

Why Johnny And Janey Can't Read, And Why Mr. And Ms. Smith Can't Teach: The challenge of multiple media literacies in a tumultuous time¹

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For those of you who were expecting to hear a talk on “The challenge of multiple media literacies in a tumultuous time,” I’m afraid I have to disappoint you. You have come to hear only the subtitle. The complete title of this talk is, “Why Johnny and Janey can't read, and why Mr. and Ms. Smith can't teach: The challenge of multiple media literacies in a tumultuous time.” It seems that the organizer might have thought my title a trifle controversial, seeing as how many of you, I understand, were teachers, or involved in pedagogy in one way or another, in a previous life. If you are among those who find the question of why Johnny and Janey can't read, and why Mr. and Ms. Smith can't teach to be controversial, let me warn you that the title is perhaps one of the less controversial aspects of my talk this afternoon.

In fact, I am going to introduce you to the notion that our beloved literacy is now nothing but a quaint notion, an aesthetic form that is as irrelevant to the real questions and issues of pedagogy today as is recited poetry – clearly not devoid of value, but equally no longer the structuring force of society. I will ask you to consider that our society's obsessive focus on literacy would doom future generations to oblivion and ignorance, if only they cared a whit about what, and how, we think. Further, I am going to challenge the assumptive ground upon

which our institutions of education – primary, secondary and tertiary – are built, and raise the real question of our time – and of any time – namely, what is valued as knowledge, who decides, and who is valued as authority.

Primary Orality in Ancient Greece

To begin, I need to take you back in time 2,500 – why skimp? – make it 3,000 years, back to the heart of Western civilization nestled on the shores of the Mediterranean, namely, to Ancient Greece. We're going back to a time before Aristotle, before Plato, and just before Homer. This is a time – approximately – when the Phoenician traders not only brought amphoras of oil and bags of grain in commerce, but also the phonetic alphabet that was, incidentally, first used as an accounting system to conduct that commerce. In that ancient time, who was considered educated? What was valued as knowledge and wisdom?

Since there was no phonetic alphabet at that time, knowledge had nothing to do with reading and writing. In fact, all of human history had to be memorized, and passed from generation to generation by word of mouth. An educated person was he who could recite that history. Knowledge comprised the accumulated history of the civilization; wisdom, the ability to draw from that memorized corpus of knowledge. Of course, relatively



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little of that legacy has survived to modern time. In fact all that has survived was that which was written down at the very end of the pre-literate era of that primary oral society. The epic tales that were scribed and attributed to men like Homer came to us in a form that many throughout the modern era associate with mere aesthetics, allegory, metaphor and myth. They came as poetry.

As such, Homer's recounting of tales of the fall of Troy, and of Odysseus's fantastic voyages were easily dismissed as fiction, since – to the modern man, at least – prose is the form in which history and knowledge is recorded. Poetry is for something else. Yet consider a work such as the *Iliad*, for a moment. If you can remember back to your days, perhaps as a humanities undergraduate, you will remember that the *Iliad* is immensely long, remarkably intricate in its construction, and reasonably complex. As a work of written, albeit poetic, fiction, it could have made a great movie, Brad Pitt notwithstanding. In fact, until relatively recently, the *Iliad* was considered just that – a work of fiction, since we modern literate folk perceive all of the subtle literary cues that envelope the work – colourful descriptions, metaphors, allegorical constructions – as subliminal signals that our literate minds interpret as fiction.

But, among scholars, certain puzzling questions dogged the work. Why was it composed in such an uneconomical fashion, filled with clichés and redundant phrases? Why the repetition of sections with almost formulaic constructions? And, who actually composed these works? Was there truly a blind bard named Homer who single-handedly created these epics?

Today, we know some of the answers to these questions. There may well have been a blind bard named Homer, but he would not have been single-handedly

responsible for these historical epics. Early in the 20th century, a scholar named Milman Parry, and following his premature death, his student, Albert Lord, looked into what was then called, “the Homeric Question,” namely, how could such complex histories be memorized and passed from generation to generation, in an exclusively oral society. Parry and Lord investigated singers in South Serbia which, like the society of ancient Greece, was a primary oral society. They, too, recounted their history through “singers of tales” who might perform a poetic story over several days, accompanying themselves on the *gusle*, a simple bowed string instrument. Parry and Lord were able to show that there was a particular structure – a grammar, if you will – to these long compositions. There was, of course, the rhythmic metric and rhyming scheme. Such constructs are well known as mnemonic devices, even to the most literate among us. Next, there were formulaic phrases joined together with conjunctive constructions that comprised a type of poetic vocabulary. These formulae were not memorized in the conventional sense of rote memorization. Rather, they were assimilated in much the same way that a child assimilates language, through continual exposure and repeated usage. The formulae that were most efficient in conveying ideas tended to be the ones that were favoured and retained in the poetic language. Less useful formulaic phrases would be used less, and eventually drop out of the bard's vocabulary.

Thus, in the oral tradition, the performance of epic poems was neither a memorization (in our conception of word-for-word memorizing), nor was it an improvisation of the story. Rather, it was a highly structured performance, drawing from a common vocabulary of phrases, set against a well-established framing,

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before an audience who shared the common tradition, and therefore understanding, of these phrases and structures.

Education in the South Serbian culture consisted of three phases, according to Albert Lord – phases that correspond to the way in which natural language is acquired. At first, the would-be oral tradition poet would listen and absorb the vocabulary and formulaic structure. Next, the singer begins to fit their own ideas and expressions into the relatively rigid traditional structure. Through this phase, the singer increasingly includes the formulaic vocabulary of traditional phrases so that eventually, he will be able to sing one traditional story-song before an audience of knowledgeable listeners. In the third phase, the singer's repertoire expands both in scope and complexity, until he can sing epics from the culture's tradition over a period of several days and nights.

Parry and Lord argue that in ancient Greece, education took much the same form as they discovered in the primary oral society of South Serbia. Formulaic phrases that were economical in expressing ideas, and therefore useful, became a vocabulary that were joined together in a well-established framework, and performed by *rhapsodes*, literally, "sewers of song." Homer was not the author of the *Iliad* and *Odyssey*, so much as one of a long line of *rhapsodes*, who collectively over generations, kept the tradition of oral literature, and therefore the history of their society and culture, alive. In an oral society, there is no concept of authorship – there is a collective of knowledge that is intrinsic to the society as a whole, since it is only in the context of that society's culture and tradition that conveyance of knowledge, and therefore the knowledge itself makes sense.

Let's return to the ancient Greeks, and the discovery of Cedric Whitman later in the 20th century that further illustrates this idea of how culture and tradition provides a contextual framing within which knowledge makes sense. Whitman examined Homer's epics and discovered a geometric structure to the entire work, and to sections within the work, that he called a "ring composition." The poet-singer would begin with a topic – let's call it topic A – and then move to topic B and then C. He would then provide a complement to C – call it C prime – and then B prime and A prime. Moving on to the next section, there would again be a set of topics, and then their complements, for example, D, E, F, G, F prime, E prime, D prime. Entire sections would be arranged in the same sort of ring structure.

This was the form in which narrative was constructed. In fact, during the first few hundred years or so after acquiring the phonetic alphabet, structural artefacts of the primary oral society were included as a matter of course in the writings of the newly literate society. Plato's entire body of work, and the individual works themselves, are structured in this way. Such a ring composition structure is not unique to the ancient Greeks. The book of Genesis, the *Upanishads*, and other works throughout the ancient, and even more contemporary, worlds are structured in a similar manner, so long as the society or culture from which the work emerged was a primary oral society. Indeed, among many modern, but non-Western, cultures their style of narrative seems to meander, with stories taking a circuitous route before getting to what we would consider the point. These are examples of the ring composition form that is as foreign to our way of structuring narrative as the actual vocabulary is foreign to a native English speaker. If we were to take that narrative

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form, and read it from beginning to end, we would undoubtedly find redundancies, inconsistencies, and non-sequiturs. We would find clichés, repetitions, awkward diction and sentence structure problems that would make a schoolmarm quake in her one-room schoolhouse.

But it gets even more interesting. Twyla Gibson, a Senior McLuhan Fellow, adjunct professor, and colleague of mine at the McLuhan Program discovered an even greater level of complexity throughout the works of Plato, other ancient Greek writers, and among almost all the writings of the ancient world within the first century of two of acquiring literacy. Interwoven with the ring composition structure of narrative themes are ring structures that define certain topics. If, for example, you wanted to talk about the topic of imitation, there would be a set pattern of topic themes in a prescribed order to which the speaker or the writer would refer. The geometric ring structure of thematic patterns for a wide variety of topics would be part of the common knowledge of an educated person in that society. As it turns out, this would provide an interesting opportunity for subversion. Anyone who would voice opposition to the emperor or dictator might find themselves with their head on a pike. But, emperors and dictators tended not to be educated. So, one could overtly sing the praises of the dictator, while leaving out certain key descriptors from the thematic ring composition that convey the real message. An educated person would recognize the absence of bravery, truth, and honesty as tacit commentary, while the dictator hears only false words of praise without being any the wiser.

We think we're so smart. We are educated. We are literate. We are the products of this great institution of higher learning. Yet were we to be presented with a text of an oral society, we would

blithely read it incorrectly without realizing that we were missing most of the meaning. Relative to what was valued as knowledge, and who was considered an educated man by what we freely acknowledge as one of the greatest civilizations in human history, we are a bunch of ignoramuses. As a culture, we have collectively forgotten how to "read" the oral tradition. And, for most of the intervening history between then and almost now – certainly up to the middle of the 20th century – most educated people would arrogantly consider a primary oral culture as primitive, ignorant, and backward compared to us.

What was valued as knowledge, what sets of skills and capabilities were considered necessary to be regarded as an educated person, and how new knowledge was added to the cultural compendium of wisdom, were defined entirely within the context of the dominant mode of communication – that being primary orality, and the oral narrative tradition.

From Orality to Literacy

A new medium – the phonetic Alphabet – arrives on the Grecian shores and within a short time society begins to feel the disruption of a new communication form that seems to threaten the very structural foundation of the culture. On one hand, at least according to scholar Eric Havelock, the banning of the bards and the sophists from Plato's ancient Greek Republic symbolizes a rejection of the oral tradition that represents formulaic repetition without original thought or the abilities of synthesis, innovation and discovery. On the other, Plato himself provides an contrary insight into the deleterious effects of the new medium of the time. In the *Phaedrus*, he relates a story in which the Egyptian god Toth presents King Thamus with the gift of writing, one of his

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more creative inventions, and tells him that it is specifically intended for memory and wisdom. Thamus declines the gift, telling Toth that the effect will be the opposite – writing will cause humankind to be forgetful, as the exercise of memory would instead become written remembrances. Wisdom, he said, would be replaced by the appearance of wisdom without learning, as anyone could have ready access to the written knowledge itself. As Plato recounts, “men filled, not with wisdom, but with the conceit of wisdom, will be a burden to their fellows.”

Conceit or not, the written word was an excellent choice for expanding empires, spheres of influence, and spans of control across vast geographies. The written word travelled well, alleviating the necessity for transporting the person along with his ideas or pronouncements. More important, the phonetic alphabet produced a cognitive shift in the culture concerning not only what was known, but what could be known. Instead of knowledge being a direct experience that was passed from person to person, in a sense of the story-singer reliving the experience for his audience, literacy meant that what was to be known was only a written representation of the actual, visceral experience that comprised knowledge. Literacy separated the knower from that which was to be known, and inserted both a proxy representation in the form of words, and an author who asserted his authority with respect to that representation, between the knower and the known.

This, of course, changed everything! To be truly literate meant that a person would somehow ascribe attributes of reality to these proxy representations that were ink marks on linen or papyrus or sheepskin. To be truly literate meant that a person would be able to call into existence the power and authority of an unseen, and

often unknown, author by uttering the sounds represented by these ink marks. Moreover, in the eyes of the illiterate masses, that literate person would somehow inherit aspects of that author's authority by the proxy vested in those written words. It is easily understood how this almost magical transference of authority and power led to the dominance of the Catholic Church throughout Europe, whose leaders had command of the very word of God himself. In the New Testament – a work of early literacy – the book of John begins with, “In the beginning was the word, and the word was with God, and the word was God.” And those who were literate – the priests, the monks, and the scribes – had command of the word, and thus became, in the eyes of the people, God's proxy.

Such tremendous power is invested in the written word and in the command of the written word – that power being a cultural construction that has survived for nearly two thousand years. When we invoke knowledge that we obtain through the proxy of an author's book, we assume some of that author's patina of authority. So imagine the devastating effect that Johannes Gutenberg had on the authority of the Church when, in 1455, he began the mass printing of the bible on a moveable type press. The relative availability of printed books enabled an environment of increasing literacy, the ability of a person to have command of the word itself, away from the influence and power of the Church. Suddenly, people could contemplate and think about these representations of experience on their own. Perhaps they might even develop heretical ideas, such as those that led to the most famous – if only legendary – home renovation in history, when Martin Luther took his hammer and nails to the doors of Wittenberg Church and posted his 95 theses in 1517.

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Luther questioning the authority of the Vatican regarding the sale of indulgences ultimately led to the Reformation, and nearly two hundred years of bloody religious wars throughout Europe. But at the end of that period, the growth of literacy – the separation of the knower from the known through the intermediation of proxy representation and inherited authority – and its cognitive effects of restructuring of how knowledge was created, enabled the emergence of the Age of Reason and the Enlightenment. It enabled the emergence of science and philosophy in Europe.

Knowledge became institutionalized, with institutions such as universities defining the means through which new knowledge could be added to the cultural compendium of wisdom. According to the doctrine of literacy, that which was to be considered as new knowledge had to be obtained objectively, with a distance or separation maintained between the knower and the known. We call this the scientific method. In order for the body to be studied scientifically, a metaphysical separation had to be created between the mind and the body so that the body could be objectified. I call this “putting Descartes before des hearse.” In every case, a prerequisite for knowledge was the detachment, the separation of the knower from the known, and the mediation of a proxy representation created by an authoritative author.

From where did an author obtain his authority? The literate world emerged in such an ingenious way so that authors could inherit the authority of other authors, and both stand on and contribute to the aggregated authority of institutions of authors. When I write a scholarly paper, I cite other authors whose works have been deemed to be “knowledge” by an authority called a publisher. In that case, my work has been reviewed by other

authors who are deemed to be my peers (in some sense of that word), and some of their authority is transferred to me. If I repeat that exercise sufficiently well, an institution of authors, otherwise known as a university, will confer one or more designations of authority. Thus the Bachelor of Arts, the Master of Science, the Doctor of Philosophy becomes the proxy representation of institutional authority. Just as the written word was an easily transportable conveyance of a person's ideas without the necessity of dragging along the person, so too is the university degree an easily transportable conveyance of knowledge authority without the necessity of dragging along a senate of authors.

When we consider the importance of literacy and the relevance of our educational system as it is currently constituted, we must be aware of the historical reality that the fact of literacy created cultural and societal conditions that fundamentally changed people's relationship with knowledge. Literacy changed society's notion of what was to be valued as knowledge, and how new knowledge was to be created, and who had the authority to do so. But actually, in the earlier epoch, it was no different. In primary oral societies, to become a bard took decades of training, access to which was controlled by the bards and poets themselves. In early literate societies, and especially in the manuscript culture of the first millennium-and-a-bit of the Common Era, to command the word took decades of training, access to which was controlled by the priests and Church hierarchy. In societies of mass literacy, to become an author, and especially one with the proxy authority of an institution of authors, takes decades of training, access to which is controlled by admissions committees, funding review boards and so-called peer reviewers.

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The transition from cultural epoch to cultural epoch is not an easy one. Roughly speaking, it takes about three hundred years for the foundational knowledge ground of a culture to change, that is for the society to change its conception of what is valued as knowledge, who decides what is valued as knowledge, who controls access to the knowledge itself, and who controls access to those controls. The time span is relatively easy to understand: for the transition to be complete, there cannot be anyone left alive who remembers someone that remembers someone who was socialized and acculturated in the prior system of knowledge.

Electricity and the Obsolescence of Literacy

So where are we today? I would hazard a guess that there is not a single person in the audience today who would disagree with me if I made the statement that literacy is under attack by modern media – television, music videos, the Internet, video games, cell phones. And you would be right. In fact, literacy has been quote, unquote, under attack for about 161 years now – ever since the demonstration of the telegraph in 1844. You see, in a sense, the telegraph “undid” the effect of the written word. Where the phonetic alphabet separated the sound of a word from its meaning, and encoded that sound in otherwise semantically meaningless symbols that we call letters, and combined those symbols into hierarchical groupings called words and sentences and paragraphs and, ultimately, books, telegraph recombined those symbols with sound, enabling the instantaneous transmission of information from person to person across a vast distance.

From a time marker of Morse’s demonstration of the telegraph, we are in year 161 of the 300 year transition from

the fundamental knowledge ground of mass literacy – what Marshall McLuhan called the Gutenberg Galaxy – to... something else. If we can take any lesson from the history I have shared with you today, it is that as the dominant mode of communication changes, so too do the dominant modes of knowledge and authority change, and equally does the access to both knowledge and authority change. And it almost goes without saying that we should expect a period of maximal disruption to society and culture to occur at roughly the halfway point through the three hundred year nexus period. Roughly at the point where Plato spoke about banning poets and sophists, yet decried the demise of wisdom. Roughly at the peak of the religious wars of sixteenth, and early seventeenth century Europe. Roughly where we are right now.

If what I claim is true, that literacy is no longer the dominant structuring force of our society and culture, the burning question is, what’s next? And I’m willing to bet that you’re all sitting there echoing, “yes, what’s next?” But of course, in setting this up, I am using a standard trick of literacy and literate control – we all have been so well trained, me in asserting my author authority, and you in buying it. So let me help you undo your training, just a little. I had to replace a washing machine, and we were considering a Sears Kenmore washing machine. Like many modern, wired consumers, I wanted to check out the Sears Kenmore washing machine on the Internet. Now, presumably, I should want to find the most authoritative information on the Sears Kenmore washing machine. Who could be more authoritative than Sears themselves? After all, they manufacture, sell and nominally service their washing machines. The Sears Kenmore website should provide me with everything I need to know.

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Sears.com tells me that I will shorten my laundry day and prolong the life of my clothes with Kenmore washers. Sears.ca tells me that Kenmore washing machines are the best selling washing machines in Canada, and they continue to deliver innovative and exclusive features at affordable prices, thus maintaining their position as a leading laundry brand renowned for quality and reliability. They're the authority. Based on that, I guess I should buy a Sears Kenmore washing machine. How many people here would buy a Sears Kenmore washing machine based on the authority of the Sears website telling me it's the best?

I didn't think so. So I visited a website called "I wash clothes dot com." On the site there are many posts from all sorts of people commenting on washing machines. And, as it turns out, Mary from Kelowna, and Steve from Saskatoon, and Alice from Fredericton among many others, all relate their overwhelmingly positive experiences with their Sears Kenmore washing machine. Now, how confident do I feel about making a Sears Kenmore decision?

I don't know Mary or Steve or Alice or any of the other people who post on "I wash clothes dot com." Yet I will believe them collectively more than I believe the authority that the Sears website represents.

It's an apocryphal story. But as a *gedankenexperiment* – a thought experiment – it serves to illustrate that our relationship to knowledge and the authority from which knowledge emerges has indeed changed over the past number of years. I could cite numerous other examples, many of which are contained in the wonderful book by James Surowiecki, *The Wisdom of Crowds*. Authority of the expert author is declining along with the value of the knowledge asserted by that authority and its proxies. Here's an additional indication. In the hallowed halls

of the academy, academics are paying to have their papers published in what should be scholarly, peer-reviewed journals, and paying to have their longer works published by specialty academic presses. Given the explosion in academic journals – University of Toronto itself subscribes to somewhere in the neighbourhood of 40,000 – it is not difficult to find some so-called scholarly journal somewhere to print just about anything, irrespective of its merit. And on the other hand, some researchers are beginning to expose the dirty little secret of the academy, that there is a well-established hegemony of power throughout the academic system that is bent on devaluing certain types of research, certain classes of researchers, and generally maintaining the status quo.

The New Quest for Knowledge

But they are fighting an ultimately losing battle that I can illustrate this way. How many people here use Google to search for information on the Internet? Ten years ago, Google was nothing more than a graduate research project at Stanford University. In the intervening years it has grown to become the most important access point to the Internet for most people – in a sense, it's everybody's home page. Simply put, Google works by assigning a Page Rank to a webpage based on several factors, including how many other pages "vote" for the given page by creating links to it, thereby declaring it important, and how many searchers "vote" for that page by clicking on it in a list of search results, thereby declaring it relevant. Additionally, a webpage that is considered important by Google, that is, having a high Page Rank, is more influential in its linking than a page of lesser importance.

Google's effectiveness in returning relevant results to search requests is not

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based on the adjudication of a panel of experts, but rather on millions of what I might call “lay indexers,” that is, millions of average web users and webpage creators who collectively provide the wisdom and guidance from which relevant knowledge emerges in response to queries. Consider the reversal that has occurred here. In the traditional literate structure of the academy, indexers who controlled the portals to knowledge were very few, very knowledgeable, and possessed a high level of public trust. In the traditional literate system, assertion of both meaning and value of a collection of knowledge by that trusted individual, whose power and authority were vested through an institutional proxy, was paramount for establishing the credibility of that collection. But it seems that we are in the process of changing from the traditional, closed system of knowledge to a more open system of knowledge. A single person or authority asserting meaning and value is automatically suspect, like in the example of Sears.ca; it is the collective wisdom of all the Maries and Steves and Alices that creates trust.

Google creates one type of meaning that has proven to be immensely useful. Extending the “thinking” of the Google algorithms suggests that meaning and value emerge as a result of a culture’s collective behaviours and reactions to things that individuals find meaningful, useful and trustworthy as members to that culture each applies her or his own judgment. But the implications of this massive reversal in our conception of what is valued as knowledge and who decides creates an equally massive problem for our culture and society. Once upon a time, determining the trustworthiness of purveyors of information and knowledge was relatively easy – one simply had to look for the letters after the name or the publishing

credits on a CV. Today, establishing the credibility of knowledge sources is a challenge of such complexity, that the literate frame has no mechanism with which to approach the problem. Stated simply, for any avenue of inquiry, both the information and the information sources themselves have both become subjects of research in a way that makes problematic, and fundamentally challenges, the existing academic structure. Research can no longer be a deterministic, linear process, akin to that delineated by the so-called scientific method. Rather, establishing the credibility and reliability of both information and sources comprise an emergent information seeking problem that is subject to multiple, interdependent processes and contexts, all of which, save one, are only incidentally connected to literacy.

Allen Foster, a researcher in the U.K., has recently looked into this problem of information seeking practices among professional researchers. Through his investigation, Foster developed an emergent model of interdisciplinary information seeking that is, in his words, a “concurrent, continuous, cumulative and looped” endeavour. It is based on three contextual frames and three core processes, the processes being opening, orientation and consolidation. Opening involves seeking breadth of scope, exploring for eclectic and diverse information sources to deliberately expand the “information horizon.” This is accomplished by reading eclectically, often without the ability to directly assimilate the information, using keyword searching, monitoring updates of key websites and other information sources, and chaining not only references and citations, but chains (links) of ideas that would often lead from known areas into the unknown.

Orientation is the process – the only process – that is closely tied to

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conventional literate practices. It involves both the classical form problem definition, that is, defining boundaries, and also building a picture of the topic overall, from the contributions of the multiple disciplines. This also involves identifying key articles, contributors, and latest opinions, as well as gaps in the overall picture. Consolidation is a continual process of assimilation and integration of information that intertwines with opening and orientation. A key concept that Foster observed was that of “knowing enough” in a particular aspect of the topic, and is closely linked with refining information and knowledge. Notably, he says, “verifying [the accuracy of information] was a less common aspect of interdisciplinary information behavior. ... Where it did occur, Verifying tended to be limited to the accuracy of quotations and references.”

What is significantly different between a literate framing of research, and the emergent information seeking model is the influence of multiple, overlapping and intertwined contexts on the research process itself – external, internal and a context of cognitive approaches. The most significant external context factor was found to be the social network of the researcher, as well as the organizational support and encouragement for interdisciplinary research. The internal context reflects the researcher her/himself, relative both to already-possessed knowledge of the subject areas to be explored, and confidence in their own abilities to navigate amidst the unknown in foreign disciplines. The four cognitive approaches that Foster identified include flexibility and adaptiveness, openness to ideas that seem to be paradoxical or inconsistent with pre-existing conceptions, the ability for nomadic thought, and a holistic approach to knowledge. These cognitive approaches

reflect the ability of the researcher to adapt to the rigours of various disciplines, while being open to having no preconceptions or prior framework with which to prejudge information relevance. It also reflects the researcher's ability to think widely and diversely about a topic. Such diverse thinking includes the ability to discard the thinking frames imposed by a specific discipline, while being able to introduce and understand a wide range of information from diverse disciplines, incorporating them as either new answers or new questions.

This non-linear model of information seeking rejects the linear and deterministic scientific method, and tends to be more consistent with the various qualitative approaches in which patterns of knowledge emerge through an iterative and recursive process of seeking new information from diverse sources that is assimilated across multiple contexts, some of which are external to, and some of which are internal to, the seeker. The researcher must be self-aware in order to make sense of the research, and must locate herself both within the context, and *as* a context, for the research. Essentially the interdisciplinary researcher assumes a constructivist standpoint, in which the former literate quest for Truth gives way to a quest for making sense of the world as it is experienced.

So why can't Johnny and Janey read, and why can't Mr. and Ms. Smith teach? If Johnny and Janey are under the age of 20, they are living in a world in which the Internet never didn't exist. They are living in a world in which Google never didn't exist. They are living in a world in which everyone who matters is either a click away, or text message away, or a speed-dialled-call away among a variety of devices, all of which – regardless of what they look like, or how they functionally behave, or what they are called – are the

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same: they are connection devices. Unlike we who were socialized and acculturated in a primarily literate societal ground, in which our experience with technology and media is primarily within a linear, hierarchical context – all artefacts of literacy – today's youth and tomorrow's adults live in a world of ubiquitous connectivity and pervasive proximity. Everyone is, or soon will be, connected to everyone else, and all available information, through instantaneous, multi-way communication. This is ubiquitous connectivity. They will therefore have the experience of being immediately proximate to everyone else and to all available information. This is pervasive proximity. Their direct experience of the world is fundamentally different from yours or from mine, as we have had to adopt and adapt to these technologies that create the effects of ubiquitous connectivity and pervasive proximity.

Johnny and Janey naturally make sense of the world as they experience it in much the same way as does Foster's interdisciplinary researcher. For example, when teenagers play a one of the more complex role-playing videogames, they are embarking on a holistic research project that incorporates Foster's concurrent, continuous, cumulative and looped emergent research model. They include Foster's multiplicity of core processes and contexts. Most interestingly from a pedagogical standpoint, they are participating in the collaborative composition of a complex emergent narrative, sewing together perhaps formulaic epic fragments drawn from legends and tales of many mythic traditions. But what happens when we incarcerate these teenagers in a traditional classroom setting, or worse, in a university lecture hall? They are thrust into a so-called learning environment that is as

removed from their lived experience of the world, as ours is from the ancient Greeks. The UCAPP world – ubiquitously connected and pervasively proximate – is a world of relationships and connections. It is a world of entangled, complex processes, not content. It is a world in which the greatest skill is that of making sense and discovering emergent meaning among contexts that are continually in flux. It is a world in which truth, and therefore authority, is never static, never absolute, and not always true.

Have no fear – Johnny and Janey will, in all probability, learn to read, just as they learned to speak. But orality has not structured society since ancient Greece, and literacy no longer structures society today. The challenge for all the Mr. and Ms. Smiths throughout the academy, and eventually in the secondary and primary classrooms throughout the world, is to recognize that the exclusive focus and predominance given to the pedagogical artefacts of a literate world is inconsistent with the skills necessary to participate in the discovery and production of knowledge in a ubiquitously connected and pervasively proximate world. In a UCAPP world, what is valued as knowledge comprises a vastly greater domain than that in world structured by literacy. In a UCAPP world those who decide what is valued as knowledge are vastly more inclusive than in a world structured by literacy. In a UCAPP world, we can no longer accept authority-by-proxy. In a UCAPP world, ladies and gentlemen, we must now all learn to think for ourselves, a pedagogical objective far more important and more critical than merely learning to read.

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ⁱ This talk was originally delivered to the University of Toronto Senior Alumni Association, Toronto, November, 2005; subsequently to the Calgary City Teachers Association annual meeting, February, 2007, and elsewhere.