

# Cognitive tools that come along with oral language

Summary

Cognitive tools aids to thinking developed in human cultural history and learnable by people today to enlarge their powers to think and understand.

Orality the set of cognitive tools available to oral language users before literacy becomes fluent.

Imagination the ability to think of things as possible--the source of flexibility and originality in human thinking

Main idea engaging students' imaginations is crucial to successful learning. If we want to be able routinely to engage students' imaginations in learning, we must understand the main cognitive tools they have available for learning. We must shape our lessons to fit their cognitive tools.

Some of the main cognitive tools students will possess in greater or lesser degree before they become fluently literate

Story is one of the most powerful cognitive tools students have available for imaginatively engaging with knowledge. Stories shape our emotional understanding of their content. Stories can shape real-world content as well as fictional material. It is the real-world story-shaping that promises most value for teaching.

Metaphor is the tool that enables us to see one thing in terms of another. This peculiar ability lies at the heart of human intellectual inventiveness, creativity, and imagination. It is important to help students keep this ability vividly alive by exercising it frequently; using it frequently in teaching will help students to learn with energy and flexibility.

Abstract binary opposites are the most basic and powerful tools we have for organizing and categorizing knowledge. We see such opposites in conflict in nearly all fictional stories, and they are crucial in providing an initial ordering to many complex forms of knowledge. The most powerfully engaging opposites—like good/bad—are emotionally charged and, when attached to curriculum content, imaginatively engaging.

Rhyme, rhythm, and pattern are potent tools for giving meaningful, memorable, and attractive shape to any content. Their roles in learning are numerous, and their power to engage the imagination in learning the rhythms and patters of al areas of knowledge—and the underlying emotions which they reflect—is enormous.

Jokes and humour can help to make language “visible.” They can expose some of the basic ways in which language works and, at the same time, allow students to play with elements of all areas of knowledge, so discovering some of the rewards of knowledge in the process of learning. The consistent use of jokes and humour can help to enlarge the imagination’s grasp of any subject’s possibilities. They can also assist the struggle against arteriosclerosis of the imagination—helping to fight against rigid conventional uses of knowledge and showing the student dimensions of any knowledge’s flexibility.

Images in the mind can be evoked by words. This generation of mental images from words can be of immense emotional importance, influencing us throughout our lives. In societies saturated by visual images, it is perhaps increasingly important to allow students space to learn to generate their own mental images. We can easily forget the potency of our unique images generated from words. Often the image can carry more imaginative and memorable force than can the concept, and the use of images should play a large role in teaching.

Gossip is often thought of as an idle pleasure. It can, however, play an important role in learning. It represents one of the more basic forms of social interaction; it is easy to

engage in, and is usually pleasurable. These are not good reasons to avoid its use in teaching! It involves a series of skills, and can be used to enlarge students' imaginative grasp of varied forms of knowledge.

Embeddedness  
in lifeworld

is a pretty awful name for the imaginative engagement with the natural world. It is easy to take one's surroundings for granted, and it is easy to learn in a manner that separates one from the natural world—enlarging forms of rational thought that lose touch with their source in our bodily experience. This is too abstract a way of putting it, but we might be sensible to be alert to the conflict between the general aim of learning in order to empower students and the common constraining of their thinking that accumulating conventional knowledge can contribute to. This may seem a somewhat exotic, theoretical, concern to those who daily battle with students' problems in learning. But it is worth trying to see why it might be important and keeping it in the back of the mind.

I recognize that the kinds of sub-headings above are not the usual fare of texts designed for teachers. But this oddity isn't due to simple ignorance about the daily tasks of classroom instruction. The topics discussed above have been brought into focus by taking the engagement of students' imaginations as a central concern. If engaging students' imaginations is held steadily to the fore as a condition of successful teaching, then the kinds of categories mentioned above, even if unfamiliar and perhaps seeming a bit odd, represent the kinds of things to which we should attend.

## Mythic understanding

### Story

The story is one of the fundamental cognitive tools that comes along with language. An implication of being an oral language-user is a responsiveness to stories. All oral cultures we know of have developed stories, and nearly all children readily enjoy them. But what are stories, and how are they distinguishable from other narratives? A story is a particular kind of narrative unit that orients our feelings to the events that make it up. And in this, stories are unique. No other kind of narrative can fix our emotional response to the elements that make it up as can a story. We ascribe emotional meaning to events, and to people, and to our own lives by plotting them into partial or provisional stories. We orient ourselves emotionally to our environment by involving it in our stories.

The value of the story to teaching is precisely its power to engage the students' emotions and also, connectedly, their imaginations in the material of the curriculum. There are two senses of the story. The commonest is that fictional form, made up of invented characters, which teller and hearer understand is not literally true. The second sense is perhaps easily understood in terms of the newspaper editor who asks a reporter, "What's the story on this?" The editor is obviously not asking the reporter to make up a fiction, but rather is asking the reporter to shape the events to bring out their emotional force. That is, the reporter is not making anything up, but is selecting and organizing in order to bring out the imaginative meaning of the topic. It is this latter sense that we are mostly concerned with. In our description of how to teach any subject, we are not concerned with fictional stories about the topic, but rather we are concerned with how we can shape the topic to enhance its imaginative attraction to students. In doing this, we will not be falsifying anything, or giving precedence to entertaining students over educating them. We see a crucial aspect of successful education as engaging students' imaginations with curriculum material, and it is the real vividness and importance of knowledge in which we want to engage students' imaginations.

So, the "mind is . . . a narrative concern" (Sutton-Smith, 1988, p. 22), as long as that is not read, as it was not meant, exclusively. (The mind is also a logico-mathematical concern, and an aesthetic concern, etc.) But the pervasiveness of narratizing can easily be ignored if we focus on logico-mathematical operations. It is well to remember Barbara Hardy's celebrated observation: "We dream in narrative, daydream in narrative, remember, anticipate, hope, despair, believe, doubt, plan, revise, criticize, construct, gossip,

learn, hate and live by narrative” (1968, p. 5).

## **Abstract binary opposites**

Consider how young children linguistically grasp the phenomenal world around them. In dealing with temperature, they learn first “hot” and “cold;” there is a kind of necessity to this as “hot” means “hotter than my body’s temperature” and “cold” means “colder than my body’s temperature.” They are, that is to say, the terms for the first and most general discriminations children make and learn to label. Similarly with hard/soft, wet/dry, big/little, sharp/blunt, fast/slow, bitter/sweet, and so on and on. “Logically, we express . . . elementary differentiation in the form of contradictories, A and not-A, and it is certainly true that the ability to distinguish . . . is basic to all cognitive processes” (Hallpike, 1979, pp. 224/225).

If we reflect on the kind of fantasy-stories young children enjoy so readily, we see that they are built on relatively stark oppositions between security/danger, good/bad, courage/cowardice, and so on. Two features of these oppositions are notable for present purposes; one is that they are powerfully affective and the second is that they are abstract. In a simple sense, language implies abstraction: “Language creates distance between the self and the object; language generalizes, transferring a unique perception into a common one; language transmutes realities into abstractions” (Coe, 1984, p. 253). In a more complex sense, it has been argued that abstractions do not develop as a result of encountering concrete objects” but rather that only by using abstractions do concrete particulars become recognizable: “concrete particulars are the product of abstractions which the mind must possess in order that it should be able to experience particular sensations, perceptions, or images” (Hayek, 1970, p. 311). Well, this can become a refined neo-Kantian argument, hard to get a secure handle on. But the prevalence of the view that young children and people in oral cultures are “concrete thinkers” --further encouraged by Piaget’s theory and its developmental categories--has obscured the sense in which they are also, and perhaps primarily, abstract thinkers.

Think of the classic fairy-tales and consider what lies just below their surfaces. What is Hansel and Gretel about? It reads like a meditation on the oppositions security/fear. And Cinderella? Rich/Poor or Vanity/Modesty, Selfishness/Altruism. Jack and the Beanstalk? And the others? Courage/Cowardice, Danger/Safety, Wealth/Poverty, Enterprise/Timidity, Cleverness/Stupidity, Familiar/Strange, and so on. It is as though young children begin to develop these powerful abstract binary categories as soon as they learn language. And it isn’t only children, of course. Apply this kind of analysis to your favorite TV show. Slugging it out just below the surface are these oldest and most fundamental sense-making cognitive tools. What else underlies the classic Western or Cops & Robber stories or sci-fi shows?

It is useful to note in passing that “developmental researchers have been accruing impressive evidence that even toddlers can appreciate quite abstract qualities in the world (ranging from numerosity to animateness to various kinds of causality)” (Gardner, 1993, p. 182). Gardner cites Cary’s & Gelman’s work (1990), his own study of “the unschooled mind” (1991) and Keil’s (1989) study that shows very young children will sometimes override strong perceptual or concrete cues in favor of abstract properties.

We would be imprudent, then, to ignore this powerful tool that all children have to help them in making sense of curriculum material. This doesn’t mean that we are going to teach them that everything is made up of binary opposites, but rather it might guide us to see how we can organize some of the most significant features of any topic in binary terms, in order to provide a clear and comprehensible access to it. Once access has been gained, then we can mediate between the opposites, and elaborate the content in all kinds of ways. But if we go for the elaboration before the basic binary structuring is in place, we run the danger of, first, ignoring one of the students’ main tools for understanding, and, second, providing account which give them no adequate hold on the topic. Sadly, one may say that this is far from uncommon in teaching.

# Metaphor

Metaphor is the capacity, or cognitive tool, that enables us to see one thing in terms of another. “I felt like I was walking on air;” “feeling down in the dumps?” “he pulled himself up by his bootstraps;” “the markets have gone south;” etc. Most simply, metaphor involves representing one thing as though it were something other. Metaphors do not work simply by recognizing or 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, 1962, p. 83). That is, what metaphor most clearly exemplifies is the creative power that human beings inherit with language. 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 the imagination and creativity.

For young children, thinking often moves fluidly according to the complex logic of metaphor more readily than it follows the systematic logics of rational inquiry. We can appreciate this metaphoric power, which is 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. 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, p. 102).

In order that we might manage the huge intellectual tasks of learning a language and orienting ourselves to the world around us in early childhood, we are equipped with some specific intellectual capacities that reach their peak in our early years and remain in some residual form through the rest of our lives, becoming more atrophied in some people than in others. Considering metaphor as a crucial tool in developing these tasks helps to break us away from the kind of psychological developmental thinking that has played so large a part in education. That form of thinking, derived from nineteenth century notions of progress, has created an image of human beings becoming gradually more fully developed intellectually year by year. But while there is undoubtedly improvements in our understanding, it would be a mistake—so commonly made—to assume that all our intellectual tools develop like this. Some, indeed, seem to peak very early in our lives—like metaphor. Our ability to recognize and generate appropriate metaphors reaches its peak by age five, and declines, following an irregular profile thereafter (that typically includes a further lower peak around puberty) (Gardner and Winner, 1979; Winner, 1988). Metaphoric fluency is crucial in language development, but also, of course, for a range of other intellectual activities. Those intellectual capacities we rather vaguely refer to as “the imagination” similarly experience energetic deployment early in life and, typically, gradual attenuation or sclerosis sets in as we grow older.

## Rhyme, rhythm, and pattern

It was discovered long ago that ideas or lore put into a rhythmic form were more easily remembered, and that memorability could be further enhanced by also using rhymes. So we find rhyme and rhythm commonly used in myths when they are performed in their living environments. Sacred stories would be recited to the rhythmic tapping of a drum or strumming of a stringed instrument. Patterning sound helped to embed the lore and ideas in the minds of the hearers.

We also find rhyme and rhythm commonly used by young children in literate Western cultures. Because of writing, there is no longer the social urgency to ensure memorization of the lore of our wayward tribe; instead we want to ensure a different kind of rational understanding, more at home in a prosaic environment. Yet rhyme and rhythm, these techniques discovered as implications of articulate language, are constantly exploited, and enjoyed, by children today. We find them used to add force to abuse, in rhyming nicknames, in riddles, in games, and in the treasury of the lore and language of school children

collected by observant scholars of childhood, such as the Opies (1959, 1969, 1985), Paley (1981, 1984, 1990), the Knapps (1976), and Sutton-Smith (1981). The prevalence of rhyme and rhythm in T.V. ads, on shows like Sesame Street, in nursery rhymes, and in children's stories testifies to their persisting appeal.

The larger trick, of course, is attaching the rhythms inherent in languages to those more general rhythms that are features of our lives—rhythms of hope and despair, of fear and relief, of oppression, resentment, and revolt, of youth and age, of the rising emotions of comedy and the pity and fear of tragedy, and on and on—itsself (“on and on”) the peripatetic rhythm of everyday life. The elaboration of linguistic rhythms to match the patterns of our lives results in those larger rhythmic forms we call stories. A story is an elaborated linguistic form which has a rhythm that reflects, echoes, resonates with a rhythm of our emotional lives.

As rhyme and rhythm are to the ear, so pattern is to the eye. Recognizing patterns, seeing a kind of order in what may to others be chaotic is a considerable human achievement. One feature of imagination, it seems fair to say, is the ready recognition of pattern in the world. The profile of metaphoric competence mentioned above might also be echoed by our ability to recognize unfamiliar patterns. It seems plausible at least that children's ready grasp of pattern is more varied and energetic than that of the typical adult, in whom pattern recognition seems to become constrained to certain conventional forms. Certainly it seems that children are much faster at recognizing the images buried in those complex and randomized forms that hide a three-dimensional image in a two-dimensional scrambled picture.

## Jokes and humor

One kind of story not much mentioned in education is the joke. Only language allows one creature to tell another a joke. Jokes are culturally universal, and laughing at jokes is a behavior specific to the human species. There is, to some minds anyway, something vaguely funny about language at the most basic level; the act of interpreting another's meaning from his or her manner of shaping the air that passes over their larynx and pharynx allows the liberty always to misinterpret them consciously or unconsciously. Pinker observes that “[m]etaphor and humor are useful ways to summarize the two mental performances that go into understanding a sentence” (1994, p. 230).

Certain jokes have a significant educational value, in that they draw attention to language as an object rather than leaving it as a more or less unconscious behavior. Once children begin to observe language as an object, they begin to develop that “metacognitive awareness” that seems to be important for the development of further cognitive tools:

Teacher: John, what's the outside of a tree called? John: I don't know. Teacher: Bark, John. Bark. John: Bow, wow, wow.

\* \* \*

Traveler: There are some spectacles that one never forgets. Cousin at home: I wish you'd get me a pair. I'm always forgetting mine.

\* \* \*

Jim: Should you eat fried chicken with your fingers? Jane: No. You should eat your fingers separately.

\* \* \*

Doctor: Did you take the patient's temperature? Nurse: No. Is it missing?

Well, ok, sorry 'bout that. Perhaps not the greatest jokes in the world, but each has the educational value of drawing attention to language as an object that one can manipulate for purposes of fun, and, the child discovers, for endless other purposes too. But to accept the latent invitation that language offers to manipulate it, one needs to recognize the possibility. That recognition can be stimulated by particular kinds of joke.

Jokes draw on various of the cognitive tools already mentioned. They often rely on metaphoric connections, and are commonly a kind of mini-story, or they suggest a story that is going on outside the joke. They can also 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 provide a quick laugh along with a more persisting moral lesson.

Joking, again, might seem to have little central place in learning—perhaps a frill or entertaining feature for those with a taste for it, and the hard work of learning [x] might use humour only as a “hook”. But this imaginative approach to teaching typical curriculum material elevates humour from some occasional side-player to one of the heavy-lifters of enlarged understanding.

It may seem that the teaching math, or science or social studies isn't in need of humor, or that using humour and jokes is a personal decision of the teachers. But we think this is to trivialize one of the most powerful techniques we have for understanding. The joke is commonly based on incongruity—looking at one thing in so obviously the wrong context or category that it helps to reinforce the category it pretends to disrupt. Well, one needn't get bogged down in the analysis of the joke to recognize that there is something oddly comic about human attempts to understand the world around us. We bring such pitiful equipment to the task. We were designed to live in groups, find food, procreate and die, and here we are trying to grasp the stars and fit the universe into the categories of our cognition. Not exactly futile, but good that children learn something about the cosmic dimension of the comedy of learning about the world as well as the more immediately accessible jokes that are a part of all areas of the curriculum.

## Images

One further implication of the development of language was the discovery that words can be used to evoke images in the minds of their hearers, and that these images can have as powerful emotional effects as reality might, and in some cases even more. These mental images are unlike anything else we are familiar with. Mental images are, after all, even at their closest to quasi-pictures, quite unlike what we see with our eyes. They are also enormously varied in kind, from those quasi-pictorial mental images which we think of as like real images even to the point of "scanning" with closed eyes in search of details (Shepard, 1978), to "images" of smells or sounds which evoke nothing like a picture in the mind, to the most generic capacity of being able to think of things as possibly being so (White, 1990).

Images, like stories, performed in traditional oral cultures the crucial social role of aiding memorization. So we find myths replete with vivid and often bizarre images, that give them what we might categorize as a powerful literary impact. The original purpose of that "literary impact" was an urgent need to preserve knowledge in cultures without writing. They achieved this end by stimulating a range of psychological effects, which continue today in quite different circumstances, long outliving the social purpose they were developed for. Similarly, language development in children leads to the capacity to evoke mental images of what is not present and to feel about them as though they were real and present. Recall, as most of us can quite vividly, images from some of the earliest stories you remember. Some no doubt are influenced by pictures in books but it is common to find that the most vivid and evocative images are those we generated ourselves from oral stories.

In pre-service programs for teachers, considerable time is spent on equipping students with techniques for organizing content, and helping them to clarify concepts. Very little time is spent discussing the power of images in communicating and teaching, and there are few techniques for systematically using images in

teaching. Guided Imagery is one such. This usually involves the teacher, or a cassette-taped voice, taking the students verbally to some different time and place and describing the sights, sounds, smells, and other sensations. Guided Imagery can be a powerfully effective technique in many circumstances. What we mean by the use of images here, however, is on a much smaller scale. It does not require relatively elaborate preparations or set-piece performances. Rather it requires the teacher to be more consistently conscious of the array of vivid images that are a part of every topic and to draw on them consistently in vivifying knowledge and concepts.

If teaching about the earthworm, for example, the teacher can augment the facts about its senses and structure by evoking for students images of what it would be like to slither and push through the soil, hesitantly exploring in one direction then another, looking for easier passages, contracting and expanding our sequence of muscles, segment by segment, sensing moisture, scents, grubs or whatever. That is, as we learn about the anatomy of earthworms we can also feel something of their existence by means of images that evoke analogs of their senses. If teaching about flowers, images of emerging from the cold ground, away from the dark and heavy earth, pushing towards light, bursting with a kind of ecstasy in the warmer air, turning with passion towards the sun, the rush of sap, the horror of returning cold, the shriveling back to underground. Constantly evoking affective images will help both to make the content memorable and, relatedly, meaningful in terms with which children are familiar.

Early understanding, then, is significantly more imagistic than is common for forms of understanding built on literacy. As such, because of the affective charge associated with images, it is in some ways more vivid and more closely tied in with emotions. When teaching young children, then, we would obviously be prudent to bear in mind this powerful imagistic and affective capacity for grasping the world.

## 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, common, “gossip” is associated generally with the casual talk of women, talk usually focused on matters of the home and family and local events rather than the “important” areas of “male” business and politics. The word, in English, comes from “godsibb,” a person related to one in God, or as “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, 1996, 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, 1991). It is a kind of evolutionary analog of the grooming our ancestors very likely indulged in intensively (Donald, 1991).

I was at a conference recently and a graduate student from a different university told me that the interesting paper we had just heard by the well-known Professor X was actually her work! She had written an assignment for his course, for which he had given her only a B, and then he had presented it as his own. He gave himself away because he quoted Foucault in his paper, but confused the quote, taken from her paper, and included as a part of the supposed Foucault quote her following discussion of it! As we drank our beers, she said she was as angry with herself as with him. She should have stood up and told everyone he had stolen her work. But she worried that no one would believe her. She also worried that she would have to ask him for references for job applications in a few months, and her career could depend on his willingness to write them.

Yes, sorry, I'm making all this up. (Though, I fear, this is an invention with too many real analogs.) Was the previous paragraph easier to read than the one that preceded it?

The capacity to gossip entails the narratizing of events, coloring 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. But we can be confident that our students already have developed these tools in significant degree.

While we think of gossip as idle or time-wasting, it does, of course, continue to play a vital social role. If our concern is teaching any curriculum materials to young people who will have the tools of orality in place, then, again, we will want to reflect on how we might build on those capacities we can see and enjoy vividly in gossip. One simple area in most curricula areas is a contextualizing one. That is, gossip about those who made the knowledge students are learning can bring greater understanding by embedding the knowledge in a context of enriched meaning.

## **Embeddedness in lifeworld**

This is a slightly odd sub-heading, intended to emphasize a cognitive tool that is, we think, widely recognized, but which 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 some times been called a “oneness with nature.” Literate and rational people have sometimes found it difficult to understand the value of forms of cognitive activity that seem fairly useless in giving control over the natural world—like myth stories—but we have learned of late that they are often very effective at enabling people to feel comfortable participants in the natural world.

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. But you will have no sense of the emotions we feel as we write. For all you can tell we might be weeping miserably, tears dripping onto the paper, but we are able to hide all that by our choice of written words. In an oral culture 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 modern Western epistemology in oral cultures. Words do not for them become separated out from things and activities. Typical oral cultures, for example, measure time in terms of communal activities. There are no clocks in oral cultures because everyone is attuned to the routine activities of the group, whether herding cows or digging roots. A meal might occur when the work is over or when a certain place is reached. Once societies become literate and rational, and bigger, and people engage in separate activities, time needs to be measured in some “abstract” way, so we can coordinate our activities. We do it by assigning arbitrary divisions and numbers to time and displaying them on clocks and watches, and computers and video-recorders and microwave ovens and so, inescapably, on.

The embeddedness of thought in the lifeworld of oral cultures provides people with stability and security as participants in the natural world. Of late — perhaps since the Romantic movement in the West — people in modern industrialized countries seem increasingly to recognize that this loss of embeddedness is something to be regretted. This embeddedness was seemingly much more vivid and prevalent prior to literacy. Consequently, those whom we hope to make literate and knowledgeable will likely retain greater or lesser degrees of this embeddedness of thought, and we will want to consider both how we might use this cognitive tool in our teaching, and also how we might ensure we do not undermine it more than seems necessary.