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Cognitive tools and the acquisition of literacy

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PREFACE

This is the fifth paper published by The Centre for Literacy in its Working Papers on Literacy series that presents new perspectives on literacy-related topics relevant to researchers, practitioners and policy-makers.

This paper was adapted from a longer manuscript submitted by Kieran Egan in 1999 for the UNESCO Award for Research in Adult Literacy. The judges could not reward it because it did not meet the criterion of being based on empirical research; however, we all agreed that it was an insightful and provocative argument on the acquisition of literacy that engaged and excited us. We felt that it should be shared with a wider audience and asked Professor Egan if he would condense it and allow The Centre for Literacy to publish it as a Working Paper.

In this paper, Professor Egan applies a cross-disciplinary frame of reference to the question of literacy acquisition. His thesis is that our understanding of the world and our acquisition of literacy are shaped by a set of cognitive capacities or "tools" that are present in oral cultures and expand in the early stages of literacy. He suggests that many of these tools, including story, metaphor, jokes and humour, association, and more, could and should shape literacy teaching to both children and adults. He challenges the current focus on functional literacy and takes us back to pre-history and early Greek times to demonstrate the potential of drawing on the cognitive tools shared by participants in oral and literate cultures.

The Centre is responsible for the delay in publication; the ideas, however, remain as thought-provoking as they were two years ago.

Dr. Linda Shohet
Director, The Centre for Literacy of Quebec
December 2001

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Introduction

My aim is to look at the problems connected with the acquisition of literacy from a somewhat new angle. It won't be entirely new as it draws on the work of a range of scholars; what makes it somewhat new is connected with the range of scholars drawn on, and the resulting view of students as deployers of sets of cognitive "tools," or capacities. This view suggests an alternative to traditional conceptions of students' intellectual development, and some alternative ways of teaching literacy.

We have tended to view intellectual development in one of two main ways. The traditional way, derived ultimately from Plato, was to see intellectual development as driven by the acquisition of particular forms of knowledge. The mind was viewed largely as an epistemological organ. The more modern way, derived mainly from Rousseau, was to see development following an internal schedule of its own, rather like the body, and knowledge serving as "food" to support or "facilitate" the process. In this scheme, perhaps most associated in this century with the work of Jean Piaget, the mind is viewed largely as a psychological organ. Drawing on two of my own books (Egan, 1997, 2000) I want to approach the problems of literacy acquisition in a different way. I invite you to accept for a while the belief that neither of the older

accounts of intellectual development is adequate to account for the process. In their place I want to propose "trying on" a different idea: that our intellectual development is best accounted for by the set of cognitive tools we pick up as we grow into a society.

We are a very peculiar animal in the way we use tools. Consider Michael Polanyi's (1967) example of how we oddly extend our senses into the tools we use. He suggests we imagine being in a completely dark cave, feeling our way with a walking stick. What we feel is the impress of the head of the stick against the hand. But what we feel in the mind is the end of the stick against hard, flinty rock or soft, mushy moss or whatever. We have a peculiar way of incorporating our tools into our sensorium. Think of driving a car. All those bodily movements we make are melded together such that we incorporate the car. We alter our focus from what feet, legs, hands, arms and so on, are doing, and we attend rather to what our automobiled-body does. Many animals use tools, and some also have abilities to use symbols, but in neither case are the physical or cognitive tools incorporated as in humans. I am reminded of the ideal Zen gardener, whose relationship with the garden is that they are not two and yet not one. Our tools are distinct from us, yet not--and this is especially true of our cognitive tools.

The most prominent of our cognitive tools is language. We are the ultimate idiots savants of language use. We know from many meditative traditions, particularly (I am reminded by being reminded of the Zen gardener) Buddhist and Zen, how immensely difficult it is to "forget" language, to experience the world freed from the structuring constraints language lays on our perception. As Chuang Tzu playfully describes the search for human meaning uninfected by words, words, words: "Where can I find a man who has forgotten words so I can have a word with him?" (1996, 140).

My point is that, with the accumulation of cognitive tools, such as those of oral language, then literacy, then theoretic abstractions, and so on, our ability to learn is enlarged but also constrained by the tools that are enlarging it; as the telescope enlarges some particular object by constraining our field of vision. That is, the tools we use when learning shape, and very largely determine, what and how we can learn. So, runs my argument, to understand human learning and intellectual development, we need to understand the cognitive tools being deployed in the process.

This working paper explores two areas that help explain how a focus on cognitive tools can shape our understanding of the process of literacy acquisition. The first extrapolates from Russian psychologist Lev Vygotsky's theory of socio-cultural mediation. Vygotsky argued that the kinds of cognitive tools we pick up as we grow into a society shape the kinds of sense we make. While he focused largely on oral language, I will try to extend his insight in two ways, first by exploring a range of cognitive tools that come along with oral language, and then by showing the ways in which literacy provides its own somewhat distinctive cognitive tools. My aim is to characterize prominent cognitive tools of both orality and literacy in what may be an unfamiliar way.

The second source of research support comes from that body of work on forms of thought in oral cultures, sometimes referred to as "the rediscovery of orality." I must acknowledge that the typical student in Western societies coming to

literacy today cannot be considered a user of orality, in any simple sense, except perhaps in the sense that we all remain users of orality and exist in oral as well as literate cultures. Even the most literate people continue to deploy cognitive tools of orality coalesced with those of literacy. But there are, indeed, few people left on the planet who have not been caught up to some degree in the symbolizing of literacy, even if they do not read or write themselves. Nearly all children who come to literacy classes will have grown up surrounded to a greater or lesser degree by a literate environment. Even so, having made that acknowledgement, I argue that the cognitive tools of orality can help us understand some of the problems of teaching literacy. I will look at orality in a distinctive way and try to show that, for purposes of clarifying the means by which people can most effectively learn literacy, a focus on cognitive tools tends to diminish the importance of some differences between orality and illiteracy

What are cognitive tools?

What are these cognitive tools and what do they look like? In Part 1, I will consider those tools that we may expect to find in varying degrees in all users of oral languages and that are useful for teaching literacy; these include the use of stories, the flexible deployment of metaphor, the tendency to structure things in binary terms, uses of rhyme and rhythm, jokes and humor, gossip, and a cognitive embeddedness in one's lifeworld. In Part 2, I will explore those cognitive tools stimulated by literacy. These tools, that I call "the redefinition of reality," include techniques of association which defend against "reality," the sense of wonder, imbuing knowledge with human meaning, transcendent human qualities, and literate forms of the set of cognitive tools that come along with oral language. These may seem a rather fearful or remote set of cognitive mediating tools, in Vygotsky's sense, but I hope to show that they may make the tasks of literacy teaching both more comprehensible and more practical.

As I mentioned previously, this paper has two parts. In the first, I will look at the relatively recent rediscovery of orality and explore how that broadened understanding can, reciprocally, give us a fuller understanding of the nature of literacy. It can also give us a glimpse of what is entailed in the transition from one condition to the other, both historically and individually, and expose a way of seeing the cognitive tools in play in both conditions. In particular, I will emphasize the gradual recognition that orality is not some kind of deficiency of thinking – as was commonly thought earlier in the twentieth-century – but comprises a set of positive and effective cognitive strategies for making sense. As I categorize and explore the cognitive tools that come along with orality, both historically, or pre-historically, and today, I think it will become clear that the cognitive tools are equally available to the typical children and adults entering a literacy program today as they were to those members of oral cultures whose cognition was the focus of the research I draw on.

In Part 2, I will consider how the cognitive tools of orality gave way historically to those of literacy, and will show perhaps surprising parallels with the process whereby people today make the transition to literacy. I will describe some of the main tools that typically come along with literacy when it is mastered through Western alphabetic forms. It has been common to make a sharp distinction between orality and literacy, or between mythic and rational thinking (Donald, 1991), or between narrative and

paradigmatic thinking (Bruner, 1986). It has been much rarer to recognize that both historically and individually this is not so sharp a division, and that initial literacy has its own distinctive cognitive tools that are autonomous and merit attention for what they are, not merely as a transition to something else. My focus throughout will be on the cognitive tools of literacy that come into play early in a person's literate career.

Bhola has made a useful distinction between "school literacy" and "functional literacy." The latter is generally taken to be a form of literacy in which pragmatic social and economic concerns drive the learning process. A further purpose of my working paper is to blur this distinction somewhat. While accepting its utility, I will nevertheless argue that the development of functional literacy can be more adequately achieved when we focus on the development of a wider literacy through the stimulation of cognitive tools.

PART 1
THE COGNITIVE TOOLS OF ORALITY

Introduction

No inquiries today are innocent; concepts come to us with complex histories, tangled in ancient conflicts, complicit in old quarrels. One cannot simply inquire into the cognitive characteristics of orality without acknowledging the deep-cutting distinction we have inherited from the ancient Greeks that tangled those characteristics with an aggressive distinction between rational and irrational modes of thought.

I will explore some of the attempts to untangle these binary concepts used to characterize kinds of thinking. In particular I will look at how the distinction between oral / literate has been somewhat deconstructed. But my main purpose is to excavate, from these studies of the mind, descriptions of a set of cognitive tools that seem to be energetic in supporting oral ways of constructing sense.

Plato and Aristotle were magisterial proponents of a particular form of inquiry. They argued for their form of rationality with such overwhelming rhetorical force that we in the West have discussed the forms of thinking found predominantly in oral cultures in their terms for more than 2,000 years, considering "myths" to be irrational, "primitive", immature forms of thinking to be discarded once rationality appeared. The thought of oral traditions was described as like an early morning mist that should vanish before the rising sun of rationality. Nineteenth and early twentieth-century anthropologists, assuming the distinction, elaborated on it in their descriptions of the myths and lore of "primitive" people. A puzzle created by this distinction is why irrational forms of thought should have persisted, given that rationality seemed so obvious and so effective.

The Western tradition, defined in significant degree by Plato's and Aristotle's intellectual project, has suggested in a multitude of ways that people living in oral cultures lack certain cognitive characteristics that are supposed to be distinguishing marks of literate, and, so, rational people. These supposed different forms of thinking have been suggested by such oppositions as mythic/historical, primitive/developed, simple/complex, traditional/modern, immature/mature, and – the root of them all – rational/irrational, and of particular interest here, oral/literate.

Within the last generation or so, some scholars have tried to undermine the long hold of these distinctions. Goody, for example, has argued that any suggestion that there are "two different modes of thought, approaches to knowledge, or forms of science" is inadequate, not least because "both are present not only in the same societies but in the same individuals" (Goody, 148). Whenever we try to define precisely any feature of Western thinking that can clearly be distinguished from forms of thought in traditional oral cultures, we can invariably locate examples of it in "their" cultures. Whenever we try to identify a distinctive feature of "their" thinking, we can find cases of it in "our" culture. "We" and "they" use both rational and irrational thinking constantly. We are them and they are us.

But one can hardly claim there are no differences between literate, technological Western cultures and traditional oral cultures. Relatively recently, a number of scholars have argued that the differences that loomed so large in the past, and were commonly seen as the result of a difference between "primitive" and "modern" minds, are due not to minds but to the technologies that serve as external aids to minds. In particular, they have pointed to the importance of literacy. Not, perhaps, literacy as some simple technical achievement, but literacy as an index of the transformations to culture and, it is assumed, to cognition, that comes along with the development of an external supplement to memory. As Merlin Donald puts it, the ability to store "memories" externally in literate forms "constitutes a hardware change just as real as the biological hardware change" of our evolutionary history (1993, 745).

Minds, it is now assumed, are much the same everywhere. Evident differences are due to the way the mind works differently with the cognitive tools available in oral cultures and the way it is inclined to work with the cognitive tools that come along with literacy.

One purpose of Part 1 of this paper will be to establish that orality should not be considered a condition of deficit – defined largely in terms of a lack of literacy. Thinking about orality as an absence of literacy is like, in Walter Ong's neat simile, thinking of horses as automobiles without wheels (Ong, 12). Orality entails a set of powerful and effective mental strategies, some of which, to our cost, have become attenuated and undervalued in significant parts of our culture and educational systems, and in literacy teaching.

I will begin with a brief account of some of the fruitfully overlapping branches of research in classical studies and anthropology that have helped to clarify the kinds of thinking that have proven effective in cultures that do not have writing. As a way into this I will sketch what may be a familiar story to some readers--the relatively recent rediscovery of orality.

Making literate sense of orality

The early rational Greeks found themselves bewildered by the forms of thought of their near ancestors. Hecateaus of Miletus (born c.485 BCE) set the tone of rational evaluation of myths by declaring them ridiculous. Even in the nineteenth-century CE, oral cultural forms of thought were being diagnosed by their foremost interpreters as a product of a "disease of language" (Müller, 355). Myth users were considered only semi-conscious, their minds aflood with crazy images that prevented them from engaging with reality. While some anthropologists

in the early twentieth-century began to recognize in mythic thinking sets of strategies for thinking with surprising effectiveness (and at least one philosopher-Giambattista Vico (1668-1744) had done so much earlier), a broader recognition of the positive qualities of orality has occurred only relatively recently. I want to explore this rediscovery of orality as a useful way to begin making an initial inventory of some of the cognitive tools we may see at work when it is deployed.

One might begin with the puzzle presented by the epic poems of Homer to those who considered oral cultures mentally primitive, and who recognized "the rise of civilization" as a gradual progressive process. The classically educated Victorians were often more familiar with those battles on the windy plains of Troy than with the social conditions in parts of their own cities. But those powerful verses, with their emotional force and human insight, were composed by and for what these appreciative Victorians otherwise considered "primitive" people. Matters were made worse when some people made the startling claim that Homer and the audience for his epics were illiterate. This claim generated a troubling anomaly: "Despite the implications of its name, literature does not seem to have been the invention of literate people" (Peabody, 1).

Resolution of the anomaly began with Milman Parry's work. He showed that the structure and a number of prominent features of the Homeric poems suggested that they were composed orally, and had likely been written down much later than their first composition. They were probably recited by an illiterate bard – "Homer," who represented the bardic tradition from which he inherited the epics – and written down by scribes. Parry's work, now well known (see e.g., Havelock; Lord; Parry), has led to increasingly subtle analyses of how oral poets managed to hold in their memories such long and complex epics. First, there would be a powerful rhythmic line – the hexameter for Homer and his tradition, that would become almost like a somatic pattern for the singer of tales. Second, there would be an overarching story that would shape the pattern of emotion to be evoked. Third, there would be an array of formulae the poet would be able to draw on at any point to fill out a line. So a reference to the sea could be left plain or could be given a single adjective or could, when the line needed a longer epithet, be given a formulaic qualifier, like "wine-dark."

In this brief list we see some general intellectual capacities that are prominent in orality – the importance of rhythm, the prominence of story-shaping to make sense of events, the centrality of emotional or affective qualities in sense-making, and metaphoric flexibility.

More recently the work of Parry and his followers – most noticeably Albert B. Lord, was taken up by the classicist Eric Havelock. In a series of books, beginning with the dramatic and challenging *Preface to Plato* (1963), Havelock began to show how a deeper understanding of orality could reciprocally give a clearer understanding of Plato's writing. Havelock threw new light on Plato's work by arguing that it was designed to promote a way of thinking whose character owed a great deal to its hostility to orality, and to its self-conscious program to displace the still prevailing vestiges of orality in the intellectual life of fourth-century Greece.

Plato represented his rational program as engaging the mind with its proper objects – abstract ideas, or forms – and

consequently freeing the mind from the seductive shadows spun by the Homeric tradition. Plato designed an extensive curriculum that could free the mind from the distortions of reality and the illusions resulting from mythic thinking. This opposition between rational and mythic thinking, of course, has remained with us ever since. Plato's new educational scheme did not try to work out how it might build on the oral tradition. If it had, we might have been saved a great deal of trouble. Instead, he proposed his educational program, in *The Republic*, as a root and branch replacement of the oral tradition that was still so influential in his time. His work, in Havelock's words, "announced the arrival of a completely new level of discourse which as it became perfected was to create in turn a new kind of experience of the world – the reflective, the scientific, the technological, the theological, and analytic. We can give it a dozen names" (Havelock, 267).

Havelock's description of the techniques of oral recitation by singers such as Homer helps us to see their reception by a typical audience as different from the way we read the text of those poems today. The accumulated purpose of those techniques was to ensure "a state of total personal involvement and therefore of emotional identification with the substance of the poetized statement that you are required to retain" (Havelock, 44). A Greek or an Australian Aboriginal youth needed to expend considerable mental resources to learn the oral foundations of his or her cultural institutions. The professional singers, in whom the rhythms and stories of the culture profoundly indwell, are central figures in such cultures, but the messages are repeated constantly and everywhere. Proverbs and maxims and clichés and formulas uttered at the table, on rising or going to sleep, in the market or in the field, are constantly repeated bits and pieces of the great myths or epic poems of the culture.

Learning the sustaining messages of one's oral culture is different from the constant effort at accumulation of knowledge with which we are familiar. In an oral culture, memorization is central but it is not performed in the way that we might try to learn something by heart. For us, memorizing is usually an attempt to copy a text so we can repeat it on command; our techniques are typically impoverished, largely involving repetition, some mnemonics perhaps, speaking aloud with our eyes closed, and so, rather ineffectually, on. In an oral culture, learning proceeds more at a somatic level, using the whole body to support the memorizing process. The Homeric singer, and singers throughout the world, usually use a simple stringed instrument, and sometimes a drum, whose beat reinforces the rhythm of the telling and draws the hearer into the enchantment of the song. The audience does not so much listen to it, as we might listen to a play, as they are invited to live it. The acoustical rhythm created by the singer and his instrument is supported by the repetitive meter, by rhythmic movements of the body, by the pattern of formulae and the story, to set up conditions of enchantment that impress the message into the minds of the hearers. "The entire nervous system, in short, is geared to the task of memorization" (Havelock, 151). The techniques of the skilled performer generate a relaxed, half-hypnotized, pleasure in the audience: "rhythmic patterns, vocal, verbal, instrumental, and physical, all set in motion together and all consonant in their effect" (Havelock, 152).

I have drawn just a few themes from Havelock's description, and will later consider them, and other features of

orality, in a more systematic way[1]. Many others have similarly tried to show that the oral tradition, with its strange mythic stories, is not a confusion from which we literates have recovered but is a distinctive deployment of the same array of human intellectual capacities we use, and that creates a form of mental life that includes experiences that we have lost. As Lucien Lévi-Bruhl described it, when a sacred myth is recited in ritual settings of heightened emotion, for participants in oral cultures educated differently from us, "what they hear in it awakens a whole gamut of harmonics which do not exist for us". The written form of the mythic which we can study "is but the inanimate corpse which remains after the vital spark has fled" (Lévi-Bruhl, 369).

Prominent characteristics of orality

The development of oral language has had a profound influence on the human mind and provides us with an array of capacities, which we can deploy in greater or lesser degree depending on our needs and circumstances. I will make a simple inventory of some of these characteristics, describing them in no particular order. Although I list them under discrete sub-headings, it is important to recognize that they are not discrete capacities, but overlap in various ways. The categories I choose are only a convenience for purposes of exposition.

Each of these cognitive "tools" or capacities has evolved with the development of oral language. They are cultural universals, observable in all known human cultures – they seem to be cognitive tools that we cannot not use. They do not go away with the development of literacy, even though they are all influenced in one way or another by literacy – not always to our advantage. Consequently, literate people will recognize them as theirs too. I will begin with one of the most complex and general.

Story

All oral cultures use stories; they play a central role in the life of the society. Why? To answer that question, we need first to understand what stories are and do for us. What are stories?

I will tell a story in starkest outline and we will see if we can't quickly identify one of the most important distinguishing features of stories. To begin: "Jennifer walked into the rose garden." Well, what do you make of that? Not much, no doubt. It might be pleasant for Jennifer to walk into the rose garden; it might be her favourite moment of calm during her hectic days in the corporate jungle. But she might also be a notorious rose bush poisoner. Not knowing anything else than that she walked into the rose garden, one can't know whether to feel glad or sorry about it or what to expect next.

One needs to know what caused her action and what is caused by it. So let me add that Jennifer entered the rose garden to give her sad Irish grandfather some news that would cheer him up. Now one might begin to feel a twinge of gladness; good old Jennifer, cheering up the sad old guy.

But as the story goes on, you will discover that this is a crucial event because Jennifer and her grandfather are major drug-dealers, specializing in the youth market. The grandfather is sad because he lacks a specific piece of information that would enable him to pick up a ton of cocaine and deliver it to his network of distributors who are poised to move it into school yards across the city. Jennifer

[1] Ch. IX, "The Psychology of the Poetic Performance," of Havelock's *Preface to Plato*, gives a much more extensive account of the somatic engagement by poetic tropes.

walks into the rose garden to tell her grandfather the location of the cocaine.

Now, your feeling about Jennifer walking into the rose garden will likely be regret. If only she could have been prevented! But wait! I have to tell you further that the information Jennifer carries is a 'plant' from her supposed friend, Marsha, who is actually an undercover cop. Jennifer's disclosure of the location of the cocaine and the grandfather's immediate attempt to grab it spring the trap that enables the police to arrest Jennifer, the evil Irish grandfather, and their whole network of dealers and distributors. The key was to have Jennifer give the false information in the rose garden. Now, you will likely feel glad that Jennifer walked into the rose garden, springing the carefully laid trap.

Indeed, that is how we know we have reached the end of a story – we know how to feel about the events that make it up. We cannot program a computer to recognize a story as distinct from other narratives. The instrument for detecting stories is human emotion

One could perform the same simple analysis on a fairy-tale, of course: "The hungry children came upon a lovely cottage made of gingerbread and candies." What a relief, as they were lost in the forest and starving! But . . .

One knows how to feel about Jennifer's walking into the rose garden only when the story is finished. Indeed, that is how we know we have reached the end of a story – we know how to feel about the events that make it up. We cannot program a computer to recognize a story as distinct from other narratives. The instrument for detecting stories is human emotion

So the kind of meaning stories deal with has to do with our emotions. Stories are instruments for orienting our emotions to their contents. That is, stories do not just convey information about events and characters, nor do stories just convey information in a way that engages our emotions; stories orient our emotions to the events and characters in a particular way. They convey information while directing us how to feel about it. No other form of language can do this, and so no other form of language can achieve the range and kinds of effects that stories can. The story is like a musical score, and our emotions are the instrument it is designed to play.

The great power of stories is that they perform two tasks at the same time. They are, first, very effective at communicating information in a memorable form and, second, they can orient the listener's feelings about the information being communicated.

In an oral culture one knows only what one remembers, and as the story is one of the most effective forms for encoding important social information in a memorable linguistic construction, it is used universally. In addition, it can shape the emotions of the hearer to respond to its contents as can nothing else. For these reasons we literates continually tend to shape our histories from a pure account of what happened towards some story that carries a moral about the virtues of our country or people, highlighting "our" beliefs and values over those of other countries' and people's. We deploy stories constantly in our daily lives to give emotional meaning to what would otherwise remain "just one damn thing after another." Stories shape events into emotionally meaningful patterns.

Participants in oral cultures tend to be much more efficient than most literates in using their memories. In their cultural conditions, lacking literacy, memorizing is obviously vitally important. When anthropologists a century ago approached oral communities with the presupposition that they were, relatively, mental incompetents, they were faced with odd anomalies. Lévi-Bruhl described various

prodigious feats of memory that were commonplace to the people he was studying. He summed it up like this:

> This extraordinary development of memory, and a memory which faithfully reproduces the minutest details of sense-impressions in the correct order of their appearance, is shown moreover by the wealth of vocabulary and the grammatical complexity of the languages. Now the very men who speak these languages and possess this power of memory are (in Australia or Northern Brazil, for instance) incapable of counting beyond two and three. The slightest mental effort involving abstract reasoning, however rudimentary it may be, is so distasteful to them that they immediately declare themselves tired and give it up. (Lévi-Bruhl, 115).

There are some difficulties in Lévi-Bruhl's way of putting this, due in part to his assumptions about the "prelogical" and "mystic" nature of "primitive mentality." His subjects, for example, do not so much have a "power of memory" as a highly developed set of techniques for learning and remembering. I will argue below that the problem for his subjects does not lie in "abstraction" as such – a common assumption also applied to children's thinking – but rather in the dissociation of thought from matters embedded in one's lifeworld – "decontextualization," as it has been called. Goody, for example, describes his innocent request of some LoDagaa to count for him. "Count what?" was their, to them, obvious question. They had a number of sophisticated forms of counting, and an abstract numerical system, but their methods of counting cows and cowrie shells differed. Nor, as we shall see, is "abstract reasoning" beyond anyone with a human mind; it is just that certain particular mental capacities involving abstraction that are very heavily dependent on writing are not easily available to people who do not write or read.

Nevertheless, Lévi-Bruhl describes the apparent anomaly of mental prodigies in the supposedly mentally deficient. He perceived that there were no differences on any simple scale of mental superiority/inferiority, but that the conditions of life in oral cultures stimulated different mental developments to deal with those conditions. And he was precise in locating a wide range of these differences. The uses of memory in oral cultures, he concluded, "are quite different because its contents are of a different character. It is both very accurate and very emotional" (Lévi-Bruhl, 110).

The emotions are engaged by making the culturally important messages event-laden, involving characters and their emotions in conflict in developing narratives--in short, by building the messages into stories. "All myths tell a story," Lévi-Strauss points out (1978, 26), and Albert B. Lord concluded his account of the constant reconstruction involved in reciting epic poems by showing how the story provided a firm basic structure. The formulas and groupings and meter in the end "serve only one purpose. They provide a means for telling a story ....The tale's the thing" (Lord, 68). We find these techniques in greater or lesser degree in all oral cultures: "At different periods and in different cultures there are close links between the techniques for mental recall, the inner organization of the faculty (of memory), the place it occupies in the system of the ego, and the ways that [people] picture memory to themselves" (Vernant, 75).

In considering the transition to literacy, then, we will want to consider what happened to the story. And if we want to teach literacy, we might do well to observe

both what happens to stories in the historical transition and, more importantly, to recognize that our students will likely have a highly developed sense of how story can be used to give shape and meaning to events. Obviously, we will not be wise to ignore the capacities our students possess, and might seek techniques that build literacy on those strengths.

Calling orality "poetic" does not mean that all members of oral cultures are, in a literate sense, poets. Rather, it means that those cognitive tools we find in our literate cultures surviving most vividly in poetry are precisely the cognitive tools most prominently evident in oral cultures, and prominent among them is the use of metaphor.

Metaphor

In discussing the power and uses of metaphor in the prehistorical development of "the modern mind," Merlin Donald argues for the very early appearance of stories in human cultures:

> The most elevated use of language in tribal societies is in the area of mythic invention – in the construction of conceptual "models" of the human universe ... These were not late developments, after language had proven itself in concrete practical applications; they were among the first. (Donald, 1991, 213).

Donald compares this prehistoric use of language for constructing conceptual models to that of contemporary !Kung societies: "Their mythical thought, in our terms, might be regarded as a unified, collectively held system of explanatory and regulatory metaphors" (Donald, 1991, 214).

In oral cultures thinking moves fluidly according to the complex logic of metaphor more than it follows the systematic logics of rational inquiry. We can appreciate this metaphoric power, easily accessible to us as it suffuses our language at every turn. "Every turn" and "accessible" and "power," and "suffuses" and so on, all involve casual uses of metaphor. Metaphor is clearly one of the foundations of all our mental activity, a foundation upon which our systematic logics of rational inquiry also rest, or – a better metaphor – a ground out of which they grow. Myth and our everyday language are permeated with metaphor; a conclusion also of Ernst Cassirer's study of myth and language: "The same form of mental conception is operative in both. It is the form which one may denote as metaphorical thinking" (Cassirer, 84). Or, as Lévi-Strauss observes, "metaphor ... is not a later embellishment of language but is one of its fundamental modes – a primary form of discursive thought" (Lévi-Strauss, 1962, 102).

The insight that orality prominently used the logic of metaphor provided a key to better understanding the otherwise puzzling myths and beliefs of people in oral societies. Giambattista Vico provided the earliest recognition of this metaphoric and poetic form of orality. He argued, in *The New Science* (Vico, 1725), that myth is simply a product of the human mind working in its poetic, metaphor-rich, mode. Those who generated myths were "poets who spoke in poetic characters. This discovery, which is the master key of this Science has cost us the persistent research of almost all our literary life because with our civilized natures we cannot at all imagine and can understand only by great toil the poetic nature of these first two men." (Vico, 5)

Calling orality "poetic" does not mean that all members of oral cultures are, in a literate sense, poets. Rather, it means that those cognitive tools we find in our literate cultures surviving most vividly in poetry are precisely the cognitive tools most prominently evident in oral cultures, and prominent among them is the use of metaphor.

Most simply, metaphor involves representation of one thing as though it were something other. It is a "deviant

naming" (Ricoeur, 8), that generates a new light on the thing being represented. Metaphors do not work simply by reflecting commonly recognized similarities between things; rather "it would be more illuminating ... to say that metaphor creates the similarity than to say it formulates some similarity antecedently existing" (Black, 83). What metaphor most clearly exemplifies is the creative power that human beings inherit with orality. We do not all use it equally, but we all have access to it, and the use of language rich in appropriate metaphors can stimulate creativity.

Aristotle observed that for playwrights, "[t]he greatest thing by far is to have a command of metaphor" (*The Poetics*, 1459a). The creative role metaphor plays, he argues elsewhere, is important to recognize because "ordinary words convey only what we know already; it is from metaphor that we can best get hold of something fresh" (*Rhetoric*, 1410b). Not coincidentally, but perhaps surprisingly, it has been shown that the capacity to generate and recognize appropriate metaphors seems to peak in humans at about age 4 (Winner; Gardner & Winner). To tie this discussion to its starting point with Donald's observations about the centrality of metaphor to the development of language in our species, seems that the process of language development and increased metaphoric capacity are closely allied. Literacy, historically and typically in our educational development, has increased our reliance on rational logic and decreased our reliance on the logic of metaphor. It is not obvious that this transition is a simple and necessary gain for us, but, even so, we have to consider ways in which the typical metaphoric richness of orality can play a role in the transition of adults to an enriched literacy and help us design better programs.

"Thought is metaphoric, and proceeds by comparisons [seeing one thing in terms of another], and the metaphors of language derive therefrom" (Richards, 940). I mentioned that the brief inventory of the cognitive tools of orality would overlap in various ways. Richards's observation helps move us to the next item in the inventory – the rather risky one of binary oppositions.

Binary oppositions

Binary oppositions is a "risky" topic because it has been implicated in some postmodernist and feminist writings with a prevailing and damaging Western way of thinking that has, amongst other things, set up associations between male/female and dominant/subordinate, active/passive, and so on. Binary oppositions have been used, it is claimed, in a subconscious but powerful way to influence the ways people have thought about gender, and about other races. It is a form of thinking seen as complicit in the worst excesses of colonialism "abroad" and the subjugation of women and minorities at "home."

Nevertheless, I want to argue that forming binary oppositions is one of the capacities that comes along with oral language. We cannot not do it, which does not mean we should fail to be critical about how we deploy such oppositions. Like any tool, cognitive or material, binary oppositions can be used destructively; but that fact does not mean we should suppress all tools.

Binary oppositions, in the thinking of oral cultures, are not necessarily precise logical or empirical opposites, but they serve to delimit a field within which further discriminations become possible. For example, setting up oppositions such as hot/cold or big/little provides an initial conceptual grasp over fields of temperature and size; one may then make sense within

these of a range of conceptual discriminations, like "warm," "cool," "tiny," "enormous" etc. "When once an opposition is established and its principles understood, then either an opposite, or any intermediate term, can be at once defined by opposition or by degree" (Ogden, 20). The use of binary oppositions is one of the ways oral language divides up the world. It has been the despair of some philosophers, who see it as leaving us always at the mercy of what Wittgenstein calls the bewitchment of language. Nietzsche similarly complained that we break the world into oppositions in our language and then foolishly assume the oppositions are in the world rather than in our way of seeing it: "Language . . . talks of opposites where there are only degrees and many refinements of gradation" (*Beyond Good and Evil*, 24). Or, as he put it elsewhere, "There are no opposites: only from logic do we derive the concept of opposites – and falsely transfer it to things" (Nietzsche, 298). Lévi-Strauss, somewhat notoriously, claimed that the key to analysis of corpuses of myths was to recognize that "[a]ll classification proceeds by pairs of contrasts" (1978, 139).

Despite the contentiousness that surrounds the use of binary structuring in oral cultures, and its persistence in literate cultures, its inevitability needs to be emphasized, and, if it is indeed inevitable, its importance in teaching literacy can be ignored only to our cost. On what basis can forming binary oppositions be claimed to be inevitable? "Logically, we express . . . elementary differentiation in the form of contradictories, A and not-A, and it is certainly true that the ability to distinguish, together with the ability to perceive resemblances, is basic to all thought" (Hallpike, 224/25). Edmund Leach similarly makes the point that "[b]inary oppositions are intrinsic to the process of human thought. Any description of the world must discriminate categories in the form "p is what not-p is not" (Leach, 3). Leach might have better characterized this use of binary oppositions as intrinsic to the influence of oral language on human thought. Those who study young children recognize how common such oppositions are in their thinking. Bruno Bettelheim observes the "manner in which [children] can bring some order into [their] world by dividing everything into opposites" (Bettelheim, 74).

We can use the recognition that binary oppositional thinking is a prominent feature of orality to help the teaching of literacy. We will not expect in any simplistic way to teach oppositions, because we will recognize they are already in place in our students. Rather, we will want to consider how we may structure our teaching to respond to cognitive structures prominently deployed by learners. (Examples may be found in Egan, 1989, 1997.)

Rhyme and rhythm

All oral cultures had to impress their store of knowledge into living minds. Consequently, techniques that aided memorization were socially of great importance. If something – a healing herb, a technique for digging some rare root – was forgotten, it was gone forever. All oral cultures discovered that rhyme, rhythm, and meter were effective tools in aiding memorization. If you ask an English speaker today how many days there are in the month of March, they will most likely recite in their minds the old rhyme:

"30 days hath September
April, June and November,
All the rest have 31 ..."

They will recognize that March has 31 and not bother going on to the part of the rhyme that describes February's peculiarity. Such a rhyme is a rare holdover into literate times. Even if we forget the rhyme, we can always consult a calendar. In oral cultures a great deal of lore would be preserved in forms of patterned sound, most commonly structured within a story to further increase memorability. The recitation of sacred myths, which contain much of the most important lore of any oral society, would commonly be done to the rhythmic tapping of a drum, or to a simple stringed instrument, or even to slapping of a hand against a thigh.

Patterned sound helps to embed lore and ideas in the minds of hearers. This basic patterning is a small-scale form of a larger patterning, in which rhythms of despair and hope, of fear and release, of oppression, resentment, and revolt, of youth and age, and so on, are caught and reflected in language. Our emotional lives are also patterned, and we can deploy language to echo those emotional patterns in its rhythms. We might be wise to recognize that rhyme and rhythm pervade our language and lives, and have particular resonance in oral cultures. If we want to lead students from orality to literacy we should consider how we might build on these powerful tools.

Jokes and humour

One consequence of literacy is that language becomes visible. Literacy moves language from a medium connected uniquely to the ear to one also connected to the eye. The particular kind of writing system we deploy affects profoundly the way we conceive of language (Olson). Literacy, then, enables us to reflect on, and become conscious of, language in a somewhat new way. Within orality, however, there are also techniques that draw attention to language and help us to become conscious of it even as we use it for activities to which our attention is primarily directed. One of these is the joke.

Jokes draw on cognitive tools already touched on above. They often rely on metaphoric connections, and are usually a particular kind of story. Jokes commonly enlarge our repertoire of expectations, and make more complex the range of emotional rhythms we can anticipate. The pompous person slipping on a banana skin is a compact form of endless more elaborate jokes that contain a momentary laugh along with a more persisting moral lesson.

One of the dangers of literacy is what we call for good reasons, literal thinking – that form of thinking that reifies some principle or rule of logic in ways that refuse to acknowledge the complexity and fluidity of reality. One may see it brutally in the way some people take their ideological schemes for the truth, and refuse to recognize features of reality that fail to adhere to the scheme. Humour is the great solvent of excessive literalness in thinking.

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Oral cultures are rich in humour, and this form of play with language persists into literate cultures. Jokes help to draw attention to the distance between what language can establish and the reality that can never be adequately captured in it. They help to make language conscious. As this is an inevitable feature of literacy, it would seem sensible to consider the possible utility of jokes and humour generally in easing the transition between orality and literacy. The joke seems to be a universal consequence of language development, and as such we ignore its role in teaching literacy at our peril. It is

noteworthy, in this context, to repeat Steven Pinker's observation that "[m]etaphor and humour are useful ways to summarize the two mental performances that go into understanding a sentence" (Pinker, 230).

Images

With the development of oral language came the curious discovery that words could be used to generate images in the mind. These mental images are unlike anything we are familiar with in the world. We use the perhaps slightly misleading word "image" for them, because some quasi-pictorial mental images seem like pictures, so much so that we can "scan" them with closed eyes as though we are looking at a scene in reality (Shepard). But many of the images we generate in our minds are of things that have no visual analog; we can, for example, evoke the "image" of a smell.

Because of the importance in oral cultures of preserving information in the memory, all cognitive tools were bent to support this socially vital activity. So we find myths, for example, replete with vivid and bizarre images. As has been evident for a long time – one thinks of the exploits of the sixteenth-century Jesuit, Matteo Ricci in China (Spence) – the more exotic and strange the image, the more memorable it is.

We can often recall images from stories told to us in our earliest years. Curiously, the images we formed as we listened to the stories are often more vivid in our memories than pictures in books. (I offer this observation tentatively; it is based only on my informal surveys of about twenty adults over the past couple of years. But the uniform results are suggestive at least.) Images of Sinbad's cave or of the jungle of Mowgli remain not simply as vivid quasi-pictorial images; they are also repositories of emotions. They come along with an affective colouring. So we manage to both think and feel in terms of the common images we can evoke in our minds.

In teaching, we tend to focus on the content or skills we want the learner to grasp. Often we will consider the basic concepts we want to communicate. Rarely, in my experience and from my reading of methods of teacher-education, do we reflect on the vivid images that might be evoked by the content we wish to teach. Given the universality of image-generation in all oral cultures, we would be prudent to reflect on how we might deploy this cognitive tool in teaching literacy.

Gossip

"Gossip" has come, disparagingly, to mean "idle chatter", talk of no social importance or seriousness. In line with the general depreciation of women that was, and too often remains, so shamefully common, "gossip" is associated generally with the casual talk of women, usually focused on matters of the home and family and local events. The word, in English, comes from "godsibb," a person related to one in God, or a "godparent," and "gossip" is the kind of talk we might have with such a person.

Anthropologists increasingly recognize in gossip one of the most important sources of human social stability, and see it also as perhaps the arena for the first development of language (Mithen, Ch. 10). It is not insignificant that this form of talk about everyday social activity is usually the easiest for us, and the form that we (whether male or female) engage in most readily (Dunbar). It is a kind of evolutionary analog of the grooming our ancestors very likely indulged in intensively (Donald, 1991).

The capacity to gossip entails the narratizing of events, colouring our representation of events with appropriately recognized emotion, organizing events by identifying acceptable causal sequences, integrating motives into the causal sequences, interpreting intentions in diverse personalities, and so on. These are, needless to say, enormously sophisticated cognitive capacities. When we consider teaching literacy, it will be useful to remember that those we teach, possessing the capabilities of orality, bring to their learning many sophisticated capacities. This is worth emphasizing in an educational context in which Herbert Spencer's principle about beginning with the simple and moving gradually to the complex is still generally assumed to be true (Spencer). We might wisely reflect on whether this principle is not, ironically, simplistic (Egan, 1997).

Embeddedness in lifeworld

This is a slightly odd sub-heading, intended to emphasize a feature of orality that is widely recognized, but that only sporadically seems to influence teaching. Anthropologists, and others, have tried to capture the sense in which the mental condition of members of traditional oral cultures involves what has sometimes been called a "oneness with nature." For example, Frankfurt says: "The mainspring of the acts, thoughts, and feelings of early man was the conviction that the divine was immanent in nature, and nature intimately connected with society" (237). Literate and rational people have found it difficult to characterize those forms of cognitive activity that seem ineffective for attaining pragmatic control over the natural world, but much more effective at enabling people to feel comfortable participants in the natural world.

One of the cognitive effects of literacy and its associated rationality has been the capacity to separate out, to greater or lesser degrees, our feelings and intentions from our thinking about the world. While we recognize limits on our ability to achieve "objectivity," nevertheless we have an expectation that our accounts of events should be concerned with what happened rather than what we would like to have happened. Ong notes that "[w]riting fosters abstractions that disengage knowledge from the arena where human beings struggle with one another" (Ong, 43-44). Peabody expresses much the same idea: "The shift in medium from utterance to record affects the way such an institution works and tends to change what was an immediate, living, active agent into an increasingly distant, timeless, passive, authority" (1-2).

Oral cultures communicate very largely by means of the voice and its physical impact in the body of the hearer. In such circumstances, the emotion of the hearer, whether highly or little charged, always comes along with the words. In literate cultures, of course, we pride ourselves on our ability to disengage our messages from our emotions. In fact, it requires great art for us to reliably convey emotion through written words. You will have no sense of the emotions I feel as I write, whereas in an oral culture, while one would not communicate an extensive message such as this one!, the emotions could not be dissociated from the message.

The embeddedness of words in the lifeworld – the sense that our words are in some sense alive as parts of our body's activity – means that they are rarely themselves objects of systematic reflection, and so we do not find anything like our epistemology in oral cultures. Words do not become separated out from things and activities. Typical oral cultures, for example, measure time in terms of

communal activities. Once societies become literate and rational, and bigger, and people engage in dissociated activities, time needs to be measured in some "abstract" way, by assigning arbitrary divisions and numbers to it.

Vygotsky's student Luria described studies he conducted with illiterate peasants in remote areas of the Soviet Union. He was interested in what seem to literates simple logical tasks, which the peasants could not perform. The syllogism he used is now quite famous: In the far north all the bears are white. Novaya Zembla is in the far north. What colour are the bears in Novaya Zembla? What became clear was that such logical games – wholly disembedded from their lifeworld – were completely unfamiliar to the peasants. Such tasks also, quite reasonably seemed to them pointless. They belong with a kind of language-use that has little useful role in oral cultures but that rationality encourages, because it allows us to build theories.

The embeddedness of thought in the lifeworld of oral cultures provides people with stability and security as participants in the natural world. People in modern industrialized countries, perhaps since the Romantic movement in the West, seem increasingly to recognize that this embeddedness is something whose diminution in our experience is to be regretted. We might sensibly consider the likelihood that this embeddedness was much more vivid and prevalent prior to literacy. Consequently, we will want to consider both how we might use this thought process in our teaching of literacy, and also how we might ensure that we do not undermine it more than seems necessary.

Conclusion

My purpose is to use the observations about some cognitive tools of orality in teaching literacy. I need to acknowledge again that nearly all the Western children and adults whom we might hope to introduce to literacy are not in any usual sense members of oral cultures. They have been brought up in the midst of literate societies. While they do not read and write, they may listen to radios, watch TV, and engage in forms of discourse that are all profoundly influenced by literacy. Why should we suppose that this study of characteristics of orality, primarily drawn from oral cultures that have had little or no contact with literacy, should have any relevance to the cases of people who have been surrounded and influenced by the forms of thought encouraged by literacy?

One answer is that we are all language-users. The characteristics I have described above are shared by all language-users – we all deploy stories, metaphors, binary oppositions, and so on.

A second, related, answer is that the cognitive tools of literacy I will describe in Part 2 are not the sophisticated kind involved in complex theory construction or theoretic abstractions in academic disciplines. They are, rather, the tools that come along with initial literacy.

A further caveat concerns the sharp distinction at times made between orality/literacy and the causal role sometimes attributed to the simple achievement of literacy. The cultural and cognitive effects of a developing literacy over generations and millennia – the capacity to allow and encourage the accumulation of knowledge that makes up a significant part of Western cultural history – must not be causally equated with its effects on individuals in any

circumstances. Literacy does not cause an historical consciousness, scientific modes of inquiry, and logic. We find elements of these in oral cultures. What literacy does provide, to cultures and to individuals, is a set of techniques, of cognitive tools, that can greatly enhance and amplify certain forms of thought, perhaps inevitably at the expense of others. (For elaboration, see e.g., Finnegan; Heath; Street) Again, it is important to emphasize the difference between what literacy necessarily causes cognitively – very little, if anything – and what literacy can cause cognitively and socially. It is the value of what it can cause that drives our efforts to encourage its wider and deeper acquisition.

So far, then, we have looked at what might be considered one side of the literacy divide – a divide whose depth and importance is, of course, much disputed. I have explored some of the cognitive tools that came into human cultures with language, and that have become, in Kolakowski's phrase, "a permanent constitutive element of culture" (Kolakowski, x). What remains is to elaborate an equivalent sense of the cognitive tools that, ideally, come along with initial literacy. Having a view of both whence and whither, one might be able to forge a new and better sense of how to get from one to the other.

PART 2
THE COGNITIVE TOOLS OF INITIAL LITERACY

Introduction

There is a considerable body of literature about literacy and a range of disputed claims about its cognitive consequences. The educational literature about literacy does not focus much on cognitive tools that come along with different kinds or degrees of literacy, but that is what I want to do in the remainder of this paper. Usually, literacy has been discussed as an encourager of "disembedded" or "abstract" thinking. I want to consider it in its earliest forms, in which the sophisticated cognitive achievements that literacy can stimulate and support are only just beginning to appear. This does not mean that the cognitive tools of initial literacy can be described only as the partial achievement of "full" literacy. Rather, as orality is not simply the absence of literacy – horses without wheels – so initial literacy is a cognitive achievement with its own distinctiveness. Greek early prose writers – logographoi – did not see themselves as some transitional stage to a more complete literacy; they had their own distinctive and autonomous forms of expression and thought. It is important to recognize quite distinct stages of literacy, each of which develops and relies on distinctive cognitive tools.

To help clarify the distinctive features of early literacy, I will look at both early texts that appeared soon after writing became common in ancient Greece and at characteristics of the thinking of newly literate students today.

To summarize Part 1, the rediscovery of literacy was not in reality a matter of solving the puzzle of why people in

traditional oral cultures believed such odd things and recited sacred stories that seemed utterly bizarre and irrational. Those who explored myth and oral cultures in the past century were hindered by inadequate evolutionary ideas that commonly saw orality as a "primitive" condition that would eventually, with or without help, "evolve" to rationality (Gould). The rediscovery of orality disclosed that it represented a set of varied intellectual strategies well accommodated to the needs of their users. Also, it was realized that participants in oral cultures were intellectually much the same as participants in literate cultures; what accounted for the evident differences was connected with the cognitive tools they deployed. Nor is it simply that one set of cognitive tools – "ours" – are better than another set – "theirs." Rather, each set accommodates to different social and technological circumstances.

The transition from orality to literacy took place over a long period in cultural history, and seems to have occurred independently only twice for sure; once in Sumeria some time prior to 3000 BCE and once in Mexico before 600 BCE. Egyptian (c. 3000 BCE) and Chinese (c. 1300 BCE) systems might also have been independently invented (Diamond, Ch. 12), though recent discoveries are beginning to make the claim for prior and independent Egyptian invention. In each case, the transition from pure orality to a literate-and-oral culture seems to have been significantly influenced by population growth and density.

Once the transition was made in Western cultural history, and the efficient Greek alphabet was invented for representing the sounds of language, it became relatively easy to teach reading and writing to anyone. What was a little harder, however, was to teach the forms of rational thought that were historically, but not logically, tied in with the development of literacy. Again, we might distinguish the cognitive effects of literacy between those things literacy can do for us, and those things it must do for us. In the latter category, the answer seems to be that literacy can be acquired and yet have hardly any discernible cognitive effects (Scribner & Cole). On the other hand – the challenge to the educator – it is apparent that literacy can have very significant cognitive effects. This is not to argue that these effects cannot be achieved without literacy (Olson & Torrance) but rather that literacy makes them very much easier to achieve and sustain.

The rediscovery of orality has made clear that it is improper to see orality and literacy as mutually exclusive binary opposites. We can find rational forms of thought in orality as we can find poetic forms of thought in literate cultures. However, the traditional, Platonic, assumption that literacy should displace orality is far from extirpated from Western thinking. And its influence on literacy instruction is still prevalent. Typically, the literacy instructor sees his or her job, reasonably, as inculcating literacy as far as possible. It is not common among literacy instructors to inquire into the forms of orality that are currently most prominently deployed by the learners and to build literacy onto those forms of thought. But this is precisely what I wish to argue is the route to more effective literacy instruction.

Some characteristic cognitive tools of literacy

The redefinition of reality

The rediscovery of orality during the later twentieth century was mirrored by the related discovery of literacy, or rather by the discovery of its cognitive consequences. Western rationality, which had earlier been assumed to be "natural," became recognized as a form of thinking tied in complex ways to writing. What has been problematic about the discovery of literacy has been the recognition that the Western invention of writing seems inextricably tied into a range of cognitive changes, and that some or all of these changes can occur in individuals who become literate today. Mostly this discussion has focused on children through the course of Western academic schooling, but has occasionally also been referred to adults who attain literacy.

One realization that has come with the "discovery of literacy" is that its invention brought with it our peculiar conception of "reality." Merlin Donald describes how in mythic cultures "narrative skills lead to a collective version of reality" (1991, 257). Plato's intellectual revolution was based on the rejection of these collective versions of reality as unreliable and inconsistent. Even earlier than Plato, Herodotus, after visiting Egypt, wonders about the recorded lists of mortal high priests that stretch back in time into what, according to Greek "collective versions of reality," were periods when the gods were energetically active on earth. With the development of rational techniques, that refuse on principle to accept contradiction, the early literate Greeks, like Thales, Anaximander, and Anaximenes in Asia Minor, dismissed the myths of their ancestors as inadequate, and tried to give a rational account of the world. An early conclusion of this rationalist enterprise was the conviction that what one hoped or believed was irrelevant to what is. They asserted that there is a reality beyond any individual's or any group's beliefs, and – the academic revolution – that it was the proper task of the mind to discover and represent this reality. Bruno Snell characterizes this shift as the recognition that "reality is no longer something that is simply given. The meaningful no longer impresses itself as incontrovertible fact, and appearances have ceased to reveal their significance directly .... All this really means that myth has come to an end" (Snell, 111).

The fifth century rational prose writers engaged in this task included Hecataeus of Miletus, whose dismissal of Greek myths shocked many of his contemporaries, and included also the most accomplished of this group of logographoi, Herodotus of Halicarnassus. These writers wrote what might seem to us rather confused "inquiries" (historiae). Herodotus's Histories, for example, tell the story of the war between the Greeks and the Persians, but, prior to doing so, record everything he has discovered about the Persian Empire, producing a rambling ethnography and geography.

If we look closely at these works we may see that their explicit purpose is to write down what has been learned, to use Herodotus's words, "in order that the memory of the past may not be blotted out from among men by time, and that great and marvellous things done [erga] by Greeks and Barbarians . . . may not cease to be recounted." This is how he begins his inquiry. And he lives up to his stated intention. A central focus of his exploration of reality is "the great and marvelous things done." He constantly pauses his narrative to describe some mega

ergon – some great deed, or astonishing building, or bizarre habit, or exotic behavior. Apart from the heroic narrative of the war, much of the book reads like *The Guinness Book of Records.*

Prompted by this comparison, we might move from the case of ancient Greeks and consider the effects of literacy on children in Western societies. We can see an analogous development of cognitive tools and an analogous interest in reality's extremes, limits, exotic features, and in the stranger aspects of human behavior within reality. This similarity is not caused by some mysterious "recapitulation" process – whereby the modern individual repeats the developmental process of civilization – but is, unmysteriously, a product of picking up and learning to use particular cognitive tools. One product of beginning to use literacy is a heightened sense of a discrete reality, and an inquiry into its limits and extremes. This, and the other cognitive tools I will discuss, are not tied to some putative developmental process, but are tied to learning literacy; they tend to recur whenever someone begins to use literacy for purposes of exploring "reality."

..."literacy comes into its full power as a goad to the redefinition of reality"
– Bruner

The fairy-story about Jack the Giant Killer typically engages four- and five-year-old children in Western societies. Children do not commonly interrupt the story to ask about the genetic make-up of bean-seeds that can grow up to the sky, nor do they wonder what supports giants and their country up there. They accept magic as long as it keeps the narrative flowing and the story exciting. The story of Anne of Green Gables, that typically engages ten-year-old children in Western societies, is not less a fiction than Jack the Giant Killer. Unlike Jack's story, it makes accommodations with reality that its young literate readers or hearers require. Even fantasies like the Star Wars movies need to make accommodations to reality that mark them as a different genre of fiction from Jack the Giant Killer or Cinderella. Something happens to children in Western societies between five and ten years of age that makes the kind of stories enjoyed when younger unacceptable when older. What happens is that children become literate in that peculiar way started, as far as we can tell, by the Greeks. We may regret features of Plato's dismissal of myth and the resulting wholehearted pursuit of rationality, but we cannot easily escape it.

The connection between literacy encouraging the development of a new conception of reality and the initial engagement with the extreme features of that reality is easy to understand. If we were magically relocated now to a north Italian hill-town and invited to explore it, we would be very foolish if we were to pull out a magnifying glass and start examining the details of our hotel carpet and wallpaper before working gradually down the corridor and into the street. Rather, we would first set out to find out where the town walls are, where the cathedral and major buildings are, and so on. Also our attention would be initially attracted by behaviors, artifacts, and interactions that were most unfamiliar and different from what we already know. That is, in any new environment we strive to orient ourselves by establishing the limits of the environment and its most outstanding features – each mega ergon. It is a sensible strategy, and we see it vividly at work when literacy stimulates a new conception of reality. As Jerome Bruner puts it, "literacy comes into its full power as a goad to the redefinition of reality" (1988, 205).

This cognitive strategy of initial literacy, and its related tools, remains with us even as we become more sophisticated; its

powerful impulse drives the tourist trade, among other things. But we may reasonably expect to stimulate this cognitive strategy in teaching literacy, and, reciprocally, we may reasonably expect that we will engage students in learning literacy more readily if we attach the skills they are to acquire to their developing interest in a new conception of reality and its strange, exotic, and other limiting features.

To qualify this point about focusing on the limits of reality, in part, this common fascination we see in newly literate children with, say, the subject matter of *The Guinness Book of Records* (Who was the biggest, and smallest, or hairiest person? Who had the longest fingernails? Who has pulled the heaviest weight with their teeth, and so on?) is a search for a kind of cognitive security, a cognitive orientation to this opening reality. They are seeking security and knowledge about their own life and circumstances. They are not fascinated by who had the longest fingernails for that person's sake, but because it tells them something about proper scale and about norms, by limiting the possible. So when I suggest that our literacy teaching will gain by working out how to engage students with the limits of the real world and human experience, I do not mean that we will likely thereby remove any focus on the everyday world. We want literacy to empower them to deal better with precisely that. The everyday world around them can become more meaningful in a new way, if we can help to orient them to it through attention to the limits or context within which it exists. Emphasis on the extremes and limits of reality does not remove students' attention from everyday experience, but enables them to see it in a new light, a light that should give them greater security and confidence in dealing with it.

To divert one possible misunderstanding of the point: Clearly students who come to our literacy classes have been living and dealing with reality, often in only too brutal detail. The "redefinition" I refer to does not suggest that, before becoming literate, people have been inadequately realistic. Rather, literacy can encourage a kind of reflection that involves a subtle but pervasive difference in how one sees one's reality.

This point is a little paradoxical, or counter-intuitive, which is why I belabour it somewhat. We may recognize many complex human experiences that follow the same somewhat paradoxical path. As St. Francis of Assisi noted, it is by attending to others that we can come to know ourselves; attending to ourselves leads only to confusion and solipsism. My point is a cruder and simpler observation of the same principle – that we get to know the immediate and practical by focusing on the wider context in which they exist. This does not mean that we will not also focus on the immediate and practical, but that they will always be enriched by this attention to the orienting context.

Overcoming the everyday world

The new sense of reality that can come along with literacy may indeed be empowering, but may also bring threats. The mythic "agreed reality" of oral cultures might not provide the kind of pragmatic control that has come with sophisticated literacy, but it is a more comforting state of mind for those who participated in the myths. The trouble with a new and autonomous reality, initially at least, is that one has little accurate sense of its scale or its rules; it can be frightening. One common strategy to meet this threat is to make a

mental association with someone or something that seems able to overcome the threats posed by the new everyday reality.

Perhaps the most common and simple examples of such associations are evident in the boy who becomes a fan of a particular football team, or thinks of a particular basketball player in heroic terms, or in the girl who collects all the records and watches all the videos of a particular singer or film-star, and thinks of that singer or actor in heroic terms.

The association can be with a huge variety of people or things, though. One could associate with a political figure, or some other celebrity - a Princess Diana or a Mother Theresa - or one could associate with one's company or with an institution. The power of forming such associations is so versatile that the range of objects to which one might associate seems limitless: the tenacity of a weed on a stormy rock-face, the ingenuity that has created an insulated plastic cup, the beauty and power of an animal, the harmony and serenity of a tea ceremony, etc. What is going on in such cases? One doesn't find such phenomena in cultures untouched by literacy or by the media that are products of literacy. Yet it is a phenomenon we are all familiar with. One way to characterize it is to see it as a response to the threats posed by reality.

This association with people or institutions, or even makes of automobile or computer, is primarily an association with the heroic qualities that they exemplify. It's not so much the particular pop-singer or football team that engages the association; rather it is their great talent that, for a moment and in part, we incorporate into ourselves. The heroic qualities with which we associate depend, in significant degree, on what we are insecure about. In mass society, where a general anonymity is the norm, celebrity itself attracts our associating capacity. But power, compassion, energy, genius, creativity, any human quality can form the anchor for an association.

We can use the cognitive tool of associating with heroic qualities to highlight almost any feature of reality. It becomes a way to imbue things with significance and, reciprocally, make them engaging to our associating capacity. For example, one can focus on any object, say, the book on my desk, and project into it some heroic qualities. It is easy to see how one can romanticize the object: One highlights it, marks it off from its surroundings; One may then see it even more clearly as an object with which one can form an association, with human ingenuity. [See sidebar: *The Book on my Desk*.]

This ability to project into objects the qualities that enable us to associate with them easily, is an important cognitive tool in making aspects of reality lively and engaging to us. It is one of the tools of literacy that helps us to overcome one of literacy's main potential problems, i.e. the dissociation from our affective processes. In teaching literacy we will want to be sensitive to the potential problems it may present for learners, but we would do well to imbue our teaching with those particular tools that can overcome the problems in a way that enlivens and engages the newly conceived reality.

The sense of wonder

Related to our ability to make associations with heroic qualities is our ability to see any object as wonderful. It is easiest to feel the emotion of wonder in the face of the more dramatic features of the natural world – the mountain view, the gold and scarlet sunsets, the vast waterfalls, the

The book on my desk

In the case of the book, one might highlight the millennia of human ingenuity that have created this compact object crammed with tiny symbols that serve us as an externalized memory. It can contain an endless array of information and convey the emotions and experience of other people in distant times and places. Human ingenuity has made the crammed pages hospitable to the eye by means of tiny punctuation marks and divisions within the text. These tiny marks helped to democratize reading, and have probably had more influence on human affairs than all the armies of history.

immensity of space. Wonder is, in part, a result of the "disembeddedness" of literate, rational thinking that removes us from that participation in the natural world that is a feature of oral cultures. Wonder is a kind of emotional memory of what we have lost. But the "overflow of powerful feelings" that accompanies wonder can, like the associations I discuss above, be directed to almost any object. Everything we see around us can be re-seen in the light of wonder. As W.B. Yeats put it: "Everything we look upon is blessed."

Wonder can be the engine of intellectual inquiry. It exemplifies literate rationality's persistent questioning. Whereas myth tends to provide totalizing accounts of reality, the newly conceived reality of the literate person is open at all points to questioning. Wonder can be silent in front of nature's grandeur, but it mostly encourages us to ask questions. "I wonder..." is the start of scientific thinking. Nature, no longer participated in, becomes an object of wonder and inquiry. I wonder why the bath-water rises as I sink into it. I wonder how many worms there are in the garden. I wonder why the sky is blue. Most fundamentally one might wonder why there is existence rather than non-existence, as did Leibnitz. Stimulating wonder energizes the literate mind.

We can learn to be literate in a way that is purely utilitarian, and our utilitarianly literate person may deploy her or his skill simply to think "literally," that is, not using its power to evoke wonder. My general argument in this paper is that it is no harder, and indeed rather easier, to learn to be literate in a manner that engages these cognitive tools of literacy than it is merely to learn the technical tools of decoding and encoding for utilitarian purposes. I am not in any degree suggesting that we disparage the technical tools nor the value of literacy's various utilities. I am arguing that that utility is best served by development of a wider range of literacy's cognitive tools than is usually recognized.

In our literacy teaching, then, we will be sensible to how one can evoke a sense of wonder related to our topic. This will require the teacher to reflect on the topic and locate what is wonderful within it. It is as though we have to recapture the emotion of our discovery of the topic. Even dealing with the everyday transactions of shopping, one can evoke some sense of wonder by drawing attention to the astonishing variety of goods brought from all the corners of the world, the ingenuity that has gone into arranging for portions in hygienic containers with stunning efficiency, the work of generations of chemists and physicists that has gone to making such taken-for-granted products as toothpaste and other cleaners, fruit juices, frozen peas, and so on. This does not demand lengthy factual lessons on the background of each item, but rather a constant alertness to the wonder of the shop. It is hard for some people to pull back from utilitarian routines, but to stimulate this cognitive tool involves the teacher in constantly locating the immediate objects of the lesson in the wider context of wonder. A part of good teaching that helps the transition to literacy is to locate something wonderful in everything we teach; doing so not only makes learning easier for the student, but is also more intellectually and spiritually enlivening for the teacher.

This sense of wonder underlying the daily routine stuff of life is hardly a novel observation. A.N. Whitehead in his seminal essay "The Rhythm of Education" discusses the importance of evoking a

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sense of romance when first introducing a topic to students. He talks about "the vividness of novelty ... the excitement consequent on the transition from the bare facts to the first realization of the import of their unexplored relationships" (Whitehead, 17-18).

Mention of excitement and vividness may, perhaps, deter the average teacher, who knows indeed that teaching can and should involve these qualities in some degree, but the deterrence comes from the seeming claim that classes should invariably be neuron-poppingly exciting all day long. I don't think Whitehead means that, and nor do I, though I recognize that too frequent mention of "wonder" can give an impression of not being aware of the realities of the everyday literacy instruction. Some of the trouble between words and interpretation perhaps comes from words like "romance" and "wonder" being taken on the one hand as too exotic and on the other as too literal. Whitehead does not expect students and teachers to be constantly transported by "romance," in some B-movie sense. Rather, his idea suggests that the teacher should try to keep fresh and vivid for the student the genuinely wonderful achievement that literacy is, and the "romance" that becoming literate involves. This discussion of wonder, and Whitehead's related "romance," suggests that we can derive a principle that will help us inject these qualities into our planning and teaching of literacy.

Knowledge and human meaning

Scientific knowledge, especially as stacked in text-books, has an aura of objectivity; it is secure, uninfluenced by what we might hope or fear, a reflection of what is the case. That, at least, has been the view taken by its most enthusiastic promoters. That kind of security and objectivity have been seen as extended products of the development of literacy. But this conception of knowledge, and the methods of inquiry required to establish it, were late acquisitions in Western cultural history. Literacy had been employed for a great variety of tasks before science crystallized as one of its more dramatic implications. As our concern is with initial adult literacy, we might do better to focus on the kind of knowledge that was found engaging and meaningful by adults during the early years of literacy's use.

We have looked at some aspects of Herodotus's inquiries and might usefully consider how he established knowledge of what he believed to be real and true. What kind of knowledge did he inquire after?

One form of knowledge was that *Guinness Book of Records* kind – exotic and, if possible, scandalous (to his Greek readers or hearers) details of the behaviors of the Egyptians, Libyans, Scythians, Persians, and so on. His narrative is full of stories about how Amazon women did not marry until they had killed an enemy in battle, or how Egyptian women attend market and deal with business while the men stay home and weave, or how the Egyptians catch crocodiles. A common element of these exotic stories is their human agency. Events or buildings or behaviors are seen as products of human choices, hopes, fears, or intentions. Much of Herodotus's text bears more than a trivial resemblance to the tabloids one sees at supermarket check-outs in Western countries. He was, at one level, a superb journalist. He always had his eye open for a good "story," and the story always had a "human element." The knowledge that engages Herodotus is what we have come to call, since the Romantic movement, "romantic."

A related form of knowledge in his narrative concerns his attempts to establish just what really happened with regard to some historical event. He recounts for us what people say, often that the gods were involved in influencing the course of a river that had evidently been changed by heroic engineering work. He dismisses the stories of the gods; they might be illustrative of the enormity of the work but they were not literally true. The literate person looks for real causes. But Herodotus's sense of a "real" cause is curiously unlike any that our rational and scientific culture would recognize as adequate. He always looks for a true story, in which the event or construction was caused by someone's emotion or will. Typically all great erga are products of emotions that cause heroic individuals to bring about the erga. What caused the great war between the Persian Empire and the Greek states? Herodotus sweeps away the numerous, and competing, "mythic" accounts, and locates the real cause in Croesus's greed and his desire for revenge against Cyrus.

What we see in Herodotus's text is a notion of causality and a focus on particular engaging topics that we recognize from modern movies, novels, soap-operas, and journalism. They were forms of knowledge that initiation to literacy typically still evokes in all literates today. We may develop more sophisticated conceptions of causality and we may learn to find other features of the world more intellectually engaging than its exotic extremes, but we would be unwise not to observe that these characteristics seem very commonly to come along with initial literacy. If our concern is initiation of students into literacy, we might wisely consider how these characteristics could perhaps influence our teaching.

One particular implication of the newly literate engagement with reality concerns access to knowledge, the recognition that all knowledge is human knowledge. While we can see knowledge dissociated from its human source, as is common with mathematics, for example, we can also see knowledge always as the product of human beings' ingenuity, energy, passions, hopes, fears, and so on. People like us made it, invented it, discovered it, formulated it for human purposes, with human motives. Instead of representing knowledge to the newly literate as a given, we might engage them more readily and make the knowledge memorable and meaningful by re-embedding it in the contexts of its original invention or human uses. With regard to subjects like mathematics, when students learn a mathematical algorithm by seeing who invented it and for what purpose, it is more easily learned and better understood and remembered. If students are not taught in the traditional way that interior opposite angles in a figure are congruent, and work at examples till they seem to understand the principle, but are instead told the story of how Eratosthenes measured the circumference of the earth very precisely two millennia ago, using this geometric theorem, then learning is typically much more efficacious.

Transcendent human qualities

I want to pursue a little further a particular feature of associations when looking at a common strategy for "overcoming the everyday world." I noted that Herodotus conceived of erga as products of the heroic qualities of individuals, and he saw his inquirer's job as recording the names of those heroic individuals and their deeds so that they would not be eroded and effaced by the river of Time. This characteristic finds an analog in the lives of modern children when they become literate. The typical ten-year-old or twelve-year-old boy associates with a sports hero, the typical

early adolescent girl associates with a singer or group or with a movie-star hero.

The archetypical hero in the Western tradition has been a male power-oriented doer of usually violent deeds. What characterizes the hero is an unusual degree of what I am calling transcendent human qualities. Any hero provides a wide range or mix of qualities, and can embody unusual degrees of such transcendent qualities as sanctity, compassion, selflessness, elegance, wit, ingenuity, patience, or whatever, equally as well as testosteronic violence. So we can see a saint, a nurse, a scientist as heroic, no less than the debased successors of Ulysses and Sir Galahad.

While it may be the case that this common characteristic of associating with transcendent human qualities by the newly-literate is only contingently a product of literacy, it seems to be readily produced by initial literacy, both in ancient Greece and in students today. Even if it is only contingent, we would be unwise to ignore its power to engage people's interest. As noted with all these other characteristics, they do not simply go away as we become more sophisticatedly literate. They may become transformed, but even the most sophisticated knows what it is like to make an association with the transcendent human qualities we see in heroes, whether our hero is a noble idea or institution or political ideal.

To emphasize, in our early literate ability to associate with transcendent human qualities, we tend to focus on heroes for the extraordinary quality that they embody. While this may seem obvious, it is important to make the distinction in order to use this characteristic flexibly when teaching. We do not need to constantly drag heroic figures into our teaching; instead, we need to be alert to the fact that we can find transcendent human qualities in anything. Anything, as we saw above, can be seen in human terms; such terms will not give us a complete view of any topic, but they will give us one engaging view, and onto that we can add others. And most engaging among human terms are those transcendent qualities that promise us an enlargement of our powers.

I acknowledge that associating with transcendent human qualities gives one only a partial understanding, but all understanding is limited. Understanding and knowing are not on/off conditions. They come by degrees, by the accumulation of partial views. So developing such partial views should not be criticized; criticism may be appropriate if we recommend stopping with such partial views, which I do not. Partial understanding is a necessary prerequisite to developing fuller understanding later.

Another feature of transcendent human qualities is that they are inevitably affective in some degree; they engage our emotions. We are not indifferent about our heroes; the football players or pop-stars often attract degrees of emotion that astonish those who do not share an association with them. We tend to think of teaching as not a very emotional activity. Some see it as a job to be performed with as much professional efficiency as possible, and, while they recognize occasions that are "emotional," perhaps due to a clash of personalities or some event that occurs in class that moves everyone, they tend not to think of the instructional activities as properly involving emotions. Most literacy teachers probably do not plan their teaching in a way that routinely involves reflection on the emotions to be evoked in class. Yet an implication

of this characteristic of initial literacy is that instructors should do precisely that.

Evoking emotional responses to the materials of instruction does not require us to make our classrooms sites of sobbing tears or shouted elation all day long. Emotions come in many forms and endless degrees. Human beings are, after all, in David Kresch's celebrated term, "perfinkers"; we "perceive/feel/think" together. Attention to transcendent human qualities in our teaching will underline the importance of perceiving, feeling, and thinking of our students as people who are not simply thinkers when learning but are people whose senses and emotions must also be engaged if our teaching is to be most effective.

Early forms of literacy and literal thinking

We have seen that literacy in the ancient Mediterranean world was tied up in developing Western conceptions of reality. Literacy became a complex tool for trying to mirror reality, however problematic or even impossible we might consider that ambition to have been (Rorty). But before that ancient Greek ambition took form, literacy had been used in a less complicated way to reflect what was real and true. That is, symbols were devised to indicate how many barrels of figs or how many cedar logs someone had for trade. The ability to represent such simple features of reality led to the development of a set of forms that was impossible or useless in oral cultures. If we are concerned with initial literacy, we might sensibly reflect on some of the earliest forms and uses of literacy.

Since 1919 numerous tablets have been excavated from the ancient port of Ugarit in Syria. Written about 1400 BCE. about two-thirds of the tablets are made up of lists, of taxes, rations, supplies, pay, inventories, receipts, census records, personal and geographical place names, purchases, loans, and so on. If we were to calculate the kinds of records sorted on computer disks at the moment, we might find that a similar proportion involves lists. The list is ubiquitous in our culture, and has been one of the most common uses of literacy as well as one of the earliest.

Literacy is a process in which the eye begins to replace the ear as a major source of information. The way the eye derives information from texts is quite different from the way the ear derives information from sounds. The process of early literacy instruction – if it is to be most effective – must, then, involve training in the techniques that make for easier retrieval by the eye. Now, obviously, this is no simple matter, and the shift from ear to eye involves complex psychological re-patterning (Goody; Innes). I want to by-pass the theoretical issues involved, and the disputes that persist with regard to this feature of literacy, and focus instead on some simple pragmatic results. One set of practices for early literacy teaching might draw on those forms of literacy that accompanied its first appearance.

Literacy is a process in which the eye begins to replace the ear as a major source of information.

Once information could be stored in a written list, the mind was released from having to memorize items by tying them into memorable rhyming imagistic stories. In addition, the list remained available for visual inspection at any time, and by anyone who could read. Once lists are recorded, they are open to, and often invite, reordering, categorization, classification (and one need not fear that these manipulations might result in the loss of elements from memory).

Making and manipulating lists can have an important influence in achieving one

fundamental aspect of literacy. Let me use Jack Goody's words to indicate an important dimension of the change involved:

> The list is transformed by writing and in turn transforms the series and the class. I mean by 'transforming the series' simply that the perception of pattern is primarily (though not exclusively) a visual phenomenon ... In saying that the list transforms (or at least embodies) the class, I mean that it establishes the necessity of a boundary, the necessity of a beginning and an end. In oral usage, there are few if any occasions when one is required to list vegetables or trees or fruit (Goody, 105).

The boundary setting or category generating that Goody refers to raises perhaps trivial questions, such as whether to classify a tomato as a fruit or a vegetable, but also leads in the direction of epistemology. Less grandly, the activity of making lists and manipulating them can make clear some of the basic uses and values of literacy. One might invite the learner to write a list of fruits, for example, and then invite them to reorganize the list into those fruits whose skins we eat, those whose insides are in segments, those with stones in the middle, those which grow on bushes, those which grow in "our" country, and those which grow in clusters. A list of sports may be divided into those in which we kick a ball, those in which we hit a ball with something, those in which the goal is off the ground, those we play indoors, those in which more than two teams compete, and those which can be played with only two people. I give such simple illustrations just to indicate that the innocent-seeming list allows the learner to begin rational tasks that can show how literacy activities can enlarge our powers and, incidentally, engage us in activities that can be fun.

As Goody says, list-making and manipulating is "an example of the kind of decontextualization that writing promotes, and one that gives the mind a special kind of lever on 'reality'. I mean by this that it is not simply a matter of an added 'skill' ... but of a change in 'capacity'" (Goody, 109). Some might find this contentious, but I want only to draw on the notion that such simple activities can help to enlarge literacy beyond the simple dimension of increasing vocabulary or skills.

The list is simply one of a set of literate tools that may perform this enlargement of capacity. A related one is the flow chart, which is a list organized by the principle of temporal sequence. It often has a direct and powerful utility. Practice in applying one's initial literacy skills in flow charts can provide both a straightforward vocabulary exercise and also the pleasure that always comes with mastery of a new and useful tool.

A set of similar tools in which the eye's immediate access gives increasing control over features of reality includes diagrams, tables, data-bases, socio-grams, recipes, and so on. In many of these tools, events and processes and information can be routinely made available for reflection and action in new ways. Teachers who have not commonly used such tools might be surprised at how engaging most students find even the simple activity of making and manipulating lists.

Literate forms of oral capacities

We have seen that in the past the orality/literacy "divide" was commonly seen as a puzzle about moving from myth to rationality, and a result of posing the problem in such terms suggested two somewhat distinctive forms of thought. The distinction from the point of view of

someone interested in initial literacy hides as much as it illuminates. In particular, it hides the fact that these are not two discrete forms of thought and that a person does not pass directly from one to the other. It hides, that is, the characteristics that I have been exploring; these are rational characteristics but not those that form the focus of descriptions of rationality. The sharpness of the distinction also hides the fact that the tools of orality do not simply fade away with the development of rationality. Commonly there is a gradual shift from one to the other, in which the tools of orality undergo some changes, but might be recognized as just a somewhat evolved form of much the same intellectual tool.

I want to revisit three of the characteristics of orality for illustrative purposes and see how they remain relevant to initial literacy, even if in a slightly different form.

Let us consider the story first. Clearly stories do not go away with the onset of literacy and the rationality associated with it. One aspect of "the primary role which storytelling plays in the household of humanity" (Benjamin, 101) is its power to shape experience into affectively meaningful patterns. One evident shift in the form of stories most engaging to the newly literate is the increasing influence of the criterion of reality. This does not mean that fantasy disappears but that the story has to accommodate to principles of reality. These may be most evident in the mechanisms of causality. Even if the story is about a Superhero, like the Hulk or Superman, the rules of causality that operate in the story can no longer involve magic. The powers of a superman may serve the plot of the story much like the magic of a fairy-godmother, but the reader or hearer must be given some explanation of those powers that conforms, roughly, with realistic principles. We have to know about Superman's birth on the Planet Krypton, or the Hulk's unfortunate but empowering condition being due to some nuclear experiment going wrong. What we cannot accept is the simple assertion of these magical powers.

Stories may become more diffuse with literacy, elaborating and complicating the moves from beginning to middle to end. And the rational/literate person may often pursue detailed knowledge while story structures may give richer meaning by providing a general context for the details. For example, Carl Sagan's Cosmos series, on TV and in book form, involves building up precise and detailed knowledge, but always within the meaning-enriching context of an overarching story. Such stories straddle "the open boundary" (Gearhart) between fiction and reality, between invention and record, giving us factual details bound within an overall narrative structure. This is, of course, what Herodotus gives us: masses of seemingly random details organized within a carefully structured narrative of the great war between the Persian empire and the Greek states. Emphasizing orality gives us the story, emphasizing rational literacy gives us the factual details, but emphasizing the transition gives us the details within a narrative structure. The details will enlarge the students' understanding of reality, the story will ensure their affective engagement.

Binary oppositions in fantasy stories – good/bad, brave/cowardly, fear/security, etc. – begin to give way to that exploration of the extremes of reality discussed above. The earlier forms serve as a kind of template for the initial literate exploration of reality. The literate person seeks knowledge about who really, or literally, was the biggest person and smallest person, who the bravest and who the most cowardly, what causes the greatest fear or security.

Such binary opposites will invariably come to be seen as inadequate, if the educational process proceeds properly. The simplistic grasp and then their breakdown "leads by a dialectical process to the formation of more complex systems" (Goody, 102). So, during the period of initial literacy, we will want to be sensitive to the value binary oppositions might have in grasping the extremes of some topic, but we will also want to be sensitive to the mediation and elaboration of such oppositions.

The images that form a significant characteristic of orality's arsenal of sense-making tools also do not go away. It is commonly suggested that young children and people in oral cultures seem to lead lives more vividly enriched by images than do literate adults. It would be hard to evaluate such a claim and find secure measures for image formation. But it is equally hard to dismiss the claim. More generally, we might observe changes that the imagination goes through with the advent of literacy. In particular, we might be wary of the possible reduction of image-formation and imaginative engagement as literacy develops. Consequently we might want to design teaching activities that invoke and evoke images of a kind suitable to increasingly realistic thinking. Even when dealing with utilitarian topics and exercises, we can reflect on the images and sensations that might encourage imaginative engagement with them.

My point in so briefly mentioning the change in form of these three characteristics of orality is to emphasize that the development of initial literacy does not make them evaporate. They remain with us, transformed in part by the influence of some of the characteristic tools that can come along with initial literacy. So a fuller characterization of the cognitive tools of literacy would include not only those discussed in Part 2, but also those discussed in the previous part, in forms modified by, most generally, that "redefinition of reality" to which Bruner refers.

Conclusion

By focusing attention on initial literacy, rather than its fuller achievement, we bring to the fore a set of somewhat unfamiliar tools. We will not expect our students, when they engage with these tools, to become in some imprecise sense like Herodotus and his fellow logographoi. But Herodotus's work is a useful example of the kind of cognitive tools deployed in an autonomous and distinctive way when literacy was in its early stages of development. While Herodotus was obviously highly literate, the cognitive tools he was able to use were not those of a later Plato or even Thucydides. Herodotus's text displays little of the systematic rationality of those later writers and his inquiries are designed around a romantic story of the small and brave defeating the great and proud. While our adult students working with initial literacy will not have the technical expertise of Herodotus as a writer, we may reasonably expect them to draw on an array of cognitive tools similar to those exemplified in his narrative. And, as Michael Ondaatje's *The English Patient* shows, the appeal of Herodotus's text and the vivid stories and amazing erga he describes still have enormous engaging power to mass cinema audiences as well as to readers today. It might not be silly for the literacy teacher to study the text not only for clues to the cognitive tools their students' might already possess, but also for actual pieces of text to use in lessons.

The "literacy hypothesis" that grew from the work of Havelock, Ong, Goody, and others was commonly taken as a claim

about the causal effects of literacy on thinking. It is not clear that any of these authors saw literacy as necessarily having this direct transformative role; mostly they discuss literacy as a catalyst rather than cause, despite occasional incautious statements. Even so, a useful qualification to that "literacy hypothesis" was the emphasis that "Literacy is for the most part an enabling rather than a causal factor" (Gough, 153). Also other scholars emphasized how one needs to see literacy today as a tool embedded in social, political, and ideological contexts, rather than as itself some disembedded enhancer of any individual's cognitive powers. Street was acute in pointing out how literacy was becoming used as a more subtle form of reinforcing the older mythic/rational distinctions that were used to establish the superiority of the latter.

"Literacy unlocked a variety of doors, but it did not necessarily secure admission" (Cressy, 189). This observation has been historically true in a variety of ways, whether we want to extend the notion of admission to the array of rational skills indicated by the "literacy hypothesis," or to the jobs and privileges associated with middle-class members of Western cultures, or to the self-esteem tied to fluent literacy in literate environments. Whatever our purposes in encouraging literacy, it is useful to remember that literacy more than any other technology invented by humans has unfolded implications beyond the dreams of its inventors.

My interest in this paper is not only with the simple level of literacy-competence, but also, in the process of students' attaining that competence, with securing for them admission to some other of the potentials of literacy. In particular, I want to show how we can think of initial instruction in literacy not only in terms of acquisition of a simple skill but also as an enlargement of one's cognitive tool kit. In this process, however, we need to be alert to the ideological implications of our work. In addition, we need to work out how those cognitive tools can be developed in practice in the everyday literacy classroom.

Postscript 2000

At the time of writing this, I have the joy of playing daily with our first grandchild. At one year, we can distinguish three distinct sounds in his vocabulary. First, a loud "a", as in "at" is his sound for the cat. The "a" is clearly derived from our use of "cat" with a slight modulation which seems to be his acknowledgement of the sound the cat makes – usually meowing in terror as the eager infant crawls energetically towards her shouting "a" "a" "a." Second, an "eh" sound, spoken with some urgency or irritation, seems to mean "again". It is used when one has finished spinning his wooden top or when he has knocked down some plastic containers that he wants re-erecting so he can knock them down again. There is also a sound somewhere between the other two that designates people, and which commonly greets me in the morning.

During the next two years, if he follows the developmental pattern common to nearly all humans, language will begin to become more differentiated and elaborate, and then will develop in a burst that is always a little like a miracle. Whether or not one accepts Stephen Pinker's claim that we have a "language instinct" (Pinker), certainly we are supremely sensitive to language, and it emerges in our development with great reliability. We are genetically predisposed to become oral language users.

We are not genetically predisposed to become literate. The learning that is necessary to become efficiently literate seems different in

"Literacy unlocked a variety of doors, but it did not necessarily secure admission."
– Cressy

some significant ways from that which leads to our development of oral language. Indeed, we are inclined to say that orality develops whereas literacy is learned. Our grandson will likely not become literate with the thoughtless ease with which he is beginning to become an oral language user.

...literacy has emerged historically from orality and it emerges in our individual experience.

What we hope to witness over the next couple of years in our grandson's experience is a kind of vastly accelerated recapitulation of a process his long distant ancestors went through in developing language in the first place. "Recapitulation" is a somewhat risky word to use, of course, largely because of its past abuse and because it suggests some kind of detailed repetition of the same process – a kind of ontogeny recapitulating phylogeny – which is likely unwarranted.

Even so, literacy has emerged historically from orality and it emerges in our individual experience. I have taken a somewhat Vygotskian approach to the problem of why it is often so difficult to teach efficient literacy, even though nearly all people are efficiently oral. I mean Vygotskian in the sense that I have considered both orality and initial literacy as mediators that shape understanding and cognitive functions. My aim has been to analyze and classify some of the cognitive tools that come along with orality, both in historical and individual experience, and some of those that come along with initial literacy. I have tried to show that, by looking at orality and literacy as general mediators of understanding, we can see how we might manage the emergence of literacy from orality in typical literacy classes.

The initial effortless articulation of oral language and the so often hard work of acquiring literacy seem worlds apart. One is supported by our evolutionary development, the other is a technical invention of a few thousand years ago. Those who assert that the latter should be as effortless as the former, and should follow the same pattern, seem to be ignoring evolution. The latter development is, however, complicatedly tied to the former. I think that by exposing the cognitive tools underlying our uses of language, some of the ties are also exposed. As a consequence we can devise better ways of helping children with the hard work of taking into themselves the technical invention of a few thousand years ago.

This exploration of cognitive tools, I recognize, is a little unhelpful without detailed examples of how each of them might be used in practice. In part, of course, this deficiency can be made up by readers' imaginations. I have been exploring related ideas for some time, and examples and elaborations of these ideas may be found in my books mentioned in the bibliography.

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