

This is an excerpt from the article

Digital Language Experience Approach (D-LEA): Using Digital Photographs and Software

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The full article can be found at http://www.readingonline.org/electronic/elec_index.asp?HREF=labbo2/index.html

Background Information

The Language Experience Approach or “LEA” is a reading instruction and literacy learning technique in which children describe personal experiences or activities, teachers write down the child’s words and teachers and students read those words together. The premise of this approach is that children begin to associate words that they can express orally with their written forms. LEA allows students to learn literacy skills through words that they generate, based on their own experiences, thoughts and interests.

Allen (1968) offers a perspective on insights that young children gain about literacy when they engage in LEA activities:

What I think about, I can talk about. What I can say, I can write down. What I can write, I can read. I can read what others write for me to read.

Stepping Into the Classroom: A Vignette

*It is mid-afternoon in **Ms. Maggie’s kindergarten classroom**, a time of day when small groups of children are usually at work in the computer center. However, on this day, the three computers have not yet been turned on. A box that contains a new digital camera collects a layer of dust on a nearby shelf. The children are busy writing about what they want to be when they grow up. Crayon pictures of football players, doctors, babysitters, and pop stars begin to take form on 18 pieces of paper set before the children.*

***Savannah**, a girl of middle literacy abilities from a middle-class white family, has drawn pink hearts and flowers around the edge of her paper -- a design she has copied from her Barbie doll t-shirt.*

***India**, a girl from a working-class family of color, has quickly sketched a stick figure of herself as a blond, blue-eyed elementary school teacher who stands before a class of a dozen smiling students. After writing a string of random letters below her picture, she attempts to begin a conversation with two girls she greatly admires but with whom she has been denied friendship: “Look what I did. It say, ‘I’m gonna be a teacher.’ What you be when you grow up, Tien-Tien?”*

***Tien-Tien**, a child of Asian descent with high literacy abilities, ignores India and focuses instead on Alicia, a friend who helps her spell the words she needs to complete a two-sentence description of the picture of her grown-up self as an astronaut floating in space.*

Ms. Maggie calls the children to circle time. She asks each child to dictate a sentence about her or his picture, which she writes on a chart. Ms. Maggie begins with Tien-Tien, who reads her sentences, composed with invented spellings, about being an astronaut. When it’s

Savannah's turn to speak, she says that she wishes she could be like Barbie, and that she will be a veterinarian when she grows up. Ms. Maggie then comes to India: "What shall we say about your picture? I want to be a...?" When India doesn't respond, Ms. Maggie points to her picture and tries again: "Is this you? What are you doing?" India refuses to participate and withdraws by stating firmly, "Don't know. I don't like it." The teacher moves on to the next child.

This vignette exemplifies a pivotal moment for us. We were three members of a research team in the final months of a year-long study of young children's opportunities for literacy development in a kindergarten classroom computer center located in a school serving diverse 5- to 11-year-old students from low to middle socioeconomic status families in a suburban area of the southeastern United States.

Reflecting on our notes made us aware of the tensions inherent within the complex interplay that occurred among the teacher's intentions for the literacy activity, the children's varied levels of engagement with the activity, and the resulting opportunities (or lack thereof) for children's literacy development.

The purpose of this article is to share insights that we gained into what we termed a **Digital Language Experience Approach (D-LEA)** -- the use of computers and digital photography to enhance Language Experience Approach (LEA) activities described above.

Computer Technologies Are Not Routinely Incorporated Into Classroom Literacy Activities

Multimedia features of word-processing and "creativity software" (tools for drawing, creating graphics, importing video animations, adding sound, utilizing speech synthesis, and writing) offer a unique means of support for young children's efforts to compose stories. Older students have also benefited from computer-related activities.

Photography in general, and digital photography in particular, also may have an important role to play in facilitating children's literacy experiences. Photographs are present in many school displays -- for example, in the form of images of a teacher or student of the week, snapshots of class speakers, images downloaded from the Internet for a report, or class photo essays of field trips. Photography has also been successfully used as an enhancement to the curriculum and to promote effective home-school connections. Other work suggests that middle school students' writing improves when photographs are included as an integral component of essays.

We realized that much remains to be learned about effective ways to integrate LEA with digital photography and creativity software in the early childhood classroom.

This article describes a strategy called the Digital Language Experience Approach (D-LEA), in which digital photographs become the basis for literacy activities.

Understanding D-LEA: A Framework

The **Digital Language Experience Approach (D-LEA)** consists of four key steps:

1. Setting up the experience
2. Photographing the experience
3. Composing a multimedia story or photo essay
4. Engaging in follow-up activities

Figure 1

What Is the Digital Language Experience Approach?

Setting up the Experience

a) The teacher or the teacher and student(s) together select a stimulus experience (teacher offers suggestions, scouts out a location, discusses expectations for students, gathers materials, decides the duration of the activity, etc.).

b) Teacher and students make decisions about picture taking:

- Who will direct photographing (when and which activities)
- The type of photographs that will be taken (candid or posed)
- The number of photographs to be taken

Photographing the Experience

c) Children engage in the stimulus activity.

d) Teacher photographs children engaging in the stimulus activity, using a digital camera.

Composing a Multimedia Story or Photo Essay

e). Children use digital photographs to prepare for composing by

- Importing photos into creativity software
- Viewing photographs and recalling the stimulus experience
- Discussing and selecting photographs that may best tell the story
- Arranging photographs in sequence or story board

f) Children compose a story about the stimulus experience:

- Teacher types student dictation for each photograph (or student types with teacher support)
- Teacher (or computer voice synthesizer, if available) reads the text
- Children decide if ideas are stated appropriately; if not, revisions are made on screen and on the spot
- As an optional extension, children multimedia effects to enhance the story (music, sound effects, animation)
- Children may record their voices reading the story

Engaging in Follow-Up Activities

g) Children interact with the story for additional literacy learning:

- Multimedia interactions -- children may read chorally with the multimedia story on screen, echo read, listen to the story read aloud by different voice synthesizer characters, etc.
- Teacher may make print-outs for each student to encourage reading at the word level and to promote fluency
- Stories may be saved on the computer or in print form as student or class sets of stories for review or as reading practice materials

Using D-LEA With Children of Different Literacy Abilities: Three Case Studies

This section relates three case studies of children's unique opportunities for literacy development during D-LEA activities.



India Re-visions Herself as Literate: “That’s Me! I’m Writing! I’m a Writer!”

“India is one of the kids in my class that I worry the most about,” Ms. Maggie commented during an interview as we observed India sitting alone in the wooden fort on the playground, sulking. “She’s generally a sweet child, but I’ve got tell you, she just totally shuts down if she thinks something’s too hard. I wish I could get her to try more -- to stick with it more. I think she’s capable, but I just wonder. There’s still so much about letters and sounds that she needs to figure out.”

Information from the assessment data in India’s classroom portfolio supported her teacher’s concerns. Indeed, data revealed a portrait of a child with low literacy abilities: some letter recognition, some sound-symbol understanding, poor concept of story structure, and anecdotal notes indicating her penchant for withdrawing when the work was too difficult. Our field notes and interviews with India also indicated that she desperately wanted to be accepted into the friendship circles of classmates she admired, primarily girls with high classroom social status and high literacy abilities. Additional teacher comments noted that India was “not making as much progress as her peers.”

From the very first D-LEA event, it was apparent that India enjoyed the status she gained among her peers by being chosen to participate in the project. As Linda and India walked hand in hand into the hallway, several children expressed interest in participating. “No! You can’t go. This is just for me. I’m special,” India bragged as she grabbed Linda’s hand just a little bit tighter. Over the course of the next several weeks, India and Linda explored different ways to approach D-LEA. They completed five D-LEA experiences, ranging from a one-session event that used literature as a springboard for an activity to a multi-session event that used classroom science unit activities as a source for a D-LEA photo essay.

In the initial one-session event to introduce India to the format of the activities, she and Linda read an ABC book that employed posed pictures of children doing things that represented each letter of the alphabet. India used creativity software tools to adorn a close-up picture of herself as a clown to represent the letter c.

Working in the public space of the hallway made India feel a bit cautious and concerned that friends, cousins who attended the school, or peers would have occasion to make fun of her face on the computer screen. Her need to feel that she fit in took on important dimensions. When a child from another class walked by and stopped to look at the computer, India tried to block his view. Afterward, Linda asked what was wrong. *"I don't want him to see me looking so goofy,"* India explained. *"I want to ask Tien-Tien [a girl she admired in class] to come with me. I'd let her see it."* Once the computer screen was repositioned so it was facing the wall, India became simultaneously intrigued and apprehensive about seeing herself in an altered format.



India's spontaneous comments, made while she added artistic embellishments to her photo, reveal an intense level of engagement that provided her with opportunities for learning more about the letter *c*.

C, C, C, C. C like a clown.... /C/, /C/, /C-C-C/.... Clowns have curly, curly hair. I'll make me curly hair with [India selects paintbrush function that creates multicolored pompoms]. (session transcript)

Linda recorded India's dictated sentence so she could remember the message upon subsequent viewings.

Each of the D-LEA experiences with India presented unique invitations into literacy learning that India accepted -- or at t least willingly negotiated. However, one experience was especially meaningful because it provided a breakthrough of sorts for India, an occasion for her to re- envision herself as a literate being. The critical event occurred on the last day of a one-week science unit study on rocks. Linda had taken six pictures of India engaged in unit learning activities as they unfolded. Sitting at the computer in the hallway, India selected and arranged an array of photographs on the screen until they were in the correct order (Figure 3).

Figure 3

THE STORY OF INDIA'S ROCK
by, India

(1) 'Hey. My name is India. We wanted to write a story. Once upon a time, my friend is Alicia. I am finding a rock.



(2) I would get my rock in my bag. And take it out in my friend named Tien-Tien. And my mom love me.



3. India had a paper. She was writing About rocks. I'm writing! I'm writing! I'm a writer!



4. I found my rock on the playground.

The following section of transcript of the event reveals India's moment of insight that occurred as she described what was happening in photograph 3:

India: [Speaking in a dictation-style voice] India had a paper. She was writing about rocks....

There is a long pause. India leans in closer to the computer screen. She stares intently at the photo of herself getting a pencil from a container.

Linda: What is it? What are you looking at? Can you tell me what you see?

India: [Taking a deep breath and pointing to the photo on screen] That's me. I'm writing! I'm writing! I'm a writer!

Linda: You sure are writing in that picture. What were you writing about?

India: I'm writing! That's me!

Linda: Uh huh. And what were you writing about?

India: About how I found my rock and it was on the playground, and...you know...I found it.... You was there, and you took the picture with the little camera and.... But that's me [pointing]. I'm writing! [pointing to herself]

Linda: So, what do you want to say? Do you want to say something else? [Pause. India doesn't respond.] So far you said, "India had a paper. She was writing about rocks."

India: Yeah.... Say, "I'm writing! I'm [verbal emphasis and a pause] writing! I'm a writer!"

The Digital Language Experience Approach provided India with occasions to gain insights into literacy skills and concepts. For example, she learned that literacy is an authentic expression of experience that involves multiple sign systems. She also learned about the letter *c* and sequence of events in an engaging and personally meaningful context. The D-LEA activities also provided a unique opportunity for India to re-envision herself as a literate being, capable of writing and reading. It is worth noting that this new self-concept appeared to foster a new level of confidence that resulted in India's willingness to participate more actively in literacy activities in the classroom.

Savannah: The D-LEA Adventures of a Busy Bee

Savannah's emerging literacies are what many would consider typical for her age and background. While discussing Savannah, Ms. Maggie assured us on a number of occasions that she was "doing just fine" and that she was pleased with her student's progress throughout the school year.

During the first months of the school year, we watched Savannah gradually begin to use the alphabetic knowledge she had acquired in earlier experiences with print at home and at school; by spring, she was consistently using the alphabet to represent initial and final consonant sounds in her writing, and she was experimenting with vowels.

In addition, she could write short sentences using her letter knowledge to invent spellings, and she readily recognized a number of pre-primer words in text. Savannah's sentences often accompanied illustrations that she created, a favorite activity in Ms. Maggie's classroom. Often this artwork highlighted Savannah's long blond hair and big blue eyes, aspects of her appearance that she and others would mention often.



When reading later in the school year, Savannah often used only initial consonants to identify words, a strategy that sometimes led her astray -- for instance, she would read the word "Bugs" as "Birds." She also relied on picture cues and her memory for the texts read aloud by Ms. Maggie during class choral readings. Savannah informed us that while she read, "Sometimes the pictures help, sometimes the words"

Savannah's emerging print literacy was also evident during an initial D-LEA activity that Jonathan worked on with her. Savannah had collected snapshots taken of her engaging in various daily rituals at home, for us to use as springboards for creating texts on the computer. One depicted Savannah posing, with book in hand, while sitting on her father's lap. She proudly informed us, "I'm reading my Daddy a story. I'm really not, but it looks like I am.... I'm not, I'm reading, but I don't know what I was saying [laughs].... I can see the words on that book. I can see the pictures." As these records and observations suggest, Savannah had not yet securely grasped all the principles of beginning reading, but was developing the abilities that would lead to success with print.



Savannah would refer to her D-LEA sessions with Jonathan as "adventures" and "exploring," appropriate terms for what they did together while collecting digital photographs in and around her school and then using them to create digital texts on the computer. Several interesting patterns emerged during these activities.

While making digital photographs during the initial D-LEA phases, Savannah would become what we would later describe as a "poser." She would guide Jonathan around the school hallways and playground, sharing spaces and objects that had special meaning to her (the class flower garden, the playground equipment, special bulletin boards, etc.). Once Savannah had pointed out these places and things, she would want to strike a pose for a picture, much as we observed she had done in the posed photographs she had brought from home. Rarely could Jonathan capture a spontaneous image of Savannah because she had a keen sense of when the camera was poised for action. She would usually put on her best picture-smile and patiently

wait for the image to be made. Never did Savannah want to take pictures. It was our impression that she was content being the center of attention.

During the “adventures,” Savannah was especially interested in relaying the structure and routines of her school. For example, on one occasion Savannah recited verbatim from a prominent school bulletin board: “Each day I will do my best to be respectful, be ready to work, and do my personal best....” She further explained, pointing to an illustration of her school’s bee mascot posted on that board, “Everybody in the school is a busy bee, and Ms. Tybee (the principal) is the queen bee.”

Savannah’s perception of schoolwork also reflected the industry of a beehive. During a D-LEA discussion, she informed us that if she were the teacher, she would have her students complete “sheets”. They have to listen, too -- that you can only say one time. And not say it again.... Like, uh, uh -- one time we did it and I got it right. Hmm, like when they’ve got different kind of flowers, and you say, color the petals red, and color the leaves yellow. And all that kind of stuff.” Perhaps Savannah’s experiences with Ms. Maggie’s regular routine of having students draw pictures and write short captions, along with her training as a busy bee, led her to formulate similarly captioned products while composing D-LEA texts on the computer (described below). In contrast, when Jonathan represented the recorded events to Savannah, she would usually show great enthusiasm, talking in detail about the pictures, and relating them to other experiences.

This was particularly apparent when Savannah was given the opportunity to “play” with her digital images. For example, while using the stamp set in the KidPix program Savannah exclaimed, I’m going to put the ladybug right...crawling up the bunny. One time I -- yesterday I was getting my shoes off the back porch, and you know what? I saw a thousand -- umm, shewww -- roly-polys and that was a whole family.... It’s a dragon fly [choosing an icon stamp from KidPix]. It’s going to be flying around [decorating her picture].... Oooh, cool! A snaily [finding another icon]. Snails are slower, right?”



During this and other sessions, Savannah would play with language as she worked with KidPix “stampys” such as “mouthos,” “picture manos,” and other “thingys” to communicate her ideas. She would rotate cartoon eyes pasted from the KidPix program so they would “look” at her classmates, place X marks to map locations on photographs of the playground, and adorn pictures of herself with kisses and butterfly tattoos. In addition, Savannah would play with the keyboard, shifting the alignment of text, hunting for letters and other symbols, and manipulating font styles and sizes. She copied print from around the room, such as when she labeled a picture of herself with the words *eyes*, *nose*, *mouth*, and *ears*, using as her model a classroom poster. She also delighted in the KidPix computer voice function that would read her created texts aloud to her, her friends, and teacher.

However, when invited to dictate story texts to accompany her photographs, Savannah was much less creative and elaborate, reverting to simple captions that mirrored her print text abilities. Although a number of attempts were made to assist her in transferring her rich oral language to print, Savannah was unable or unwilling to do so. The outcomes were captions such as “I am looking at Jeremy,” “I am sitting by the bunny,” “I am balancing,” and “I am reading to you.” When invited to elaborate, she would typically reply, “That’s all I have to say. What do *you* want to say?” On several occasions, Savannah wanted to type these messages, tasks that were generally within her abilities and experiences (she had informed us that she regularly used word processing on her home computer). Savannah would search the keyboard making

letter and speech sounds to form her printed captions, and when this strategy did not work, she would ask Jonathan where a specific letter could be found or for spelling assistance.

In addition, there was little evidence that Savannah realized the possibility of crafting these digital photographs into a cohesive story, although storybook modeling and structural suggestions were given to her during the D-LEA sessions. She looked at each picture creation as distinct and complete, much like the captioned illustrations she frequently created in class.

Her lack of storybook coherence may also be a result of additional factors. First, it seemed that Savannah might have had difficulty grasping the storybook format in the computer software program. KidPix offers small thumbnail preview pictures of the slide show sequence that serve as memory markers. Although this mnemonic may be an adequate tool for many children, and certainly for older ones, Savannah had difficulty remembering what each small thumbnail represented. This could certainly have affected her story sequencing strategies.

It is also important to note other technological difficulties that emerged during Savannah's D-LEA sessions that interfered with the flow of events. Savannah used classroom computers for her compositions (the two other cases presented here employed laptops that were more sophisticated). Although the older classroom computers contained adequate resources and features, according to the software manufacturer's guidelines, none of the three computers in Ms. Maggie's classroom performed very well with this multimedia program. On several occasions, work was lost when the computer crashed -- or, as Savannah would say, when "it's froze again." This was especially problematic when Savannah had invested a good deal of time decorating a photograph or composing a sentence. Nevertheless, from these problems Savannah learned an important computer lesson, reflected in her chant as she later completed her screen compositions: "Save, save, save."

Despite the challenges that Savannah and Jonathan faced with the classroom computers, their D-LEA experiences together were meaningful ones. First, they provided an authentic instructional setting in which Savannah could use and practice her developing technical skills, such as her letter-sound knowledge, keyboarding, counting, punctuation, and mousing. Second, they provided her many opportunities to practice her reading, sharing the texts she had written, both with Jonathan and with her classmates and teacher. These reading events were engaging for all, possibly because of the tangibility of the digital photographs, or perhaps simply because of the novelty of the digital experience.

Finally, and perhaps most important, the D-LEA activities enabled Savannah to learn and practice multimodal ways of expression. As she navigated through the D-LEA events, she sought out personally meaningful subjects for her picture compositions, stamped and decorated these pictures, drew arrows that pointed out pictorial elements, wrote words conventionally and sideways, made up language to describe computer functions and her actions, changed colors and fonts, used computer-synthesized language, and constructed elaborate oral narratives about her products. Once the school year and the D-LEA sessions had come to a close, Savannah not only had a good early grasp of these multimodal skills, but she also seemed greatly motivated to use multimedia, combined with traditional print literacy, for creative communication.

Tien-Tien Takes Control of Her Learning: "Oooh! I Want to Write!"

"I'm almost in first grade. I like to play. You need to write. You need to read, all by yourself, and write all by yourself. I can just read easy books. There is one hard book that I know, but it's skinny. I don't know the

name. I forgot. I like thick books and skinny books. I'm trying to read thick books. [My favorite type of story is] Dr. Seuss because they are easy too, but they are thick too. [My favorite Dr. Seuss book is] Green Eggs and Ham, but I have the book. And I know how to make green eggs, because they have a little kind of book, that's thick, and you can make it. It tells you the directions. They really taste good."

-Tien Tien

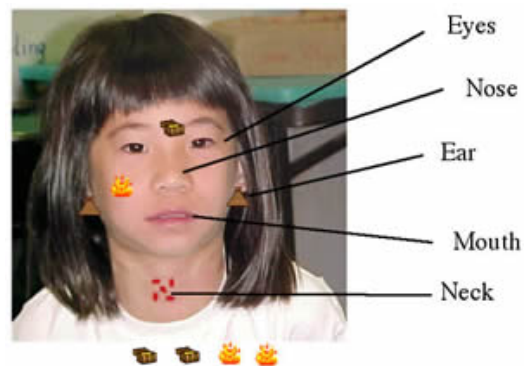
Tien-Tien was a 5-year-old kindergartner whom Ms. Maggie described as having high literacy abilities. Her teacher based her evaluation on information collected from informal reading diagnostic assessments such as the Basic Literacy Test, Book Handling Skills Test, and, of course, by observing Tien-Tien interact with text in the classroom. Ms. Maggie indicated that Tien-Tien was independent and a leader among her peers. Tien-Tien was able to read many words and used multiple reading strategies (context clues, picture clues, and graphophonemic connections) to figure out unknown words.

During the D-LEA sessions, Tien-Tien was constantly interacting with printed material. She would read signs on the walls and words on the computer screen, and she would ask what a word said if she was unable to read it herself. Overall, Tien-Tien was excited about reading and learning from text. The preceding quote from the transcript of a D-LEA session in May certainly attests to her enthusiasm for and knowledge of reading.

Tien-Tien was born in Taiwan but came to the United States before the age of two. She speaks primarily English at home with her parents. When Kristiina probed her to speak some Chinese, Tien-Tien became embarrassed and did not want to say any words, although she did say the months of the year when looking at a photo of herself in her kitchen in which a Chinese wall calendar was visible. Tien-Tien seemed to have an ear for noting subtleties in the sounds of language. Some minutes after Kristiina was first introduced to Tien-Tien she asked, "What other languages do you speak?" Kristiina was intrigued by her question because she does in fact speak English, French, Finnish, and Spanish. Kristiina asked her why she asked the question, and Tien-Tien simply said, "Because you don't sound like everybody else. You have an accent."

It is possible that Tien-Tien's contact with other languages also contributed to her ability to play creatively with language. During the D-LEA sessions with Kristiina, Tien-Tien would often invent words. When probed, she would offer consistent explanations of the words -- for example, "boochie" was a dinosaur, "foochie" was a French name, and "poochie" was a cuckoo bird.

After establishing rapport with Tien-Tien, which was not difficult to accomplish considering her friendly and sociable nature, Kristiina and she shared a literacy experience using a book about the diversity of the United States. The book contained photographs of faces of children representing different races, ethnicities, and cultures. Kristiina hoped that the book would motivate Tien-Tien to use digital photographs of herself, the KidPix stamping feature, and narration and labeling to describe different elements on the photographs -- as was done in the book. When Kristiina and Tien-Tien began to label the photograph, it became obvious that Tien-Tien was participating in the activity to please Kristiina. Simply describing the picture was not sufficiently complex for Tien-Tien. It was obvious that she needed to be challenged more.



Tien-Tien became more engaged with the activity when she took control of writing the sentences, and still more engaged when the element of recording her voice reading the text on the computer was introduced.

Tien-Tien took control of the keyboard, nearly pushing Kristiina off her chair in order to gain access to it. She immediately started to compose her sentence, searching for the letters on the keyboard, and writing words. She would ask, "Where is the A? Where is the T?" and used her scanning skills to find the letters and compose her words and sentences. Tien-Tien solicited little assistance from Kristiina when composing her thoughts. After a few practice rounds reading the sentence, Tien-Tien recorded her voice using the recording feature on the KidPix software. This session gave Tien-Tien the opportunity to use the KidPix software to create an interactive text, and she could immediately see and hear the fruits of her labor.

In early May 2001, Tien-Tien and Kristiina took a walk in the schoolyard with a digital camera and tape-recorder in hand. The walk began just outside of Tien-Tien's classroom and was initially directed by Kristiina, but soon Tien-Tien began to lead the way. During this 90-minute stroll, 17 digital photographs were taken and discussions occurred around each photograph. Tien-Tien was very eager to work with some of her favorite classmates, so Kristiina told her that a slide show of the photographs and descriptions could be showcased for a few of her friends. She was excited about this possibility.

A few days later, Kristiina returned to the school to see what kind of sentences Tien-Tien would dictate based on the activity. It was interesting to note how Tien-Tien dictated the description of many of the photographs, recalling the talk that occurred when they were taken. In this case, knowledge was constructed socially between Tien-Tien and Kristiina, within the context of Tien-Tien's experiences in Ms. Maggie's classroom.

Consider the following conversation, which occurred between Kristiina and Tien-Tien and revolves around a photograph taken by Kristiina of Tien-Tien blowing the seeds of a dandelion (Figure 5):

Figure 5



I blew a dandelion with my mouth. I had a wish and I would not tell Kristiina or my dream would not come true.

Kristiina: What was that? What did you just blow out?

Tien-Tien: A dandelion

Kristiina: A dandelion. Did you make wishes? You know when I was a little girl...

Tien-Tien: I can't tell you my wish!

Kristiina: No, you can't tell me, but did you make wishes?

Tien-Tien: Yeah, but it was in my brain.

Kristiina: OK.

Tien-Tien: If I tell you that wish, ahm.... Do you know what? It won't come true.

Kristiina: It's best to keep the secret inside.

Tien-Tien: Yeah, then it'll come true.

Kristiina: Mmm hmmm. Have you ever made a wish and it come true?

Tien-Tien: Yeah.

Kristiina: Yeah? Are you allowed to tell me that one?

Tien-Tien: No.

Kristiina: No? Even if it came true?

Tien-Tien: Yeah.

Kristiina: You won't tell me?

Tien-Tien: Nope.

When Tien-Tien dictated a sentence about this same photograph to Kristiina, she reconstructed the conversation, saying "I blew a dandelion with my mouth. I had a wish and I would not tell Kristiina or my dream would not come true." This session also offered Tien-Tien the possibility of editing her text. As she was composing her sentence, she uttered "blowed a dandelion," but after some reflection and rereading, she corrected her error and asked to change the word to "blew." When she reread the sentence during the slide show presentation to her classmates, Tien-Tien miscued the same word, saying "I blowed a.... Ble.... I

blew a dandelion with my mouth. I had a wish, but...and I would not tell Kristiina, or my wi...dream would not come true.”

The D-LEA activities offered Tien-Tien the opportunity to use the digital camera and the computer software in an authentic fashion. She had little difficulty using the mouse and orienting herself on the computer, perhaps because she had practiced computer skills on a toy computer at home. She was able to navigate through the KidPix computer software by recognizing certain words and clicking to execute her plan: for example, she was able to recognize the word “stamps” and figure out how to use KidPix’s stamping function with little assistance. She had to be reminded where to click the mouse, but once she was guided a little bit, she took control of the activity, changing stamp pads and stamping many of the photographs with designs. The stamping designs then became part of the dictated sentence, mixing exposition with a narrative genre. The D-LEA opportunity allowed Tien-Tien to interact with text—either using the keyboard to write her own sentences or dictating them to Kristiina and reading them out loud. The experience offered her opportunities to attend to punctuation, read sentences that she either wrote or dictated, prepare for an authentic literacy experience with her friends, and allow for her friends to offer feedback on her efforts.

When Kristiina asked Tien-Tien’s friends what they thought of the show, they said, “It’s beautiful” and “I think it was good.” Commenting on the D-LEA experience, Tien-Tien herself said, “KidPix! YES!!! I love KidPix. Let me do it!”

Considering Classroom Implications for D-LEA: What We Learned

The case studies indicate that kindergarten children of varying literacy abilities have unique opportunities for literacy development with digital photography and creativity software are employed in one-on-one D-LEA experiences. In addition, it is clear that adults play important roles in D-LEA activities as facilitators who provide effective activities, model the use of technology tools, elicit descriptive language, are responsive to each child’s lead, target the child’s literacy strengths and weaknesses in a meaningful context, and support the child’s primary discourses and interests.

Features of the computer technologies employed served unique functions:

- Technology allows quick access to photographs through use of a digital camera
- Digital photos serve as a memory link to a child’s experiences (including those experiences that occurred over time)
- Digital photos are tangible prompts for descriptive language
- Digital photos are a tool children can use to organize a sequence of events
- Children can manipulate digital images for various purposes (e.g., stamping a portrait, labeling a diagram, writing a story about a photo)
- Multimedia interactions support development of multiple modalities for communications
- Software supports recursive and on-the-spot revising
- Voice synthesizers that read on-screen text make stories accessible to children who cannot read conventionally
- Publishing features allow children to engage in follow-up activities at their skill level

Future research is needed to gain better understanding of the dynamics involved in small group D-LEA. Research questions might include the following: What are young children’s opportunities for literacy learning in small group D-LEA? What roles do adults play in small group D-LEA? What are the social affordances or constraints for children of varying literacy abilities in small group D-LEA?

In closing and with grateful acknowledgment to Allen, we offer this enhancement of his words to highlight how D-LEA can contribute to literacy learning:

What I think about, I can talk about. What I can see in a digital photograph, I can talk about and remember. What I can say, I can write down. What I can write down, I can revise on screen. What I can write I can read or have read to me by the computer. I can read what others write for me to read.
