Knowing and Indexical Psychology

Ronald E. Day

School of Library and Information Science

Indiana University

Abstract: This chapter has two parts. The first part critiques mentalism in cognitive psychology and Knowledge Management theory's basis in mentalism. The second part proposes a reading of indexical psychology as an alternative to mentalism. The purpose of the chapter is to reposition our understanding of psychological events, including personal knowledge expressions, from a mysticism of private minds and their public representations to a conception of human agency constructing person and self through cultural forms and in social situations. Such an analysis leads to a breakdown of the "inner" and "outer" dichotomy which has formed the basis for much of psychological theory and for Knowledge Management theory (the latter in terms of a dichotomized notion of private knowledge and public mediums for that knowledge's representation). The view proposed here is that psychological research, including research into knowing acts, must begin with the understanding of persons and their selves as dynamically constructed by learning and by experience. In this way, this analysis also is associated with what is sometimes referred to as "activity theory."

1. "The 'inner' is a delusion"[1]

Knowledge Management has been plagued by poor and pernicious models of mind and language. Two dominant metaphysical assumptions are involved in these models. The first common assumption is that the term "mind" refers to some quasi-physical space that contains mental or cognitive elements that are then re-presented in public space. These elements, either simple or complex, are known as "ideas" "beliefs" or "knowledge," or even "information," which are then viewed as publicly expressed in language. The second common assumption, what has been called "the conduit metaphor" (Reddy, 1979), stems from the first assumption and supports it. It is the assumption that communicating or informing is the act of "transmitting" these ideational elements through language or some other communicational or informational "medium." From these two beliefs, various others follow: in information science the notion that documents are represented mental content; that thought involves the "internal" "processing" of ideational elements (classic cognitive science); that human activities, including thought, are (as in the information processing model) built up or broken down complex activities, and that learning involves building complex ideas out of simple ideas or the reverse; and that memory is, essentially, the recalling of ideational elements.

In the space of this article it is not possible to show the problems with all these beliefs. The primary purpose of this chapter is to reposition the problem of Knowledge Management, as well as information science, away from these popular beliefs (and their basis in philosophical metaphysics) and toward research in psychological development and learning theory based on social and cultural analyses. The importance of this latter set of concerns is that they are concerned with mental events as expressions that are socially situated and culturally afforded. The secondary purpose of this paper is to propose alternative models for describing mind and language, and in this, knowledge and information. The now classic cognitive models offered in Belkin (for example, 1977, 1990) and Brookes (1980) in information science (i.e., information science's "cognitive turn" (see also Ingwersen and Järvelin, 2005)), which directly or indirectly have influenced Knowledge Management, are filled with erroneous metaphysical conceits and folk-psychology (in the field of information science, Frohmann, (1992, 2004), has acutely pointed many of these out). They are based on an appropriation of Western folk-psychology and they carry with them the metaphysical conceits which have permeated, and to some extent, still permeate, cognitive psychology. Since the problems that face us are conceptual, empirical, quantitative studies, which by their very nature start from established assumptions about what is being studied, are not very useful. Our work must be that of conceptual critique. The issues that confront us are difficult because of the assumptions we hold. Mental events are cognitively simple, but culturally complex. What I would like to offer in this article is a very simple explanation of mental events, but one that may help some to see through erroneous assumptions.

In this article I would like to present a theory of knowledge (and with this, mind) that is based on Rom Harré's discursive psychology, influenced by the philosophy of psychology and language of Ludwig Wittgenstein and the developmental psychology of Lev Vygotsky. From this, pace the important work of the psychologists, Arthur M. Glenberg and David A. Robertson (Glenberg, 1997; Glenberg and Robertson, 1999 and 2000) in regard to their "indexical hypothesis," I will then outline my own understanding of a theory of "indexicality" as the basis for psychological being and for psychological and social development and for epistemological "structures"— such as concepts and categories.[2] This latter is meant to replace theories of quasi-physiological, private or public forms that are sometimes suggested by terms such as "mental models," "categories," "ideas," "concepts," etc. The attempt is to replace the "structural"-"spatial" senses of such terms and others (e.g., "frames") and the container metaphors ("Chinese box"- like) that follow, with instead, temporal and developmental senses and research following these last. I would like to stress the temporal, discursive, and ultimately culturally and socially pragmatic and dialogical nature of mental events and psychological development.

All beings, including human beings, must have their being and identity accounted for in terms of their historical development and their social construction. While this seems obvious, much of the metaphysics of humanism has been devoted to bracketing this imperative in order to see humans as ontologically distinct from other animals, in particular, and other beings in general. The uniqueness of human

individuals, however, is not due to any a priori qualities in themselves or in their humanness, but like all other animals and all other living beings in general, is due to their social, cultural, and historical specificity of development.

While human beings become the persons that they are only because they are social, cultural, and historical, such persons are unique. In contrast to our habits in English, we should say that persons are "singular" rather than being, a priori, "individual," since the former gives an historical and social perspective and the latter tends, traditionally, to view persons as somehow self-constituted from birth (while this may be truly physically, it isn't true psychologically). The primary error of Knowledge Management, like information science, is to think of persons and their knowledge in terms of "individual" or "private" minds, mental "contents" in such, and so-called "public" expressions of such contents in various public "mediums."

I would propose (again, after Harré (1984, 1989), that persons develop various types of personal potentials for using cultural tools, and that these potentials, when performed in either relatively solitary or social situations, then are traditionally seen as reflecting various types of mental "states" ("knowledge," "feelings," "beliefs," etc.) and their contents. The popular conception that performances reflect mental states and contents is, however, wrong: such "states" are cultural categories—not actual mental "faculties" or other mental "structures." And the performances are situational actions of what could potentially be performed or not (the performances give assurance of potential). Potential mental events are always hypothetically derived; they don't refer back to objective entities and certain causal powers.

There are several important points to note here. Each of these points, below, outlines an alternative approach to traditional manners of understanding "knowledge," "information," "feelings," "beliefs," etc., as these are traditionally understood as psychological faculties and entities.

1) Actions, related to verbal expressions ("knowing," "feeling," "believing") precede nominals ("knowledge, "feelings" (i.e., affective states), "beliefs"), and they are the only real existents (though, they are "real" only in the sense of being culturally understood events or actions). The supposed nominal mental "states" are only reifications of the actions and the verbal descriptions of such.

2) Potentials for "expressions" are ascertained, ultimately, by the performances themselves, which are context and time specific. (Different situations and times of testing may yield different results.) Further, claims of the "content" of mental "states" (e.g., "knowledge") are, in reality, judgments as to the types and qualities of actions performed in specific situations, with the judgments following cultural categories and socially produced expectations.

3) "Private" knowledge, feelings, beliefs, etc., are impossible, but "public" knowledge, feelings, beliefs, are, a priori, certain. We are born into and we grow up in language, as well as in other types of cultural affordances for meaningful actions. The public nature of our meaningful actions (including actions whose meaning is to be "not meaningful") is a given. However, we are born into specific cultural and social situations, we are born at certain historical times, we have very singular relationships with other people and with the world as a whole, and all of this leads to a specificity or "singularity" in our development and in our responses to the world. We may say that, in a sense, we are born many, but we grow into a singular being—and in this sense, we become an "individual" person—a, literally, personalized sense of the many persons and experiences that we have encountered. To summarize: "private knowledge" is not the opposite of "public knowledge." The former is impossible[3] because we are historical, cultural, and socially situated beings, from the moment of birth (and possibly even from the time in the womb) until the moment that each of us dies. However, because we are singular beings, in so far as we learn, remember, and, as humans particularly, we reflect upon the persons that we are (again, however, using cultural forms for our expressions and social criteria for our judgments, as well as for constructing our memories of our past and future selves), we build unique or "personal" manners of performing. Persons and both their very "common" and their very unique or "personal" styles, abilities, and potentials become increasingly important in defining the physical individual as a psychologically singular person throughout a person's life. One is only marginally born a psychological person, though one is certainly born a physical individual. By the time we are old we are sometimes more "singular" than we might wish! "Person" is a psychological category tied to a physical individual, but they are not the same. One develops personhood throughout one's life by one's being in the world.

4) Because much of our primary modes for assembling our persons are learned in childhood, "primary indexes" for the persons that we are and will become are developed quite early and increasingly, intricately, built upon (language acquisition and development is an example of this). Later, I will discuss the construction of personhood through the establishment and development of "personal indexes" for experiencing and acting in the world. Persons also develop long-term "personal indexes" with other persons, which lead to feelings of near-death bereavement when those other persons die (a sense of self larger than that tied to our individual bodies). And for good reason, since with the death of a close other the co-index in which a sense of our life has been built is gone, and with it, a type of personhood we live within is destroyed.

5) Primary indexes and their extended networks are referential, not simply to other signs, and thus to the world at large, but they reflect the agent's own history, social situation, and cultural inscription. As such, they constitute basic forms for the acquisition of experience and for learning, and they show continuity. Humans, unlike machines, largely learn by analogy and by analogical extensions between indexical networks (Day, 2005). (Glenberg (1997) and Glenberg and Robertson (1999; 2000) have referred to the mode of this extension as "meshing," and this term seems to me to well express both the overlapping and the extension of indexical networks.) We learn tasks by being shown how to do them; we learn about new experiences by comparison to old ways of doing and representing things. We break new tasks into simpler units for reason of having smaller units in order to analogize from. This is very different from inorganic machine "learning" which works with symbol manipulation. Machines do not experience the world as a human or even as other living beings, and their "memory" is that of data retrieval—it is not an organic memory of embedded ways of experiencing and doing things. While machines may be designed to mimic organic life, and they may do so well or not, they learn and develop differently.

6) Harré (1984, 1989) and Harré and Tissaw (2005) stress the importance of cultural "affordances" in composing, mediating, and enacting personal powers and potentials. Inorganic natural bodies express themselves in the ways or dispositions by which they are chemically or biologically encoded. However, living animals, and particularly humans, learn to express themselves by ways not just mediated by their bodies, but by social situations and by cultural forms (this is what Wittgenstein meant by a "grammar"—"grammar" refers to the cultural forms and the social situations which afford and allow expressions of personal, as well as other types of agency, powers).

Ludwig Wittgenstein in his later work (particularly, part II of the Philosophical Investigations and his notes on psychology toward the end of his life) and the work of Lev Vygotsky, and more recently, the work of Rom Harré in "discursive psychology," are cornerstone works for treating such issues, and they allow us a more complete and theoretically elegant solution to many of the foundational problems in cognitive psychology and its offshoots (user studies in information science, for example). As is well known, the basic concept of Wittgenstein's Philosophical Investigations is that of the notion of "language games," but this term has sometimes been too simplistically understood. There is sometimes a tendency to believe that what Wittgenstein was arguing in his notion of language games is simply that we use different language practices in different social contexts. And while this reading is true at a gross level, it misses the importance and originality of Wittgenstein's insights on language and on the philosophy of mind and the direction

that his work can give to a revised notion of psychology and psychological investigations.

What are most important in Wittgenstein's notion of "language games" are two elements. The first is that language practices occur together with other types of meaningful practices and materials. This is what Wittgenstein means when he writes of language games belonging to and constituting "forms of life." A form of life is not just a game of language, but it is an assemblage of various types of semantic objects, tools, and meaningful events. The second, related, point in Wittgenstein's notion of "language games" is that language is one tool (a variety of tools, really) among other kinds of tools for doing things in the world. There are not mental elements ("ideas") prior to these tools, and, in fact, what we call "ideas" are more or less personal or shared assemblages, constellations, or clusters of language elements and actions and other types of material elements and actions, understood as a conceptual unity.

One of Wittgenstein's favorite examples of a game is chess. The point of the example of chess is to show that we can do various things with chess pieces: we can throw them at one another (e.g., a 'game' of "fighting") or we can move the pieces like checkers or we can use them in manners that are recognized by custom to constitute playing "chess." (Though it is entirely possible to play chess without all the officially sanctioned rules—for example, beginners often do not know the special move known as "en passant," and yet when they play they, and we, may say that they are "playing chess."). The game of chess is not a performance of a set of rules, but rather, the rules are an idealized collection of sets of moves and possible moves by recognized elements—chess pieces-- that then can be reinvested into the play when necessary. The term "game" in Wittgenstein's work refers to family resemblances of elements and actions and their understood expressions, intentions, affects, and effects. The boundaries and meanings for a cultural "game" are determined by the actual series of actions or "moves" performed over and over again. These become customary, and from these, we gain the affordances and powers of actors and actions embedded in recognized cultural and social practices. There are public and private language games, but they all originate in a "public" space, in so far as they are cultural and social in origin.

Such ideas as the above have profound implications not only for offering an alternative to cognitive models based on symbol manipulation and information processing, but more fundamentally, for rethinking what we mean by common psychological terms such as "self," "understanding," "expression," "communication," "knowledge," and so on.

"Selves," as Harré has shown (1984, 1989, Harré and Tissaw) are potentialities for action, built upon past performances and abilities and intentions toward future performances. "Knowledge," in the psychological sense (rather than a documentary sense, where it refers to collections of documents, data, or even statements) is a hypothetical property of the self (that is, it only truly exists in being demonstrated),

referring to past and potential future performances of an agent which are culturally regarded as knowing acts, that is, performances of "knowledge." Personal "beliefs" are, likewise, hypothetical properties of the self in regard to actions or statements about possible affairs—sometimes affairs which have no possibility for objective verification (religious beliefs, for example). The psychological study of different cognitive "states" is not a study about different possible mental states or faculties and their "contents," but, rather, it is a study of cultural grammars and groupings of what are considered to be mental events (i.e., materials and actions understood as "belief," "knowledge," "reason," "imagination," etc.).

Just as is the case with analogies of remembering (along lines of information storage and recall ("memory")), the analogy of psychological states with collections of documents is misleading. Experiences are not collected and stored like documents, and personal knowledge is not a collection of statements, expressions, or actions that are stored and retrieved. As organic beings we are situationally embedded and culturally formed, and we developmentally acquire and extend the learned activities that come to constitute our being in the world. This, not computation and information retrieval, is the basis for our mental and our physical acts. We act based on similarities with past experiences according to our customs and habits. In most cases of memory and knowledge, we are not recalling anything, but rather, we are reenacting past actions within similar situations and cultural affordances. We are misled if we believe that memory or other mental events function like information retrieval. Instead, mental "states" are hypothetical collections of potentials, made real and actual only through meaningful situations. Mental states have no real existence (the term "state" misleads us)—they are what we hypothesize as potentials for certain types of performances by certain actors in certain situations.

Since "selves" are perceived unities of potential performances, and since "knowledge" is the potential performance of acts that are understood to exhibit knowledge (knowing acts) within a given cultural context and social situation, then any attempt to arrive at absolute amounts or values of knowledge or "intelligence" is based on erroneous assumptions about what constitutes mental events. Often, these assumptions are based on metaphors that describe minds as physical repositories for various "epistemic content" (Frohmann, 2004) such as "knowledge," "ideas," "beliefs," or even "feelings," and it is this notion of a present, but hidden, "content" which then is assumed as the basis for objective measurement. Speculation on psychological powers lie not in the supposition of hidden quasi-physical entities, but rather, such speculation rests on hypothetical conjectures as to future performances based on observed phenomena and reputation.

Mental acts are not computational. They are not based on the "inner" mental computation or processing of discrete mental elements or "symbols." There is no picture in one's "mind" of how to use a hammer when one uses a hammer, and there are no independent modules in using a hammer that one must mentally piece together in order to use a hammer. Likewise, words don't first appear to my mind in order for me to speak, nor are there any instructions in my mind that I need to

consult or any computations needed in order that I speak a sentence in my native language. Mental events—for example, knowledge events (whether verbal or tactile (e.g., hammering with a hammer))--are not information processing events. Machine "learning" is analytic; human, and probably all organic learning, however, is analogical and experiential, even if it contains analytical moments within it (these, too, must be learned situationally and analogically).

Orthodox Knowledge Management theory, following traditional cognitive theories of mind, claim that knowledge is made up of personal or private cognitive elements ("knowledge") that are stored in quasi-physiological entities called "minds" and that this knowledge can be managed via representing, organizing, and processing it. These are errors due to thinking that mental events refer back to mental ("epistemic") content which we "have" in the same manner which we have empirical objects. Our linguistic grammar, here, misleads us into erroneous models of mind, knowledge, and language. When we speak of "having knowledge," of "having beliefs," etc., we are mislead if we think that we "have" such in the sense that we "have" a car, a kidney, or other empirical objects.   When we say that we "give" someone knowledge or that we "share" it, we are misled if we think along lines of giving or sharing an empirical object. When we think of communication and information in terms of "transmitting" knowledge, we are making using of the conduit metaphor in our common folk-psychology, and elevating a metaphor to being a theoretical model. We cannot loan knowledge, like we can loan a car. We cannot lose knowledge like we can lose a car or "lose" a kidney. We cannot share knowledge like we share a car. Knowledge is an event or the hypothetical potential for such an event, not an object. We do not "transmit" ideas, because ideas are not entities and minds are not transmitting and receiving devices for ideas. "Minds" are mental events or the potential for mental events; ideas are assemblages of signs, objects, and actions leading to events, or they are such derived from events. Our ordinary grammar misleads us, and if we fall victim to this, then we are not discussing reality or doing research, but rather, we are repeating and reifying privileged tropes in our language and culture about knowledge, psychology, and communication, and building castles in the sky based on this.

The "cure" for these mysticisms is that of viewing mental events as cultural and social events, among them, and perhaps foremost, as events taking place through linguistic forms. For Harré, this is done by viewing psychological events as discursive activities, studied ethnographically and developmentally. In Knowledge Management research, as a part of a more general knowledge studies, the project would be that of studying how people learn to do, and how they do, knowledgeable acts.

2. Indexical Psychology

Rather than a notion of "inner" epistemic contents and the processing of such contents, a better understanding of how we acquire and use language and other semantic materials and how we form minds and persons may be had by thinking of

the formation of persons and mental events in terms of personal developmentally learned indexes of agent's actions in relation to the world, from which we derive meaning, intention, and identity. Such indexes are acquired at different rates throughout life, more primary indexes forming the skeleton for later indexes of understanding actions and events. Such a view stresses the extreme importance of early psychological development, but without stating that further events cannot, in some cases, modify these indexes in some ways, though such modification is difficult and even in some cases impossible (for example, we can't unlearn our first language or learn a secondary language later on in the same way as our first language). The notion of "index" means, here, meaningful points of actions and events that indicate both the meaning and value of the actions and the events themselves and the importance and role of the person to him or herself as an agent or witness of such. We build our indexes to the world not just in regard to events in the world, but in regard to our own agencies in regard to the world. The notion of "index" points to the assemblage of references which link together experiences for each person.

We see in works such as Proust's À la recherche du temps perdu a catalogue or "thesaurus" of such terms, from which experience and a life and its world are assembled. The novel begins at a fictional moment in time and space, out of which memory as recollection in experience (via free-association or mémoire involontaire) unfolds for the reader. From the encounter with the madeleine, within the conceit of the fictional realist novel as a picture of a life, the indexes of a life are presented as analogically connected and developmentally built up lattices of elements and actions. The ability to modify the future strength—the "core"-- of primary indexes (made up of elements and actions) for personal agency in life in general or for particular types of actions and intentions (and recognitions of events, as well) is in many cases limited, and so the lattices of indexical relations are developmental, not simply historical, with the core indexes being developed in early childhood or, in the case of later acquired unique skills, in the beginning process of learning such a set of skills (though these latter are, of course, also dependent upon the earlier learned, more general, core indexes).

The notion of psychological indexes turns away from distinct notions of "inner" events (such as memory and private knowledge) and outer events (such as "external" stimuli). Here, there are signs that join the person and the environment. There is no "inner" and "outer," but rather, there are simply learned, meaningful signs that allow agents to move through meaningful and potentially-meaningful environments. From this, the world and one's personal identity are established. "The inner" and "the outer" are products, not conditions, of our being in the world, and their exact natures are further established culturally, particularly through linguistic grammar (the nature of a language's first person pronoun plays a chief role in constructing the general characteristics of what a culture sees as constituting personal identity and personal agency (see Mühlhäusler and Harré, 1990)). Psychological indexes are semantic assemblages of meaningful elements and linked actions, used as tools for recognizing the world and enacting agency within it.

It is truly remarkable to consider that in infancy and childhood, especially, very simple acts, objects, and relationships are learned which are then analogically extended throughout a person's life, building complex lattices that constitute world and being for a person. For example, the mother again and again responds to the infant reaching out, and from this she constitutes herself as a primary object and a relation to the infant who begins to see him or herself as an agent. From such simple actions a developmentally strong, but also in a sense, a rather ontologically fragile, life is built. Other relations are gradually added: for example, the father, the friends, toys, food, etc.[4] There are also general and then more specific core indexes that are developed by general acquisition and, later, specific differentiation (the mother and the father understood as guardians and then, later, differentiated according to cultural gender identities; primary multi-language acquisition, later separating out into distinct languages, etc). From specific relationships or "grammars" generalized relationships or grammars are built and then trimmed back upon (infants over-generalize verb forms, later correcting for irregular verb forms and other language-specific or cultural peculiarities). From the most primitive "conversations" of childhood with our parents or guardians we begin to set up relations to the world, and through these we then construct the networks which define ourselves as persons. Our infantile and childhood relational and linguistic indexes are very "core" in our lives, because they form the most basic objects, relations, and tools from which experience and identity are established throughout our lives.

With the actions of our parents and trusted others in our world, with the objects, images, words, and recognized touch and smells of our meaningful experiences, we form linguistic and other "grammars" for understanding the world and we become the person that we are and continue to become. Through the cultural and social worlds in which we live, we develop shared "forms of life" (Wittgenstein) which make us understandable to others and not understandable to still others.

Each person develops in a unique way, acquires a certain psychological, as well as a physical form, is a unique, or "personal," accumulation or index of elements and relations, which is singular at any place and time and is singular as a life.   But, we are singular because of the multitude of historical relations and cultural forms which allow us to become singularities. And, we are, in a sense, multiple, because the singular is made up, in its past and in its future, of a multitude of past and possible relations and expressive forms. Our personal being is built out of social and cultural being in time, but personal being is real, though its totality is hypothetical (whereas abstract entities, such as "society" and "language," are abstractions in their totality and real only in their particular occurrences).

"Ideas" or "concepts" are assemblages of signs, objects, and actions leading to events, or they are such derived from events. They are meaningful assemblages which other people might understand as interesting and useful for doing things with, sometimes leading others to respond with more such ideational clusters or responding with largely physical actions. "Ideas" or "concepts" are not spatial or quasi-empirical "structures" or grand mental "images." We "understand" another's

ideas because we are able to do things with these assemblages that may, potentially, be more or less commonly desired within a shared grammar or form of life.

I correctly understand that a small piece of furniture is a table because when you say, "put the glass on the table," and then I do what I think your words are directing me to do, you don't protest that what I put the glass on is not a table (saying, for example, "no, that's a stool—the table is up here. It is much lower than the stool. Now, put the glass on the table and not the stool"). As Wittgenstein pointed out, there is no idea of "table" in my mind when you utter the sentence and I respond, no more so than I must have a "picture" of a hammer or the "mental model" of hammering a nail with a hammer in my mind in order to find a hammer and to hammer a nail. Mental events—in the largest sense of the term--are composed of many elements: words, physical actions, and in dreams, a high level of visual materials, making up narrative "pictures." The notion that an "idea" is a picture, though, leads us to a picture theory of mental events and to understanding communication and information as ideational transmissions. But, the plumber doesn't have a visual picture of tightening a joint in his head or in his fingers when he or she has an "idea" of such. When communicating the idea of tightening a joint, the plumber may describe this process to another person, may demonstrate it, or may even draw a representation of such. Each of these actions is tied to situational indexes for performing these actions, and doing so successfully. Each of these actions are "pictures" only in so far as the word "picture" might be understood as synonymous with that of a successful performance or the successful teaching of a performance.

Ideas and concepts are not private, simple or complex, "inner" mental entities, but rather, they are signifying clusters that have a certain meaningful unity.

If I try and think of whether I've ever had an idea—for example, the idea of an idea-- an icon of a "light-bulb" may come to my mind, following the cartoons and advertisements with which I grew up. Here, in thinking of "idea" I come to think of a certain type of picture of a light bulb--one sign indexically refers to another. One views with this example that signifiers refer to other signifiers in pragmatic relation to one another in regard to activities in shared forms of life (a conclusion that meshes with Wittgenstein's theory of meaning as use, with French poststructuralism, and with the American pragmatists' ideas on association). "Ideas" and other terms for "signifieds" are, thus, products of discourse, dialog, and other ways of doing things with meaningful materials.

The importance of core indexes and the indexical nature of our being in the world are demonstrated by how we learn a second language. In learning a second language we are presented with the problem of having to pass through the first language that we have learned—the first grammar or form of life. Learning several languages together in childhood is a much easier way to learn several languages, because we gather groups of signifiers that are then, later on, "fleshed out" in terms of other recognized signs, objects, and situations. The "core" which we build is that

of events which are multiply linguistically signified. But, older second language learners must first, and perhaps always, have to deal with having to translate the new materials and relations which form the "world" of the second language through the core index of the first. Eventually, one becomes more or less fluent in a second language (one is able to do things with the second language without having to translate it through the first language all the time), but the first language always retains a privileged cultural relation to the world for the speaker which cannot be forgotten, though it may now be challenged by the second language and its affordances.

3. Memory

The theory of mind that I have been proposing is that of understanding "mind" to be a hypothetical toolkit[5] of assemblages of meaningful materials and actions whose epistemic qualities ("knowledge," "belief," etc.) and value are determined by performances (though there are also institutional accreditation processes, reputations, etc. that make claims as to the "content" and value of a person's "mind" or "mental faculties" as well, though these are likely also tied to reputations of past performances and to hopes or assurances of future performances). "Mind" refers to capacities for performances of "mental" acts, and the notion of "mental performances," as well as the so-called "faculties" of the mind, are judgments made of performances according to cultural grammars and their categories (i.e., cultural criteria for what are considered to be "mental" performances, for what are determined to be "knowledge" or "belief" performances, etc.).

The embeddedness of cognitive materials in situational use has been commented on in the past by others. We have already mentioned the well-known example of Marcel Proust's large novel, À la recherche du temps perdu, where the famous small cake, the madeleine, leads to an extensive story of indexically linked experiences that come to constitute, in their totality, the life of the narrator. Proust called the form of cognitive recollection which is demonstrated in the novel, "involontaire." It is involuntary memory because of the indexical relations that each semantic assemblage has to one another—the meaning of each assemblage is connected to many others, so that beginning at one point one extends out into a network or lattice of meaningful relationships. The structure of the novel proposes that by examining any one assemblage a multitude of indexical and recursive relationships unfold back into the past, and by implication, also come to structure the future. The "earliest" memories are important, not because they are "earlier" (which is difficult to objectively determine—they may or may not be empirically true), but because they are core to a network of dynamic relationships. In this way, Proust's novel reaches beyond the traditional literary form of the novel and its rhetorical devices and mirrors psychological reality, thus giving a deeper meaning to genre concept of "psychological realism" which Proust's work is a landmark text within. The strength and the fragility of the novel is that of an extensive network of relations that give the whole meaning, but is built around a likely, but still hard to be certain of, fiction (-- the rhetorical form of that paradoxical, modern literary canon, "realist literature").

This mirrors the ontology of personal human lives. The "fictional realism" of the novel precisely characterizes the fragile, but only possible, ontological nature of each our own lives.

To realize that our histories and, thus, our personal and social beings are both this strong and this fragile is a stunning, and perhaps disturbing, thought. It can feel, at first, like we have kicked out the ladder upon which we believe we stand. We appear to be like a spider, suspended on an incredibly strong, but in some ways, surprisingly fragile, web of cultural signs and social recognitions. The strength comes from our relations with others—from our being born and subsisting in culture and society--, but the feeling of fragility comes from the non-empirical character of the psychological histories which constitute our being. All that we are is due to signs, relations, and actions which not only describe, but also constitute, our understanding.

For example, let us say that we remember "winter" as a certain assemblage or cluster of linguistic and visual signs, images, physical objects, and emotional feelings. I look in a book that was popular in my childhood, though not necessarily of a series that I owned or remember owning. Let us say that it is one of the books in the Lassie series, which was popular in the United States in the 1960s. Even though I may not have been a reader of Lassie, in its drawings I now recognize the snow, the cardinal, and the trees. I recognize the figure of the trusted ranger. I recognize the mother. If not this book, then a similar one was read by me at home or at school at a certain time when I was a child. These drawings—no, really, for me, not just drawings, but rather, thanks to my parents, teachers, and other guardians, these pictures--produce a feeling of recognition—the literal physical objects of winter, the winter birds, feelings of trust toward certain appearances and "types" of people, etc. In general, the emotional feeling of these signs is also "warm"—it is reminiscent of my childhood and it constitutes certain central indexical signs and networks that make up my core self. As an adult, while looking at the pictures of the snow and of the cardinals, I now ask myself, why isn't winter like that anymore? For, I recognize these as pictures of how winter was when I was a child. Is it because of climate change? Is it because I live in a different part of the globe than where I grew up? Certainly, I have grown up, but the problem is that winter doesn't even look like that anymore in its natural state: the snow is different, the trees are different. That, I say to myself, pointing to the picture, is how winter used to be, that is what a cardinal looks like….

And, of course, that act of pointing, and particularly, the pointing to an actual sample of a type (the cardinal) is my clue as to what is actually psychologically occurring. It is the clue that my memory of how winter was in my childhood, how winter will always be for some part of my experience, is due to this picture—not this picture, per se, but this style of showing "winter," of giving a picture of a "cardinal." These are indexes for understanding, experiencing, and acting within "winter." This is what I was being taught in learning "how to read." This is what "literacy" means. Here, "winter" was/is, for me, psychologically, a picture (an idea, in the sense of the

term meaning a semantic assemblage). It is empirically based, however, on my having been taught to meaningfully see the world by means of these drawings. These drawings were instilled in me, by means of repetition, human trust, and instruction, to be core indexical terms for referencing a world and my place in it. By means of repetition, human trust, and instruction, as well as by their place in an entire culture of signs backed by these qualities, these drawings became pictures, and the signs became meaningful indexes for real being (that is, they became oblique to interpretation, transparent in my ability to act by or "through" them). With these drawings, these styles of depicting and naming, the empirical world on the one side of my young life and the semantic world on the other were literally inscribed or sewn together by the materials of lines, colors, and words, which were turned into meaning by the instruction of my mother who, as I rested secure in her arms and on her lap, approvingly taught me to read the world into being—namely, a cultural and social being, which I would throughout my life enact and represent, as a way of being in the world. Throughout a life, the ease or difficulty by which an agent moves through the world is conditioned by such readings and their fit within actual relationships and events. Drawings, made by my mother and others into pictures through which I could see the world as meaningful and valued entities and relations, like those found in the Lassie series, were important core indexes for teaching me the meaning of winter, for teaching me the meaning of snow, for teaching me to identify and attribute qualities to certain types of birds (for example, "cardinals"), and beyond this, certain types of recognized people and events.

The point of this story is that indexical assemblages of signs in certain arrangements and forms constitute—sometimes in a core manner that is nearly impossible for the person involved to see purely "objectively" or empirically—mental events.

Holding on to heirlooms or souvenirs, like maintaining long-term family and friend relationships, allows people to feel like they, literally, have a past. And, indeed, these are the ways that we "have a past" since we can "have" a past in no other more secure ways, though our ways of being in the world are witness to our being constituted by a past, into a future.

There is no more authentic "my past" in the same way that there is no more authentic "my ideas"—i.e., as highly privatized, originary acts. "My past," psychologically, and thus, experientially speaking, means relatively unique or not so unique arrangements of shared social and cultural materials and actions, including social and cultural materials and actions for doing acts of remembering "things past." Exploring (Proust's "recherche") things past is always a process of exploring the various indexes, not to the past, but literally, those indexes that constitute not only our past, but our present and our future.

4. Conclusion

In this article I have argued against mentalist models of mind and language, and in so doing, I have suggested that common epistemic and communication models in

Knowledge Management theory and information science which start from notions of private mental faculties and content are erroneous. I have offered an indexical model for knowledge and other mental events, which proposes that selves and their mental "faculties" and "contents" are developmentally and indexically constructed from their experiences. Such a model views personal knowledge as experientially constructed from cultural materials and social situations. Such a view challenges the most basic premise of mentalist models, namely, that psychological discourse and research must begin with a model of subjectivity based on "external" stimuli and "internal" mental events, and instead, views the personal agent and his or her world as historically co-produced by means of agents using cultural materials in social situations. Agents moving through signs create meaningful persons and worlds. This is our manner of being in the world.

General "core" indexes and their grammars, and in these, what Wittgenstein termed core "language games," for experiencing, understanding, feeling, learning, etc., are largely formed in infancy and during childhood. Such indexes are "core" because they act as tools for creating persons and their worlds throughout life. A speaker's native language is a cultural material that greatly contributes to forming core indexes, but it is learned and applied through interaction with parents, guardians, and others.

Psychological "memory" does not refer to a region of the brain, but rather, the term refers to the activity ("remembering") of constructing a past through various indexical materials and their relationships, with or without empirical documents or living witnesses. Psychologically speaking, we do not have an empirical, objective memory of the past, since, psychologically speaking, the past exists only in the indexes which constitute it for us.

Forms of life may overlap with one another or not. Understandings (i.e., the common use and expectation of tool use (for example, signs)) between groups or types of beings may or may not be had due to differences in cultural affordances and/or social situations. "Forms of life"—persons or groups--are built up over a life time and over life times, though there may be physiological characteristics that, from birth, more afford the development of certain forms of life rather than others.

Information science in its "cognitive turn" and Knowledge Management theory have held themselves captive to deluded understandings of mind and language, dominated by a picture of quasi-physical mental structures, their contents, and their public expressions in various mediums of language. Here, for example, documentary forms are seen as public representations of private mental content ("ideas"). These delusions are founded upon misleading tropes in ordinary language and in metaphysical assumptions that, historically, reach back to Ancient philosophy and forward, through folk-psychology, into traditional cognitive science.

The more we can do to dismantle these poor models in information science and in Knowledge Management, the more, then, that we can begin to consider the true

problems at stake in regard to information and knowledge. Much of this dismantling requires conceptual critique and cultural analysis. According to this view, psychological research is the task of understanding cultural grammars and their acquisition and how these afford actions and potential actions ("powers") by agents in social situations. Psychological research should not be that of inventing quasi-physiological causes for cultural activities or for analyzing meaning formation from models of symbol manipulation or "information processing" (an error based on false analogies between machine processing and mental events). (I will suggest that these last caveats apply not only to human psychological research, but to psychological research into other animals, as well.)

Acknowledgments

REFERENCES

Belkin, N.J. (1977). Internal knowledge and external information. In M. de Mey & J. Piaget (Eds.), CC 77: The cognitive viewpoint (pp.187-194). Gent: University of Gent.

Belkin, N.J. (1990). The cognitive viewpoint in information science. Journal of Information Science, 16, 11-15.

Blair, D.C. (2006). Wittgenstein, language and information: "Back to the rough ground!" Dordrecht: Springer.

Briet, S. (2006). What is documentation? Lanham, Maryland: Scarecrow Press.

Brookes, B. C. (1980). The foundations of information science. Part I. Philosophical aspects. Journal of Information Science, 2, 125-133.

Day, R. E. (2005). Clearing up 'implicit knowledge': implications for knowledge management, information science, psychology, and social epistemology. Journal of the American Society for Information Science and Technology, 56 (6), 630-635.

Frohmann, B. (1992). The power of images: a discourse analysis of the cognitive viewpoint. Journal of Documentation, 48 (4), 365-386.

Frohmann, B. (2004). Deflating Information: From Science Studies to Documentation. Toronto: University of Toronto Press.

Glenberg, A.M. (1997). What memory is for? Behavioral and Brain Sciences 20 (1), 1-55.

Glenberg, A.M., & Robertson, D.A.(1999). Indexical understanding of instructions. Discourse Processes, 28 (1), 1-26.

Glenberg, A.M., & Robertson, D.A. (2000). Symbol grounding and meaning: a comparison of high-dimensional and embodied theories of meaning. Journal of Memory and Language, 43, 379-401.

Harré, R. (1984). Personal being: A theory for individual psychology. Cambridge: Harvard University Press.

Harré, R. (1989). The self as a theoretical concept. In M. Krausz (Ed.), Relativism: interpretation and confrontation (pp. 387-417). Notre Dame, Indiana: University of Notre Dame Press.

Harré, R., & Tissaw, M. A. (2005). Wittgenstein and psychology: a practical guide. Aldershot, England: Ashgate.

Ingwersen, P. & Järvelin, K. (2005). The turn: integration of information seeking and retrieval in context. Dordrecht: Springer, 2005.

Mühlhäusler, P. & Harré, R. (1990). Pronouns and people: the linguistic construction of social and personal identity. With the assistance of Anthony Holiday and Michael Freyne. Oxford: B. Blackwell.

Reddy, M. J. (1979). The conduit metaphor – a case of frame conflict in our language about language. In A. Ortony (Ed.), Metaphor and thought (pp.284-324). Cambridge: Cambridge University Press.

Wittgenstein, L. (1992). Last writings on the philosophy of psychology: the inner and the outer, volume 2. Oxford: Blackwell Publishing.

[1] "The 'inner' is a delusion. That is: the whole ideas-complex alluded to by this word is as a painted curtain drawn before the scene of actual word usage." ("Das 'Innere' ist eine Täuschung. D.h.: Der ganze Ideen-komplex, auf den mit diesem Wort angespielt wird, ist wie ein gemalter Vorhang vor die Szene der eigentlichen Wortverwendung gezogen." (Ludwig Wittgenstein, Last Writings on the Philosophy of Psychology: the Inner and the Outer, volume 2; translation modified. Thanks to Katy Börner.)

[2] My own path to an "indexical" theory of meaning construction and psychology was through simultaneous studies in various areas: the psychological critiques and theories of discursive psychology in Rom Harré's works (influenced by the work of Wittgenstein and Vygotsky), the critiques of psychology by Wittgenstein, the theory of indexicality (indice) in the work of the French documentalist Suzanne Briet (Briet, 2006), and my own work on the problems of models of mind and language in information science and, then, Knowledge Management. These came together during a keynote talk that I gave at the Australian Conference for Knowledge Management & Intelligent Decision Support, conference in Melbourne, Australia in November, 2004. I encountered citations to Glenberg and Glenberg and Robertson's articles in editing Stephen Gourlay's paper for this current volume. Since Glenberg and Robertson's work speaks for itself, I will leave it to the reader to more carefully separate out the differences between their works and my present paper, other than to say that my sense of "embodiment" is possibly less literally physical and more cultural than theirs. In any case, I urge readers who wish a more complete understanding of an indexical theory of personal psychology and the construction of meaning to read their works.

[3] That is, "private knowledge" in the sense that meaning occurs outside of the cultural and social givens of language (for example, "ideas" as mental contents prior to their expressions in various mediums, etc.). Of course, "private knowledge," in the sense of statements, etc., that we do not want to share with other people, happens all the time.

[4] The father could be first, of course, before the mother, or there could be two mothers, or "substitute parents," etc.—the point that I am illustrating here is that of developmental networks; it is not my intention to privilege classic Oedipal structures and particular cultural norms, etc.

[5] The metaphor of "toolkit" comes from Wittgenstein's later work, and others in information science have used it, such as Blair (2006).