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Three-Year-Old Photographers: Educational and Parental Mediation as a Basis for Visual Literacy via Digital Photography in Early Childhood

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Abstract

The study examines two years of an educational program for children aged three to four, based on the use of digital cameras. It assesses the program's effects on the children and adults involved in the project, and explores how they help the youngsters acquire visual literacy. Operating under the assumption that formal curricula usually marginalize visual and digital literacy, the program gives photography a central role in all areas of preschool learning: the children take pictures of all their daily preschool activities, and view and learn with photographs from various resources. The findings illustrate the centrality of educational mediation – by both preschool teachers and parents – in equipping young children with visual literacy. As all participants indicated, the educational process via digital photography gives preschool children the ability to experiment with problem-solving, and develop curiosity and pleasure in learning, as well as independence, confidence, responsibility, empowerment and participatory learning of both parents and children.

Keywords: visual literacy, educational-mediation theory, children, photography, early childhood education, parental mediation, media literacy

Could digital photography activities embedded in preschool education support the educational needs of preschoolers, their teachers and their parents? This study explores the visual literacy learning experiences activated by a two-year educational program in an Israeli preschool. It assesses the program's effects on the children and adults involved in the project, and explores how they help the youngsters acquire visual literacy. Instead of marginalizing visual and digital literacy as occasional, irregular activities, the program instead gives photography a central role in all areas of preschool learning: the children take pictures of all their daily preschool activities, and view and learn with photographs from various resources.

Conventional approaches to parental mediation in the era of mass communication focuses on parents' role in mitigating the negative effects of the television on their children. It involves restrictive mediation – subjecting viewing to rules and censorship; active mediation – investing contents viewed with critical meaning; and co-viewing (Chakroff & Nathanson 2011; Schofield Clark 2011). Scholars have long noted that parental mediation and media literacy are disconnected from each other even as scholars and practitioners acknowledge there is a growing need to “help parents use mediation in ways that encourage media literacy skills in their children” (Mendoza 2011, 38).

A major impetus for this research is the increasingly visual, cultural and technological landscape in which pictures and visual images are a central factor in defining basic perceptions such as reality, identity, time, space and relationships. Hall and Liberman (2015) published a review of different studies in early childhood education dealing with intervention programs and education of parents through different media

technologies. This review determines that, in addition to the remaining limitations and questions, there are reasons to think that “there is promise in the use of technology-based delivery methods for intervention” (31).

Parents perceive joint watching of educational television programs as positive, and as providing an opportunity for learning (Van Vliet et al. 2013). Researchers found that In addition, parents wish to be involved in this activity as active partners (conversing, singing, reciting), and in discussions following the program. Parents’ mediation of children’s use of the Internet employs terminology parallel to that regarding mediation of television content, that is restrictive, active and co-use mediation. Nikken and Jansz (2014, 263) claim: “Co-use amounted to collaboratively surfing the web to track down pleasant content for mutual enjoyment.”

Mendoza (2009) claims that parents need different strategies to enact media literacy with their children, as opposed to how teachers do this based on the curriculum and goals they set. However, she says, for parents to implement media literacy practices at home, they need to comprehend and adopt the perceptions and principles of media literacy. For example, researchers found that parents’ mediation of media contributes to traditional literacy acquisition, if it is a guided and age-appropriate interaction (Bittman et al. 2011). The current study confirms that parental mediation theory needs to be redefined in view of the evolving digital environment and the principles of media literacy. The mediation envisaged here is what Schofield-Clark defines as *participatory learning*, centering on learner-driven inquiry, free experimentation and play (2011 333–335).

The main research questions investigated are whether educational mediation by the preschool teacher and the parents amplify the children’s learning and skills, and how teacher and parents perceive and describe the photo-based program.

Literature Review: Educational Mediation Theory and Media

Children’s early years are crucial for their physical, social, emotional and cognitive development. The role of communication technologies in this development, however, is disputed, regarding young children’s specific needs. The question is whether technology can satisfy these needs or have the opposite effect, distancing children from essential early-childhood developmental experiences (Van Scoter, Ellis, & Railsback 2001). Successful integration of information and communication technologies (ICT) is consistent with the constructivist approach to learning, a learner-based approach, as well as on sharing, relevancy, creativity and continuity. Means and Olsen (as quoted in Schiller & Tillett 2004, 411) list the characteristics of a successful integration of this kind, which includes authentic and challenging tasks, involvement of all children in advanced skills, heterogeneous groups and cooperation, the teacher as more as a coach or aide than a purveyor of knowledge, and more prolonged hands-on work by the youngsters.

Current theories of educational mediation, based mainly on the approaches of Vygotsky and Feuerstein (e.g., Tal 1996; Tal 2004; Kozulin 2003; Klein 2008), contend that the conditions for the success of a teaching program or methods in promoting literacy depend on attendant educational mediation. They also assert that achievements in developing cognitive ability and its quality depend on the child’s interactions with meaningful mediators. Klein states that educational mediation enhances children’s cognitive functioning and their socio-affective relations, which make learning possible. The importance of educational mediation, however, transcends the affective and social domains.

As we know today, youngsters need high levels of cognitive functioning to cope successfully with twenty-first-century challenges. To attain such levels, says Klein, children should learn with the help of an adult who mediates between them and the environment, and tailors this to their interest areas and ability levels. The mediating adult “explains to the child the meaning of experiences, connects them, expands them beyond the immediate sensory experience, provides feedback, and helps to organize behavior and carry out tasks” (Klein 2008, 96–97). The mediator “selects, changes, amplifies and interprets objects and processes for the child” (Kozulin & Presseissen 1995).

Vygotsky uses the concept of “zone of proximal development” to define the gap between intellectual age, i.e., the current level of development, assessed through observation of the problems that children solve by themselves, and the level they reach when they solve problems cooperatively with a mediator (Vygotsky 1982, 213). By implication, children always attain deeper understanding and greater cerebral independence by means of a teacher’s qualitative facilitation than by studying the same contents independently (Tal 1996). In the case at hand, this means toying with a digital camera and regards children’s interaction with teachers or parents as central. Thus, the span of this range may also change over time because the children receive more and more complex assignments, presenting them with new challenges (Costley 2012).

The first decade of the 21st century saw a dramatic increase in children’s quantitative consumption of media (Rideout, Foehr & Roberts 2010), something that the authors attribute mainly to children’s access to, and ownership of, multimedia smartphones. Toddlers aged two to four spend one hour and fifty-eight minutes per day, on average, using total screen media. The average time use among those aged zero to eight years has tripled over a two-year period. Among those who use mobile devices every day, it was one hour and seven minutes per day in 2013. A slight decrease in children’s use of traditional media in favor of mobile media and applications was also found (Rideout 2013).

Digital cameras are increasingly accessible to, and possessed by, children from their early years. These cameras play an active role for adults and children in documentation, presentation and sharing with social communities, both real and virtual (NAEYC Position Statement on Technology and Young Children, 2012). The effect is evident in the rise of both the quantity and the intensity of photographic activity by children or others around them.

Research on Children's Photography

Previous research on children and cameras has largely examined photography as a means to improve adults' understanding of children's experiences. Most related research focuses on photography as a way for children to express opinions about their surroundings, e.g., school, and to document events and experiences (Schiller & Tillett 2004).

Such studies seek to challenge the age, size and verbal asymmetry that exist between the subjects and the adult researcher (Jorgensen & Sullivan 2009). They require adults to rephrase their own knowledge about children. Additionally, they consider youngsters as partners in building knowledge about them, through the pictures taken. The researchers aim to transform the children into active participants via photography and its supplemental activities, thus allowing adults to better know the children and their reality (Cook & Hess 2007; Thomson 2008). For example, the voice and expression of immigrant children as they photograph the surrounding culture, customs and even language (Keat et al. 2009). Some scholars are also critically re-examining processes of creative art as a manifestation of children’s voices and perspectives, and wish to challenge the question of the authenticity and voice of children in their photographs (Piper & Frankham 2007; Kondo & Sjöberg 2012). Such studies typically assign centrality to verbal aspects concerning the photographs. The children in them, therefore, are usually of primary school, if not junior-high age. Researchers do not seek data on children’s photography, but how photography allows adults to hear them.

Even fewer studies investigate photography among preschoolers. Einarsdottir (2005), for example, studied preschoolers (age five to six) in Iceland via structured and defined photographic endeavors, as opposed to free, unsupervised activity. Subsequently, Einarsdottir (2008) used children’s photographs as a research tool in addition to group interviews, paintings and a questionnaire to elicit children’s opinions in an informal, entertaining way. An ethnographic study in New Zealand also investigated photography by preschoolers (age two to four) (Stephenson 2009). In Israel, a study on child photographers sought to use photos to strengthen parent-child relations with the preschool, again as a medium for children’s self-expression (Dayan 2011).

Researchers examine newer technologies, such as digital tablets, mobile phones and multi-application touch screens, in early education settings. They note these tools’ potential for developing digital literacy in early childhood, and their educational utility in introducing specific learning outcomes and engagement (Flewitt, Messer, and Kucirkova 2014; Fleer 2014).

Visual Literacy and Multimodal Learning

Various researchers agree that monomodal teaching, such as that based solely on verbal literacy, is not viable (Iedema 2003; Kress and Van Leeuwen 2001; Kress 2010). They also concur that in reevaluating education and the development of creativity today, it is important to understand the role of the visual and the multimodal space (Jewitt 2008). Similarly, Burnett and Merchant (2014, 47) state that outlooks and policies concerning literacy education should be challenged and revised, and that literacy should no longer be considered “singular and linear, a product of development and causality, always susceptible to categorization and in terms of fixed units.” They affirm the enormous importance of “recognizing and articulating complexity” in literacy education today (37).

Visual literacy is the oldest among the so-called new literacies, which include science, media, computer, critical, news and digital literacies. Visual literacy is a term which dates to the 1960s (Hobbs, 2011). Now, researchers have added multiliteracies and multimodal literacy to the list. The following definition of visual literacy recurs throughout the literature:

The ability to interpret, use, appreciate and create images and video using both conventional and 21st century media in ways that advance thinking, decision making, communication, and learning (Burkhardt et al. 2003, 24).

Digital cameras are well-suited to young children's education. Unlike analog photography, they offer *immediacy* of action and output, *feedback* for the child, and the ability to observe the photo created. The possibility of *uploading the picture to a computer and printing it* is also highly significant for early childhood. The quantitative *infinity* of digital photography, as opposed to the finiteness of analog photography, along with the technological possibilities of *sharing* the works online and using them to demonstrate children's special abilities or needs, are also cited as important advantages in educational work with photography and the camera in early childhood (Good 2008). In the next section, I describe the research methodology of the study, followed by a description of the curriculum and the findings of the study.

Methodology

The purpose of the study is to examine the possible connections between visual literacy in the preschool and parental mediation at home of joint photographic activities. I also aim to investigate the effects of educational work using cameras and digital photography on the experiences of children and the adults around them. The research was conducted in a preschool in a peripheral town in northern Israel. Most of the children's families are from the lower middle class and a third have immigrant parents from the former Soviet Union. Thirty children ages three and four took part in the project in Year 1; thirty-three did so in Year 2. The study included parents and a preschool teacher.

To understand a dynamic that unfolds during an entire school year over two successive years, a qualitative grounded theory research approach was used. The approach reflects the importance of studying the program in its context, in its natural habitus, and with emphasis on the full gamut of participants. The research principle is the use of multiple real-world research tools to amass copious data for intensive description, making the data key to understanding the phenomenon researched (Yosifon, 2001, 262).

The main research questions investigated are whether educational mediation by the preschool teacher and the parents amplify the children's learning and skills, and how teacher and parents perceive and describe the photo-based program.

The research tools include ten videotaped observations of educational mediation of the preschool-teacher and children about photographs. These filmed conversations were transcribed and analyzed according the underlying principles of educational mediation (Klein & Yablon 2008). These include *intentionality and reciprocity, transcendence, meaning, regulation of behavior, a feeling of competence*, and how these factors are linked to photographic activities conducted in the program.

I conducted semi-structured interviews with the teacher at the beginning and end of the research, two years apart. I solicited the teacher's assessments of and feelings about the program and the children's progress. Additionally, I sought her estimation of the program's contribution to factors that transcend its contribution to the child, e.g., the contribution to the preschool, the teacher herself and relations with parents. At the end of Year 1, a semi-structured meeting took place with a group of parents who volunteered to attend. Twenty parents came, investing free time in participating, and co-opting others for an examination of the preschool photography experience from their perspective. I asked the parents key questions and held a group discussion about the program. My questions involved how the parents felt about the photography curriculum in the preschool and how it affected their children. I asked them what were the most meaningful photography-related events of the year and whether they took part in the photography 'homework' given by the teacher. I also asked if they entered the preschool to see their or other children's work, and if they participated in Internet activities.

The interviews, conducted by myself, were recorded, transcribed and analyzed. The research received approval from the Chief Scientist of the Ministry of Education. All parents consented in writing to have their children photographed for the purposes of the preschool program and for this study as well. Nevertheless, I preferred in this article to insert photographs that do not allow the children to be identified or, in some cases, to blur their faces to maintain their privacy. Nutbrown (in Phelan & Kinsella, 2013, p. 86) states that blurring faces in studies involving children contributes to their 'othering' and should be avoided by researchers on the grounds of ethical values relating to research and knowledge and to people and their dignity. My decision to leave the children unidentified takes account of ethical issues that arise in qualitative research. These matters include the tension between the wish to protect participating children and the desire to let them express themselves fully. It was also prompted by local sensitivities and awareness of the meaning of a photograph in the children's diverse cultures of origin.

The Photography Program Introduces Visual Literacy

In the present study, photography is part of an entire program that spans a full school year and accompanies all activities. The early childhood photography program is based on the realization that formal curricula rarely invest more than marginal space in visual and multimodal literacy even though children in reality are growing up in a world of steadily growing complexity of representation (Millard & Marsh, 2001).

The program investigated here, intended for ages three to four, has two main goals: to educate, empower and protect children who are growing up in a world teeming with digital cameras and new communication media, and to impart creativity, visual-literacy and digital skills. The program is constructed so that all topics are taught by means of actual photography to children. The youngsters use digital cameras and/or devices to view photographs from other sources, such as teaching pictures that stimulate knowledge, interest, questions and discussion.

Five advanced digital cameras (Fuji 8600s) were purchased for the preschool and placed on a shelf where the children could get to them. This gives the children the feeling that they are experiencing real technologies, and are trusted to work the cameras and take care of them as adults do. Each child is free to walk over to this working corner, pick up a camera, and engage in unrestricted activity. For example, they document each other while two girls were role playing as patient and specialist, or engaging in other social activities during the school day. This intervention places technology in the children's hands, rather than just having a teacher use it or instructing with technology. This idea goes hand-in-hand with the access goal of media literacy education. The program also includes structured photography tasks tailored to subjects taught in preschool and translated into work on visual language.

The program additionally uses photography to establish a meaningful connection between the children and their families, the preschool environment and their community. The children, therefore, take turns bringing the camera home to co-opt parents and siblings into photogenic themes, e.g., a family meal, a trip, pets, and/or the nuclear and extended family.

An important part of the program is the children's encounter with photographic art that they discuss in class, with professional photographers who display and speak about their works, and when they and their parents visit a museum of photography together. Acquainting children with elite photographic artists and their works matches the Reggio Emilia educational approach, in which children are exposed to classical works of art at a very early age (Edwards & Willis, 2000).

The connection with the Reggio Emilia school of pedagogy recurs in the fact that the program is an ongoing year-long activity, genuinely engaging the children. Additionally, it emphasizes discussion of photographic and visual texts with the children and prescribes stringent documentation of the learning process and its outcomes. The adaptation of the Reggio Emilia paradigm is again manifested in the centrality the program places in children's empowerment and rights. It also stresses the importance of educational mediation, and strong parental involvement in the process, resulting in the creation of an equilateral triangle in the educational process (Jaruszewicz, 1994).

The children are event photographers at occasions such as birthdays or festivals. In the example below – the hosting of elderly people from a nearby nursing home at the preschool – the children make photographed portraits of the adults, print them and give them as gifts. Afterwards, the youngsters photograph an event in which the adults are shown holding their portraits. The result is a series of photographic actions in different genres and social activities surrounding this activity: creating the portrait of the adult, editing it on the computer, printing out the photo and placing it in a frame. When the elderly people visit the preschool, the children present them their pictures. Again, the children document the event. Afterwards, the photos of the child-adult encounter are mounted on the preschool walls and a loop of the series of photos plays on a large screen.



Figure 1. Intergenerational Classroom Activity with Photography in the Preschool Classroom

Findings

True to the spirit of the educational mediation approach on one hand, and visual literacy on the other, the preschool activities and photographic environment were tailored to the individual child's level of ability, interest and behavior. By the same token, however, they also have ambitious targets and pursue unconventional educational goals. These objectives transcend what one ordinarily expects to find in preschool activities, for children ages three to four. This applies particularly to independence and technological proficiency, but also in cognitive terms, i.e., the ability to infer, think about and analyze the photographic image. As a case in point, the teacher describes the improvement in the youngsters' visual-literacy abilities as evidenced by how they converse about a picture:

When a picture is placed in front of them, right away they look for what's [quotation marks] "behind it"; right away they delve into it. They really say everything. Unlike another boy who sees a child and a house, they know how to talk about a picture [...] [to find] a common denominator among pictures, what's different, what's exceptional. Sometimes they also speculate about what happened before or after. They do it automatically by now [...]. They figure out how to ask questions about pictures rather quickly.

According to the preschool teacher, the children gain confidence, responsibility and a sense of empowerment from being entrusted with an expensive camera that is perceived as a working tool for adults and not for children, let alone such young children. The cameras themselves have suffered no damage thus far, even though they are sophisticated and expensive, as Figure 2 shows. The teacher's confidence that the children would figure out the camera, learn by experimentation, acquire confidence and obtain operating instructions from each other has proved sweepingly correct. The children have become guides for one another.

In Figure 2, we see how children learn from each other how to disable the automatic flash mechanism and operate this function at their own initiative.



Figure 2. Peer Learning: How to Use the Camera

Analysis of the teacher's remarks shows that the very acquisition of confidence by means of the freedom to use the camera is a central value. It instills self-confidence not only in tangential fields, such as the use of other communication technologies, but also in other, non-technological daily practices such as preparing

a salad with a sharp knife. Despite the children's tender age, the teacher addresses them as people whose point of view – literally and figuratively – is the crux of the learning process. Her teaching method is open and dialogic, which is evident in her conversations with the children about the photographs and related activities. This is apparent in her comments in the interview about how she continually learns with the children and about their point of view.

The children develop the attitude toward teacher-mediated photography that the program provides both experiential play and a serious and significant learning tool, without contradiction. On the one hand, the children can pick up a camera and initiate independent work like any other unrestricted activity in the preschool and the schoolyard, as Figure 3 shows.



Figure 3. Camera Use During Recess

On the other hand, picture-taking activities are also structured. The teacher's mediation work is conscious, preplanned, and in each activity, is meant to develop children's visual and multimodal literacy, verbal expression and cognition. Concurrently, however, the program includes elements based on intuition and attempts to challenge the teacher's prior views on the children's abilities. This compels the teacher to be receptive to possibilities she had not dared to think about or had doubted at the beginning of the program.

The underlying premise is that skills and use of technologies *per se* are not the goal. Rather, by means of the teacher's mediation with the technology for what Vygotsky calls "developmental education," specific cognitive and educational goals may be attained. The idea of mediation that allows one to facilitate another's cognitive development by means of teaching and learning is expressed in all activities based on the development of specific cognitive capabilities that attend photography and visual literacy. Table 1 presents the way in which principles of mediated learning experiences (Kozulin & Presseisen, 1995; Kozulin, 2003; Tal, 2004) are translated into visual literacy skills in preschool, and photography activities at home with the parents.

Table 1
Principles of Mediated Learning Experiences in Visual Literacy and Photography with Preschool Children

Photography Activities with Parents	Visual Literacy Skills	Principles of Mediated Learning Experiences
<p>Access and Creation</p> <p>Task: Family members photograph their favorite place, animal and plant during a family outing. . They then compare the different choices.</p>	<p>Interpretation</p> <p>The children are aware that the teacher is interested in and relates to what they say about their pictures.</p> <p>In turn, the children are interested both in including her in their activity and in their peers’ photographs.</p>	<p>Intentionality/Reciprocity</p> <p>To turn the interactive situation from incidental into intentional.</p>
<p>Creation & Interpretation</p> <p>When children realize that behind every photo is a photographer who is not part of it, high-order understanding takes place. The children are asked to compare a photograph of their family with other families. They are then asked to draw a picture of the family, and realize that they are present in the drawing but not the photo. They thus discover the difference between a self-produced drawing and a photograph, and suggest how they can both photograph their families and be in these photos.</p>	<p>Interpretation and Appreciation</p> <p>Symbolic mediation: despite the fact that the photograph is concrete, it suggests activities beyond sensory perception. The children discover and construct new knowledge. through learning with the photograph and comparing it to reality. For example, the child chooses to photograph the same object in a series of photographs from a close-up to a long shot. They compare with the teacher how the eye sees the object with the camera’s view.</p>	<p>Transcendence</p> <p>Identifying the underlying principal and transferring it to different situations and tasks.</p>
<p>Interpretation</p> <p>The parents are asked to discuss each photography task with the children at home, and to write their related experiences and thoughts on the kindergarten’s Internet site.</p>	<p>Interpretation</p> <p>The teacher provides verbal, ethical and emotional meaning to the events in each picture. She assists the children in naming and explaining the emotions they observe, and defining their causality.</p>	<p>Meaning</p> <p>The mediator infuses stimuli, events or information with meaning.</p>
<p>Use and Creation</p> <p>Children and parents together decide what/how to shoot.</p> <p>This amplifies the young learners’ sense of competence.</p>	<p>Access, Use and Creation</p> <p>Taking pictures immediately provides children an ongoing sense of success.</p>	<p>Feeling of Competence/ Regulation of Behavior</p> <p>Educational mediator instills confidence in the learners’ ability.</p> <p>Adaptation of their actions is fitted to the exigencies of a task.</p>

Educational work with photography and conversations about it allow the preschool teacher to draw profiles of the children from an additional perspective. It enables the teacher to see the children from different angles, and observe new centers of strength, e.g., to identify unique points of view in the children's photographs. The photographs also allow the teacher to observe children communicating in a way that is not solely verbal, thereby giving her an additional tool with which to evaluate their cognitive, affective and creative development.

Example of a Small Group Activity

One example of a small group activity illustrates the intersections between visual literacy and media literacy through photographic analysis and production. In a practical photo assignment, the teacher presents pictures of a black-and-white cat. Figure 4 shows the teacher discussing what all the photos have in common. She asks children why the same cat looks different in each picture. The children speculate and hypothesize.



Figure 4
Why does the cat look different in each photo?

The youngsters conclude that the cat was photographed from a different angle, distance and background in each picture. The teacher then asks them to choose an object in class and to carry out a similar task: to photograph the object so that it looks different each time. They choose a teddy bear. The children take turns shooting and ask their peers for help. They then print out the set of photos, producing several pictures in each of which the teddy bear, like the cat, looks different.

Here the children busied themselves with a task that includes principles of thinking, problem-solving and coping with Piaget's principle of object conservation. They dealt with the realization, by means of this process, that even though the cat looks different in each photo, the difference is not in the object itself but in its representation in the photo. The children learned to associate the photographic representation with the actual object. They asked how they could create, with forethought, a picture that would represent the object that they actually saw from different angles. In addition, this task was derived from real preschool life and its success depended on cooperation among the children.



Figure 5
Children Create Different Photos of a Teddy Bear

The program is consistent with an additional idea of Vygotsky's: the link between the cultural meaning of the learning process and its historical context (Kozolin 2004). Pursuant to Vygotsky, one may say that its attitude toward current technologies – specifically, to the digital camera as a learning resource – acknowledges the camera's role as a material and constitutive part of 21st-century human culture and one of its main 'symbolic tools' (Kozolin 2003). This makes learning through the medium of the camera relevant within a historical, social and cultural context. This idea dovetails with the current perception of each literacy as a dynamic social practice that changes constantly within the *zeitgeist*, the place and the society of which it is part. (Falihi & Wason-Ellam 2009).

Parents as Mediators of Visual Literacy

The preschool teacher advised the parents to talk with the children regarding the photography activities, and encouraged them to participate in the tasks and question the children regarding their choice of what to photograph and the photographs themselves. She also asked them to write down their impressions regarding these home-based activities.

In the group-interview with parents in this project, the interviewees repeatedly express amazement at the fact that their children are expected to do much more than one would expect of youngsters of this age. In particular, they continually express utter surprise over their children's proficiency with the camera, noting that the preschool had not formally instructed the youngsters on its use. They also note the independence and pride the children feel about themselves. As one father remarks:

It gives the kid confidence [...] the confidence that he understands the camera. I went on a trip with him last week and people see a kid of this age standing with a camera confidently, like a professional photographer.

A mother spoke of her child's pride:

I'd like to add a word about an exhibition they had at the end of the year. You don't know what pride it gives a kid, every time we passed by there [...] every time he said, "Look, I took that [picture]."

Furthermore, the parents report that the photographic activities they and their children are told to perform at home enthuse the youngsters so much, that they are infected as well. Photography and photographs become topics and texts that inspire conversations at home or on family outings. In response to this experience, parents enlist collectively and actively in the preschool photography program. They develop an awareness of various ways in which photography in preschool contributes to their children in terms of personality, language, cognition and affect.

A mother, for example, noticed her daughter's visual curiosity about nature and her process of choosing how and what to photograph after being asked to document a family trip:

We went to visit a waterfall; there were also birds and cows there. It was hard for her to choose what to photograph. What I find interesting behind all this is why they choose one thing and not another. The inner thinking behind it is really interesting because it's something personal to them.

The parents discover, by means of their children's photography, emotional aspects of which they had not been aware. One mother, for example, was anxious about the dark scenes that her son chose to photograph:

For me there's something that's also scary; I don't know how to relate to it [...]. He chose dark; he took a picture of the darkness in the window. I don't know what it means. I don't know if this is good or bad. Of all the pictures he took in the house, he chose a picture of darkness. He lifted the chair. It was heavy for him; he's a little over three. He took the chair, moved the curtain in the kitchen, and photographed the darkness [...]. But why?

A father who studied his son in the course of the project discovered the boy's cognitive abilities, and reported a conversation between the two of them that developed after the photos were uploaded to his home computer:

None of us (parents) has time. But I had a few opportunities where he explained his photos to me. Afterwards, we went home, I downloaded the photos, and I tried to speak with him a few times, get him to talk. When he opened the photos, he started a conversation right away and explained why [...]. He already knew how to explain the difference t he had seen.

All parents except for one mother perceive their involvement in picture-taking assignments together with their children as a joint learning and creative activity through the mediation of the digital camera. They consider it both a positive and desirable form of enrichment and learning and an important new way to communicate with their children. Only one mother claimed that her son did not enjoy photography at all, and she had to argue with him to agree to participate in the home-based photography activity.

The parents point at the special connection created between them and their children around the photography activity, and the fact that photography helped them get to know their children better. In this

respect, this proves that common activities between preschool children and their parents, especially discussion, joint games and outdoor activities, strengthen their relationship (Havigerová, Šnoblová, & Truhlářová 2015).

The parents agreed that photography gives children the status of an equal – or at times a superior – in the dialogue with their parents. The parents experience this as empowerment, as one father demonstrated:

It shows us how myopic we [adults] are. I don't think it's [a matter of] age; even when I was twenty, I didn't know, for example, how to choose a direction with a digital camera, to face into the sun, to face away from the sun [...].

In addition to the family picture-taking activity, the parents are exposed to the preschool's website, to which the children's photos are uploaded. Each child's separate photo collection is displayed on an accessible shelf and presented to each child as a gift at the end of the school year. All special preschool projects to which parents are invited during the year are accompanied by photos or learning products derived from photos, e.g., the "My Family" theme and "Present and Past" family portraits together with grandparents. Parents can also observe children's photos mounted on the preschool walls in a revolving exhibition style, including works they recognize from homework assignments.

The parental mediation reflected in this study also provides conspicuous evidence of a contemporary strategy of parental mediation in the digital communication era. The photography-based activity between parents and children evolves into joint learning-by-creating, in which amateurs produce media texts. It is much different from the mode of the past, the passive consumption of programs – as on television – created for children by media professionals. This finding is consistent with recent studies that demonstrate the ability of parents to maximize the positive effects and benefits of media on preschool children and to mitigate their adverse effects and the price they claim (Kirkorian, Wartella, & Anderson 2008; Chakroff & Nathanson 2011). The advantages of mobilizing the digital media in support of parents and teachers for the nurturing of literacy skills also come into view, as Guernsey et al. (2012, 15) claim:

When used to spark joint engagement between adults and young children, and to help parents and teachers to deepen educational experiences, digital media have great potential to help all families, and especially vulnerable ones, make vital literacy connections anytime and anywhere.

The parents' testimonies in this study also reinforce March's (2010) assertion that parents should participate in joint creative practices with their children and not merely consider digital technologies useful for future purposes. By defining the homework assignments for the parents and accompanying them with explanations, the preschool teacher provided the support that parents need in understanding and learning how to utilize a digital medium (photography in this case) as a learning resource for their children (Guernsey et al. 2012). This also enhanced their awareness of the constructive power of this technology in their children's lives and the contribution that the joint photographic activity makes to them as parents. As one mother attested:

The first photography task I reported [to the preschool teacher] was very interesting. It was to photograph a series of evening activities at home: dinner, organizing things, going to sleep. I found it very interesting in its educational aspect, for example, a house that's disorderly. Taking a picture of it contributes to a house where this sequence of activities doesn't happen and how you make parents aware of it.

Discussion

Findings indicate that the curriculum studied here creates the desired dialogue between two previously disconnected fields, parental mediation and media literacy (Mendoza 2009). Although the “digital native” environment keeps changing, this study reinforces those who criticize the simplicity of this expression. The findings show that the mere acquisition of technical skills and access to technology does not give evidence of the concurrent natural and independent acquisition of information, learning, literacy and creativity among the young (Buckingham 2008).

This study demonstrates that along with skills and access, adults play a central role in the educational mediation of technology for preschoolers. It shows that photography at the preschool level contributes to children due to the centrality of the teacher’s mediating role in this activity. It also indicates that parents’ integration into the activity significantly created continuity and reinforced connections between preschool and home.

The combination of a photography-based program and the centrality of educational mediation gave children independence and control of technology, the ability to cope with photographic tasks at a complex cognitive level and to experiment in problem-solving. The adults involved in the project – parents and preschool teacher – repeatedly mentioned the concepts of creativity, confidence, responsibility and empowerment regarding the youngsters.

Conspicuously, photography lacks reliable experience and knowledge to estimate the young children’s ability to acquire picture-taking skills and work with photographs. From this standpoint, the process continues to play itself out in a process of adjustment to programs that use other media and, as stated above, trial and error. The educational-mediation process, however, showed that the children have greater self-capacity than expected when the program began. In this respect, a question that deserves further study concerns the agency of the child. In other words, is there a difference between free activities and free play with the camera, and educational mediated activities, in acquiring visual literacy skills?

In future studies it might be valuable to document and analyze parent-child conversations dealing with photography. The assumption here is that to understand learning processes, we need to focus on spontaneous child-parent discourse in the real family world, in addition to the products of structured homework defined by the preschool teacher. Future studies should also examine the influence of parental mediation on children’s development. Additionally, they should probe specific literacy skills and how joint parent/child activity contributes to acquiring these skills.

The children in this study live in a peripheral area amid a mixed population of immigrant and nonimmigrant Israelis and disadvantaged and privileged social groups. The empowerment of young children via photography, demonstrated above, strengthens the conviction that digital literacy be fostered at an early age. One hopes that digital skills will prevent children in distant areas from falling into a digital gap (Belshaw 2011). These skills will contribute to children’s future success in school in diverse arenas of learning, creation and communication. Thus, the findings here may enhance awareness among education policymakers of the advantages of invoking educational media, such as digital photography, in preschools and at home, and may even justify their expansion to newer visual media.

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