaningful way. They were also satisfied with the result of the photographs in general. At the same time, experienced children developed more critical eyes to judge their photographs with, as their satisfaction levels showed lower scores. They also took less spontaneous photographs.

Last, but not least, the exciting result was that, younger children were able to communicate about their social life through the photographs just like older children did, even

though they could not write or speak like them. The photographs taken by younger children were filled with their curiosities while they explored their social worlds.

Limitations

There are some constraints that might affect the validity of this study. There might be some concerns in taking the children's responses at face value. As Robinson (1986) pointed out, very young children find it difficult to distinguish between what is said and what is meant and thus almost any hypothetical question becomes problematic. However, most children 11 and older are fully able to articulate their perceptions, opinions and beliefs and, with relatively little adaptations, surveys designed for adults can be used with adolescents (Scott, 2000). This was the case during the interview in this study. Compared to younger children, whose answers were affected by their peers (some children imitated their peers' answers), children from 5th grade stated their individual points of view. Pia and James (2000) stated that it could be the case only for those children in traumatic circumstances children, like adults, have been known to lie or display memory distortion. The direct interview of children provides a far more complete account of the child's life (Pia & James, 2000, p. 107). Scott (2000) agreed: "children provide reliable responses if questioned about events that are meaningful to their lives" (p. 99). Questions asked to children in this study were about children's experience and knowledge, thus the quality of data should have been less of a problem. Additionally, having visual evidence in the photographs during the questionnaire session helped articulate children's stories attached to the photographs. Some scholars (O'Kane, 2000; Christensen & James, 2000) state that visual stimuli can help in the questioning process for children under 11; pictures can make issues far more concrete than do verbal representations alone.

Although group interviews were recommended from other studies and employed in this study, they were not very efficient. Unexpectedly, children got too excited as they shared their photographs with their peers. In addition, instead of having a session where the participants fill out the questionnaire together in a large group, having one or two participants discuss their photographs along with the questionnaire would be more beneficial. It may require a longer period of time to conduct the research, however, it could be more efficient approach and it may help bring out more insights about their photographs.

A small number of subjects, who are all from the same school, might also lower the study's validity. Behavioral patterns observed in this study could be characteristics from this particular school or neighborhood. The result of this study did not always agree with a similar study done in Europe (on larger scale) cite. The difference might occur due to the environmental differences as well as the difference in the number of samples.

Another problem with the research approach in this study is the questionnaire that asked the children to verbally communicate their intentions. However, when the children took the photographs, they were visually communicating. Therefore, their verbal communications skills might not be sophisticated enough to describe what they were trying to convey visually. This could be most problematic especially with younger children as they had many spontaneous photographs (i.e. they pressed the shutter button as they played outside with their peers). Their photographs showed that they followed their eyes and feelings. Did they think "verbally" when taking those photographs? This poses a risk for such questions as "Which emotion did you try to capture?" that asked about the person in the photograph might not be appropriate. Even though, all the participants answered this question, it is possible that not all of the photographs were taken to capture certain emotions as they answered. In this context,

the researcher might unintentionally manipulate the participants' answers to mislabel their images. In addition, studying and becoming familiarized with all the photographs taken by each participant is a helpful process to judge whether the photographs were taken intentionally or randomly. Although, it involves subjective judgments, it helps the researcher decide whether or not to take children's comments at face value. This doubt could throw off this study fundamentally. However, it is important to understand that the way in which children are asked has to be carefully planned.

Suggestions for Future Study

Lastly, this study utilized only disposable film cameras and so the findings are only limited within the field of traditional film camera. The Consumer Applications and Systems Laboratory (2004) reported that some studies have already found the diversity of activity that the digital camera and mobile phone camera support and invite much more complex and richer usage than do traditional film cameras. Some participants in the study showed their preference for digital cameras over the film cameras. Research utilizing a digital camera will broaden this field of study and be very useful for the larger sample study as film development and camera expense could be expensive. As the digital era is rapidly expanding and children growing up with such a medium might provide a variety of interesting research topics.

Another suggestion for future studies is to enhance the content analysis method for the photographs. Even though, the categories for classifying the main subject in the photographs were defined, there were many cases that did not fall into any of the defined categories. Thus, the defined category had to be revised along the course of the evaluation process. However, it caused the researcher to go back to the photographs that were already coded, which was necessary to make sure revision in the category did not affect the coded

work already done. Sometimes the total number of sub-categories (i.e. type of people, number of people etc.) did not match and caused the researcher to revisit the counting process repeatedly. Therefore, there is an ample space to improve the categorization method of contents analysis.

If the resources and time allow, a comparison study between different social environments (i.e. social class, nationalities, countries etc.) is suggested as well. The participants in this study in fact were from many different ethnicities (i.e. Caucasians, Hispanic, Asian, and Pacific Islanders). However, ethnicity perspective analysis was not conducted as the sample was too small and they were all from the same school environment.

Photography has a long history of being used as a research tool or therapy tool, to reveal rich information about the photographers. However, the research on the photographs' content and the intention of the photographers have not done enough to explore the potentiality of photographic communication. Developing a research analysis method on how to conduct the research effectively itself would contribute to the field of communication, and to the fields of psychology and cognitive developments.

In sum, a quote from one female 5th grade participant in the pretest summarized this study best, she concluded; "Pictures are worth a thousand words and writing or speaking aren't usually worth a thousand pictures."

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Appendix A

Name: _____

Grade: _____ / Age: _____

Ethnicity (choose one): ( ) Asian ( ) White ( ) Hispanic ( ) African-American ( ) Native Hawaiian/Pacific Islanders ( ) Native American ( ) Mixed (more than two ethnicity from the parents)

Please select five best photographs for you and mark them number from 1 to 5 on the back of each photograph. Then please answer the following questions about five photographs that you selected:

1. What is the photograph about? Please write down a caption per picture. Also, please specify the reason you selected each picture as your best five.

Picture 1 Caption: Reason that you selected this photo:
Picture 2 Caption: Reason that you selected this photo:
Picture 3 Caption: Reason that you selected this photo:
Picture 4 Caption: Reason that you selected this photo:
Picture 5 Caption: Reason that you selected this photo:

Answer this question only if there are people in the photograph.

2. Which emotion of the person did you try to capture? Please choose the most appropriate expression and place **one** check mark per photograph.

	Picture 1	Picture 2	Picture 3	Picture 4	Picture 5
(a) Anger					
(b) Shame					
(c) Contempt					
(d) Disgust					
(e) Excitement					
(f) Fear					
(g) Happiness					

(h) Sadness					
(i) Surprise					
(j) Amusement					
(k) Silly					
(l) I don't know					
(m) Others (please specify)					

Answer this question only if there are people in the photograph.

3. Who is/are in the photograph? Please indicate how much you spend time with the person/people by selecting the number (1 through 5) from following. Please answer for all people in the photograph.

"I see the person…"
1. Never
2. A few times a year (a couple of years)
3. A few times a month
4. A few times a week (or almost everyday)
5. Everyday

	Picture 1	Picture 2	Picture 3	Picture 4	Picture 5
(a) Myself					
(b) Siblings					
(c) Parents					
(d) Relative/ relatives					
(e) Friend/ friends					
(f) Classmate/ Classmates					
(g) Teacher					
(h) Neighbors					
(i) Strangers					
(j) Others (please specify)					

4. Where was the photograph taken? Select **one** answer from the left column and place a check mark per photograph.

	Picture 1	Picture 2	Picture 3	Picture 4	Picture 5
(a) My house					
(b) Neighbor's House					
(c) Relative's House					
(d) Friend's House					
(e) School					
(f) Street/Neighborhood					
(g) Park					
(h) Shopping Mall/Store					
(i) Amusement Park					
(j) Museum/Theatre					
(k) Mountain/Forest/Lookout					
(l) Beach					
(m) Church/Temples/ Community Center					
(n) Recreational Area					
(o) Car/Train					
(p) Restaurant					
(q) Parents' Work Place					
(r) Others (please specify)					

5. For what purpose did you take the photograph? Please choose the strongest reason from the left column and place a check mark per photograph. Select **one** answer per photograph.

	Picture 1	Picture 2	Picture 3	Picture 4	Picture 5
(a) To capture a moment /To record the event/ To portray/To make statement					
(b) To capture appearance/ likeness					
(c) To tell a story					
(d) To remember					
(e) To create beautiful image					
(f) To create artistic image					
(g) Spontaneous/ I forgot					

6. Do you feel that you could achieve the purpose above what you tried to photograph? What is your satisfaction level with the results? Please place a check mark.

	Picture 1	Picture 2	Picture 3	Picture 4	Picture 5
(1) Very dissatisfied					
(2) Mostly dissatisfied					
(3) Mixed					
(4) Mostly satisfied					
(5) Very satisfied					

7. How often do you take photographs? Please circle one answer.
(1) Never If you select the answer "(1) Never", please go to the question #11.
(2) A few times a year
(3) A few times a month
(4) A few times a week or almost everyday
(5) Everyday

8. How long have you been taking photographs? Please circle one answer.
(1) Less than 1 month
(2) More than 1 month and less than 1 year
(3) More than 1 year and less than 2 years
(4) More than 2 years and less than 5 years
(5) More than 5 years

9. Have you ever used digital camera before?
( ) Yes ( ) No

10. Have you ever used mobile phone camera before?
( ) Yes ( ) No

11. What were the difficulties of taking photographs? Select one or more answers.
(a) Timing (shutter chance)
(b) Lighting
(c) Background context/Location
(d) Arrangement of subjects
(e) Angles
(f) Framing
(g) Distance to subject
(h) Flash
(i) Focus
(j) Holding camera/shaking
(k) Relationship with the subject
(l) Wind film
(m) Deciding subjects
(n) Others (Please specify).

12. What do you like about taking photographs?

13. What do you dislike about taking photographs?

14. How did you feel about taking photographs?

15. What makes photographs different from writing or speaking to express your feelings?

16. What do you want to photograph next time?

Appendix B

Questionnaire for the Interview

1. What do you like about taking photographs?
2. What do you dislike about taking photographs?
3. How did you feel about taking photographs?
4. What makes photographs different from writing or speaking to express your feelings ?
5. What do you want to photograph next time?

Appendix C

Parent Consent for Child to Participate in Photo Taking Study
Minako Ishii, Researcher

This research project is being conducted by Minako Ishii as part of her requirements for a masters degree from the School of Communication, at the University of Hawaii, Manoa. The purpose of the project is to explore how and what children are able to express their messages through photographs at the different ages and genders. Your child is being asked to participate, because this will include children aged 6 to 11 years old.

Participation in the project will consist of your child taking photographs with a disposable camera, filling out a questionnaire to explore the child's intentions when taking photographs, perceived challenges and satisfaction level of their results, and overall impression about taking photographs. A short group interview at school will be held subsequently with the researcher. Interview questions will focus on impression about taking photographs and what they like/dislike about photography. Your child will take a disposal camera home for two weeks and take 27 exposure films of photographs. Completion of the questionnaire should take no more than 2 hours. Each interview in a group less than four from the same age group will last no longer than 15 minutes. Approximately 24 people will participate in the study. Interviews will be audio recorded for the purpose of transcription; however, audiotapes will be destroyed immediately following transcription. No personal identifying information will be included with the research results. The researcher believes there is little risk to participating in this research project. Participating in this research may be of no immediate benefit to your child. It is believed, however, the results from this project will help researchers better understand children's photography. If your child participates in this study, it will not cost you or your child any money.

Research data will be confidential to the extent allowed by law. Agencies with research oversight, such as the UH Committee on Human Studies, have the authority to review research data. All research records will be stored in a locked file in the primary investigators office for the duration of the research project. All other research records will be destroyed upon completion of the project. Participation in this research project is completely voluntary. Your child is free to withdraw from participation at any time during the duration of the project with no penalty, or loss of benefit to which you would otherwise be entitled.

If you have any questions regarding this research project, please contact the researcher, Minako Ishii at [researcher's phone number]. If you have any questions regarding your rights as a research participant, please contact the UH Committee on Human Studies at (808)956-5007.

Participant:
I have read and understand the above information, and agree to participate in this research project.

_____
Name of child (printed)

_____ _____
Parents' Signature Date