

# Language Games, Digital Writing, Emerging Literacies: Enhancing kids' natural gifts as narrators and notators

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## SUMMARY

*Children express themselves in a “hundred languages” (Malaguzzi & Al., 1987). They speak in gestures, words, and images, and they use whatever they know in one language, or modality, as a lever to increase their fluency in others. Children also combine media, such as drawing, writing, or acting as a means to cast and convey what they mean. This paper focuses on the paths that bring the growing child to becoming literate, in a broad sense: from being a narrator to being a “notator”, from being a listener to being a reader. While this is a fascinating journey, it is also a hurdle to many children. The contention of the paper is that digital technologies are instrumental in changing how youngsters move between speech and writing, and how they merge gesture, word, and image in their textual productions, thus challenging the very foundation of what it means to be literate. Today’s “clickerati kids” invent their own new ways to assemble and contextualize text, and to link voice to word, and author to audience: Arranging tangible story-bits (recorded speech “capsules”) into story lines (edit speech) and, conversely, engaging in written dialogues with remote net-pals (write to speak) are some of the promising venues that I explore in this paper<sup>1</sup>.*

**KEYWORDS:** *Language games, digital writing, literacy, narrative competence, (con)text.*

## INTRODUCTION

To a 3-years-old, it is not very different to enact a scene, to mimic a character, or to tell a story. In their pretense play, children set the stages and build the props that enable them to revisit, recast, and play out their fears and fantasies. Children also like to tell and listen to stories and, before they know to read or write, they become fascinated with the marks they leave behind and the signs around them. Preschoolers scribble and recite, and they treasure their first books for the stories they conceal (Ackermann & Archinto, 2001)

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<sup>1</sup> An extended version of the paper appears in Ackermann E. (2001). Bambini Digitali, Strumenti narrativi, scrittura dialogica. In *.TD.Tecnologie Didattiche*, n.24, numero 3, 2001, pp.24-48.

Obviously, there is more to being a narrator than engaging in pretense or role play, and there is more to becoming literate than casting speech in stone or encrypting on a piece of paper the voice of the story teller (Bruner, 1984).

Child psychologists and linguists have long studied children's ideas about—and spontaneous uses of language, both spoken and written (Bettelheim & Zelan, 1982; Bruner, 1984; Ferreiro & Teberosky, 1982; Ferreiro, 1988; Karmiloff-Smith, 1992; Sinclair, 1988). And many great educators have opened venues to help children speak "in a hundred languages" while, at the same time, learning to appreciate the benefits of 'saying it' (or playing it) within the bounds of a given medium, thus keeping "its" integrity as a means of expression, or language (Freynt, 1969; Malaguzzi & Al. 1987, 1989; Strickland & Mandel Morrow. Eds., 1989).

The approach I propose, then, is to take a short incursion into young children's views and uses of speech and writing (or more generally enactments and notations) in different contexts, or language games. I focus on how the playful engagement in such games enhances the child's abilities to speak in "a hundred languages". I show that moving between contexts teaches a child which languages are more appropriate in which situations. I point to some of the ways in which children keep traces of meaningful events (Sinclair, 1988). Drawing from Ong's concept of secondary orality (Ong, 1982), I then gauge the potentials of digital technologies to support "literacies beyond print" (Olson, 1994). Digitally mediated transactions, I contend, provide new occasions for children to indulge in dialogic writing, or text-based speech, thus using their fascination for distant-chat as a lever to reinvent their role as writers (Lankshear, 1997). Alias, as children become increasingly infatuated with netting, mudding, SMS-ing, and spriting (speech-writing) they contribute entire new genres of textual productions, which, if we know how to listen, in turn help us rethink what it means to be literate! (Ackermann, 2005. In press).

The paper is divided into two sections.

In a first part, I speak to young children's natural talents as narrators and "notators", and I address some of the trade-off between speech and writing, from a child's perspective. I wonder what happens as youngsters enter school and are enticed, sometimes *the hard way*, into reading and writing. How do youngsters reconcile the competing worlds of speech and writing? How do they move from one to the other?

In a second part, I discuss some of the ways in which digital technologies can be used to help children simultaneously play, build narratives, record stories, and experiment with media. Narrative-based environments such as text-based social virtual environments, electronic puppeteering, tangible story-tellers and story builders support what Ong refers to as "secondary orality", or dialogic writing, a seamless—and hopefully joyful—journey in the interstices between narration and notation, text and context, voice and word.

## WRITINGS BEFORE THE LETTER<sup>2</sup>

Children primarily use words, written or spoken, because they want to be heard. They tell their stories to those willing to listen—and they soon become silent if their gift is not received, if their words echo in a vacuum. Children also use words to evoke distant or imagined events, to elicit desired responses from those whose opinion counts, and to give and negotiate orders.

Before they enter school, most children are fairly good *narrators* and eager *notators*. Both these competencies appear and evolve in conjunction. On the one hand, young children like to be in touch with things and in tune with people. They like to be present in the here-and-now (when and where the action happens). On the other hand, even very young children are equally eager to explore the thrills of doing things from afar, or for later uses. Preschoolers start to scribble before they know how to write, and they recite before they know how to read.

It comes as no surprise that children as young as 2 to 3 become fascinated with keeping traces and trails as they gain mobility and wonder off the world: doing so helps them retrace their paths and find their way back (Hansel und Graetel). In addition to keeping track of where they go, preschoolers also like to put their mark on any support able to register it. And early on, children develop on their own theories on what it takes for a mark to be a word, and icon, or a digit (Ferreiro, 1988).

Speaking in a hundred languages, in sum, requires that the child achieves a viable balance between two apparently competing calls: that of remaining connected or in tune with people and things—speak or act in situ—and that of venturing off and doing things at a distance, for later uses, or to find one's way back.

### Language games

Children's engagements in dialogic transactions are multiple and varied: from casual dinner table conversations to self-speech with imaginary companions, from bedtime story-reading/telling rituals to pretense and role-playing games with dolls and other children.

Each context comes with its own rules and constraints, and offers unique occasions to explore the power of words. Each calls for its own level of engagement and trust that the words, spoken or written, will be heard, and used to evoke the ineffable and to elicit desired responses from interlocutors, real and fictional. Allow me to give a few examples in the form of short vignettes.

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<sup>2</sup> "Writing before the letter" is the title of a paper by Ferreiro (in French: *l'écriture avant la lettre*)

- Vignette 1: To participate in a dinner table conversation requires learning a set of rules that govern who gets the floor, initiate a topic, what kinds of gestures can and can't be used, who can interrupt whom, who has the final word, where slang might be appropriate.
- Vignette 2: Playing with other children or with dolls, on the other hand, a child may well bend all the rules and conventions of the dinner-table conversation and explore the *performative* and *transformative* powers of words. The child may now use a word as a command and request that her playmates fall to the ground when she declares them dead, or that they otherwise comply when she gives them orders, giving in to her wish for omnipotence!
- Vignette 3: Story telling rituals offer yet another dialogic setting: a very special time when children, comfortably installed in their mothers lap, are guided into imaginary worlds through a combination of sounds, their mother's voice, strings of world on a page, and images. That's when children learn to recite texts they can't yet read, and to use words or images in a book as placeholders for the stories they conceal. That's when kids, as young as 3, insist: I'm gonna 'read' it to you, and start improvising by following with their finger the marks on the page. They become fascinated with pretense reading.
- Vignette 4: During the same time, around age 3, many children also engage in pretense writing and, as mentioned earlier, become fascinated with leaving traces. They scribble whenever they can, wherever they can. Their productions resemble bundles of curvy curly lines that in their minds stand for letters, words, numbers, or sentences. "Can't you see", they tell you: this [my scribble] says: "the cat". It doesn't show: the cat, it says: "the cat" (Karmiloff-Smith, 1992). The children are no fools: they know the difference between a word and a picture. This doesn't mean that we, adults, will be able to tell the difference, or that they won't use both word and image, side by side, to augment their expressive power.
- Vignette 5: A bit later, starting about age 4, children start writing shopping lists, letters to friends, using onomatopoeic strings of scribbles. Studies by Ferreiro and Teberosky show that these "writings before the letter" are indeed very principled to those who know how to decipher them (Ferreiro and Teberosky, 1982). Still later, starting at age 6, kids move into "invented spelling". Again, these productions may be hard to decipher to an untrained adult, but they constitute a legitimate convention as long as they are understood within a targeted audience of 'readers'. Note that it is only when children are genuinely interested in addressing their messages to a wider audience that they become eager to play the game of tightening conventions (Freinet).<sup>3</sup>

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<sup>3</sup> Note 1: A more detailed presentation on the genesis of children's spontaneous appropriation and uses of writing and notations can be found in Ackermann (1990, 1992, 1993, 2001 )

Without playfully experiencing the powers of words, spoken or written, in many contexts, little incentive later on, to go through the hard work of deciphering all those enigmatic graphies cast on mute sheets of paper (Ackermann, 2001, Archinto, 2002).

### **School literacy**

Now, what happens to many children when enticed, sometimes the hard way, into the world of print, the silent and inert trace of their sensuous speech or playful scribbles, divorced from any dialogic context? Well, the passage can be abrupt and, contrary to widespread believe, it is especially hard for good conversationalists (Teale & Sulzby, 1989). Many youngsters who have happily learned to ground words in speech and performance, and to modulate speech according to audiences, are suddenly at a loss. Their abilities to express themselves in "a hundred languages", picking whichever medium best captures their ideas won't suffice. In Stevenson's words: "to pass from hearing literature to reading it, is to take a great and dangerous step (...) Those who once read aloud to us sang to their own tune the books of childhood. Whereas once we can read for ourselves, we have to approach the silent inexpressive type alone" (Donaldson, 1984).

From a child's perspective, it is perfectly legitimate to wonder, when faced with the hardships of producing or deciphering print: Why should I write it when I can say it? Why read it if I can be told? Obviously, from an adult's perspective, things look different. Adults know that access to literacy fosters personal and societal growth, and that people's ability to put the word on paper has paved the way to entirely new forms of reasoning, otherwise impossible (Olson, 1994). This is why many adults, parents and caretakers, get upset when their children question their passion for books, or challenge their views on the benefits of the printed word.

The passage from oral to written communication, while bringing about priceless gains, also entails deep losses, often ignored by educators, researchers, or parents (Ackermann, 1990). Writing separates author from audience, audience from the site of the plot, and word from voice. Print is silent and cold. It casts speech in stone. Speech, on the other hand, is an integral part of human performance, and punctuates a narrator's action as it unfolds. Speech bridges what is said to who says it, and who says it to how it is voiced. Speech allows narrators to sing their tunes, to respond to their audiences, to be actors in a conversation (Ong, 1982).

### **LITERACIES BEYOND PRINT**

The passage from speech to writing can be a difficult passage, not just for children who grew up in dominantly oral traditions but, closer to home, for "digital" kids who zap, surf, converse over the phone, and chat on-line with their virtual (geographically removed) net-pals. In what follows, I highlight some new forms of literacy that emerge

from the children spontaneous interest—and growing fluency—in digital technologies. These literacies, referred to as written speech or dialogic writing, are *hybrids*. Their characteristic is to bring text back to context, utterance back to speech acts, word to voice, author back to audience.

In a narrow sense, a text is a passage of print, or a slice of speech frozen in time and space, and largely cut off from its uses. In a broader sense, however, a text is always embedded in a dialogic context. This is why becoming literate requires an awareness of pragmatic issues, such as who "speaks" to whom, and why. This is also why, beyond syntax and semantics, being literate involves both de-contextualizing and re-contextualizing "text".

Of particular importance in this discussion is Ong's concept of *secondary orality*, "in which a new form of orality is sustained by telephone, radio, television and other electronic media that depend for their existence and functioning on writing and print (Ong, 1982).

### **Digital tools for dialogic writing**

In the remaining sections, I speak to the potential of digital technologies as a means to foster literac(ies) beyond print, based on the concept of "secondary orality". Of particular relevance in this context are text-based story telling and role playing environments, as well as environments that enable to switch from text to voice (ex: type in words and get out sounds) and to use text as commands (ex: edit a story). All provide new ways of integrating speech and writing and navigating between oral and literate (Ong, 1982). All do so by reconnecting authors to their audiences / interlocutors, and by bringing audiences back to the site of a plot.

To illustrate my point, I present two kinds of digital *playpens* designed to contextualize writing while, at the same time, allowing to record and/or register speech [keep track], and edit spoken or written story elements (build linear sequences of rearrangeable story-bits). Based on research by Bruckman (1999), Umaschi (1986), Umaschi, Ackermann, & Al (1998), Annany (2001), Shankar (2005), and Montemayor, Druin & Hendler (2000), these playpens are both engaging to children and help us shed light on *how* text-based and text/voice-based environments for distant-chat, story-telling and role-playing facilitate authorship through dialogic writing.

- Tangible Toys: Story-tellers, Story-builders, Story-writers, Story Readers

In order to communicate successfully, whether through spoken or written language, children must acquire the ability to sequence story elements into a linear coherent manner (Ananny, 2001, Shankar, 2005). This, in turn, calls for elaboration spaces (playgrounds) in which the children can mess around with story elements, combining and recombining them until they form meaningful configurations (or sequences). For

younger children, the available story-fragments [“frozen speech ‘capsules’] gain to be tangible for the purpose of rearrangement [easy manipulation], and interactive for the purpose of responsiveness [immediate reliable feedback]. Tangible story-tellers/builders/listeners/readers can help younger kids, age 3 up, to create and organize narrative events embodied in tangible building blocks, like digital tiles, images, cards. The following are two good examples of kids’ tangible Tale-Telling-like-Toys: **Tell-Tale** (Annany, 2001), **Sprite** (Shankar, 2005) **PETS** –Personal electronic teller of Stories [see in *Robots for Kids*. Allison Druin and James Hendler. P.73-107].

- Virtual Worlds: Netting, Mudding, Electronic Puppeteering

E-mail and other on-line “messaging” services allow older kids (7 up) to join in virtual communities. Participants can send and receive messages using text editors, which allows them to compose/edit on screen, move text around by cutting and pasting, reconfigure, rearrange text. Kids can also send images, sounds, and build composites. Netting is often used in schools as a way to help kids who like to be “connected” to engage in writing. In social virtual environments, or MUDs, participants engage in anonymous role-play, enacting multiple characters, putting on different masks, exploring aspects of themselves otherwise unveiled . What’s particular about MUDS, as compared with other role playing games, is the intricate connection between users and their avatars, or VR inhabitants, and the immediacy and unpredictability of other player’s response to one’s virtual appearance. Attached to their avatars like a puppeteer to her string puppets, players act and feel through them. Avatars are both built by the puppeteer and brought to life by her. Players can endorse multiple personae and launch them into different habitats at the same time. People’s ability to put on multiple personae is not new in itself, and has its off-line equivalents in adult psychodrama and face-to-face role play. What’s different in VE, is the ubiquity of self-appearances. It’s like being in two “bal masqués” at once or maintaining parallel streams of conversation. Along with Turkle, I think that text-based SVE, enriched MUDS of sorts, can be used to help older children engage in playful dialogic writing with removed players under disguise.

- EX. 1: **MOOSE Crossing** is a text-based mud created by Amy Bruckman in which kids can converse, exchange gestures, and express emotions in real time. Kids describe places using words. They use typographic conventions like emotrons to replace physical gestures and facial expression, and they use onomatopoeic expletives and often ignore spelling errors<sup>4</sup>. In *Moose Crossing*, words and

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<sup>4</sup> Note that while most adults deplore youngsters’ increasing indifference to spelling errors, kids nowadays learn to spell in new ways. Like many of us, they set the spell checker of their word-processor on “signal” mode and fix underlined words as they write along. Sometimes they find the right spelling by themselves. Sometimes they look it up. More often than not, they learn quite a bit, and effortlessly, as a result of using a spell checker.

programs are intimately connected. Words are used to describe things, and as commands to trigger interesting event. Words here are used as keys to trigger actions and events. Children's experiences on MOOSE Crossing take place in a web of social relations. Their writing is both multi authored, ephemeral, and a string of verbal commands to transform the world. All happens *in situ*.

- EX. 2: E-Puppets Story-writer/teller SAGE\_Designed by Marina Umaschi Bers and Justine cassel at the media lab, SAGE is a digital puppet show of sorts, in which children are the users as well as designers of storytellers. They interact, through a text-to-speech conversation, with existing characters (with their repertoire of stories). They can also create their own characters. In order to create a believable storyteller, children need to situate the character in context, to plan what it will say, give some background information about its persona, create the underlying conversational structure and set the conditions in which the exchange of stories will happen. One of SAGE's characters is a soft rabbit that lives outside the scen..

A pilot study that Marina and I conducted at children's hospital, using Sage, has allowed us to group children's creations into three categories depending upon "What persona the narrator choose to take on", or to "embody into other characters", i.e. "what stance in the world the narrator takes. These characteristics seemed to vary with the mindset and health condition of the children.

- In direct mode, kids use first-person description, and want the rabbit to speak back to them in their own voice. The represents them to tell their stories to the world.
- In mediated mode children embody aspects of them selves into another character. They use the second-person descriptions and favor anonymous computer-voices to render "its" narration. They then interact with it.
- In differed mode, kids became playwright or choreographer of two character's interaction. They created characters who may have represented aspects of themselves that they wished to control—as if they were not me.

..The importance of voice: Children generally liked to hear their stories read by the different text-to-speech voices in the computer. Yet, moreso than in schools, some patients in the hospital who want to speak in the first person requested a way of recording the stories in their own voice.

## TO CONCLUDE

Unlike the word cast on paper, digital text is configurable, recyclable, which has as a side effect to break down the classical reader-writer distinction in dramatic ways. Readers/ writers can easily add, delete, incorporate textual scribbles as part of text, re-edit, rearrange paragraphs. Digital texts, in this sense, are built like a patchwork or montage: You don't need to start from scratch but you can assemble existing pieces

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and bits. As Lanham well put it: “the interactive reader of the electronic world incarnates the responsive reader of whom we make so much” (Lanham). Digital texts also allow for simultaneous processing of words, images, which can help kids express themselves in their own hundred languages...More important, digital text allows for entirely new genres of writing to emerge. Writing becomes informal, multi-authored, multi-threaded. By allowing users to incarnate multiple voices, cyber-writing re-installs the possibility for multilogues. This being said, digital alone is no warranty for enhancing young children’s creative / critical reading, writing, thinking. It can only provide new occasions for exploring the bumpy road leading from spoken and written language, and bridging the gap between text and context, author and audience, words, images and sounds – in new ways.

## BIBLIOGRAPHY

- Ackermann, E. (2005) *Noter pour penser: Du graphique au numérique*. In *Proceedings, Colloque d'Angers, 2005 "Noter pour penser: approches développementales et pédagogiques*. In Press [paper available at: [edith@media.mit.edu](mailto:edith@media.mit.edu)].
- Ackermann, E. (1990) Comment apprendre à lire si personne ne lit autour de vous?". In *Entretiens Nathan pour la Lecture* (1), Editions Nathan, Paris, pp. 237-248.
- Ackermann, E. (1992). Pour une Réappropriation de l'Écrit: Le “Emerging Literacy Mouvement” aux USA. In *Quand l'Ordinateur Parle...Utilisation de la Synthèse Vocale dans l'Apprentissage et le Perfectionnement de la Langue Ecrite* (Sous la Direction de COHEN R.). PUF, Paris, pp 175-187.
- Ackermann, E. (1993). Systèmes de notations chez l’enfant: Leur place dans la genèse de l’écrit. In *Entretiens Nathan (3): Parole, Ecrit, Image*. Editions Nathan, Paris, pp. 51-69
- Ackermann, E., and Archinto, F. (2001). Bambini Digitali, Strumenti narrativi, scrittura dialogica. In *.TD.Tecnologie Didattiche*, n.24, numero 3, 2001, pp..24-48.
- Annany, M. (2001) *Telling Tales: Supporting written literacy with computational toys*. Unpublished Master Thesis. The M.I.T. Media Laboratory, Cambridge, MA
- Bruckman, A. (1999) *MOOSE Crossing: Construction, community, and learning in a networked virtual world for kids*. PhD Dissertation, The MIT Media Laboratory, Cambridge, MA. (<http://www.media.mit.edu/~asb/MOOSE-crossing>).
- Bruner, J., (1984) Language, mind, and reading. In *Awakening to literacy* (Goelman, Oberg, & Smith. Eds.), Heinemann Educational Books, Oxford. Chap. 15, pp 193-201.
- Donaldson, M. (1984) Speech and writing and modes of learning. In *Awakening to literacy* (Goelman, Oberg, & Smith. Eds.). Heinemann Educational Books, Oxford. pp 174-185.
- Ferreiro, E., Teberosky, A. (1982) *Literacy Before Schooling*. New Hampshire, UK: Heineman.
- Ferreiro, E. (1988) L’écriture avant la lettre. In *La production de notations chez le jeune enfant: Langue, nombre, rythmes et mélodies*. (Sinclair, Ed) Paris: Puf. pp. 18-70
- Freinet, C. (1969) *Pour l'école du peuple: Guide pratique pour l'organispation matérielle, technique et pédagogique de l'eecole populaire*. François Maspéro, Paris
- Karmiloff-Smith, A. (1992) *Beyond Modularity*. MIT Press, Cambridge, MA.
- Lanham, R. (1993). *The Electronic Word: Democracy, Technology, and the Arts*. University of Chicago Press, Chicago and London.
- Lankshear, C. (1997). *Changing Literacies*. Open University Press, Buckingham, Philadelphia.
- Luke, A. (1993b) *The Social Construction of Literacy in the Primary School*. Macmillan Education, Melbourne, Australia.

- Malaguzzi, L. and Al.(1987) *I cento linguaggi dei bambini: Narrativa del possibile. Proposte di bambini delle scuole comunali dell'infanzia di Reggio Emilia*. Catalog for an exhibit. Reggio Emilia, Italy.
- Montemayor, J., Druin, A., Hendler, J. (2000) PETS: A personal electronic teller of Stories. In *Robots for Kids*. (Druin & Hendler, Eds). Morgan Kaufmann Publishers. An Imprint of Academic press, New York, Boston, San Francisco. pp. 73-107,
- Olson, D. (1994) *The world on paper*. Cambridge University Press, London
- Ong, W. (1982) *Orality and literacy*. Routledge, New York.
- Shankar, Tara M. Rosenberger. 2005. *Speaking on the Record*. PhD, Media Laboratory, Massachusetts Institute of Technology, Cambridge, MA.
- Sinclair, H. (1988) (A cura di) *La production de notations chez le jeune enfant: Langage, nombre, rythmes et mélodies*. PUF, Paris.
- Strickland, D., and Mandel Morrow, L. (Eds.) (1989). *Emerging Literacy: Young children learn to read and write*. International Reading Association. Newark, Delaware.
- Teale, W., and Sulzby E. (1989) Emergent literacy: New perspectives. In *Emerging Literacy: Young Children learn to read and write*. International Reading Ass.. Newark, Delaware:
- Umaschi, M., Ackermann, E., with Casell, J. Donegan, B., Gonzales, J., DeMaso, D. Strohecker C. Lualdi, S., Bromley, D., Karlin J. (1998) "Interactive Storytelling Environments: Coping with Cardiac Illness at Boston's Children's Hospital". In *CHI 98 Proceedings*. pp.593-610.

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*Reference of this paper is:*

- Ackermann, E. (2002). In (Dimitracopoulou, A., Ed.) "*Information and Communication Technologies in Education*". Proceedings of 3<sup>rd</sup> Hellenic Conference, with international participation, 26-29/9/2002, University of Aegean, Rhodes, Greece, Kastaniotis /Interactive, Volume 1, pp. 31 – 38.
-