

# The Evolution of Human Communication from Nonverbal Communication to Electronic Communications

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## Abstract

In the first article of this two part contribution, *The Evolution of Human Communication from Nonverbal Communication to Electronic Communications*, I show how past forms of communication have periodically emerged to help humans cope with ever increasing cultural complexification, particularly after nomadic bands of our hunter-gatherer ancestors settled down in pastoral communities near sustainable about 10,000 and years ago after they had mastered the principles of animal husbandry and planting and harvesting, and that present-day emerging forms of mobile communications will take off and incorporate existing forms of electronic communication because humans remain nomads at heart in spite of ten thousand years of settled existence, first in pastoral communities and recently as city dwellers. In the second article, *Future Communications: Mobile Communications, Cybernetics, Neuro-Informatics and Beyond*, I extrapolate from present-day emerging and converging forms of electronic communication to predict how different forms of human communication are set to change in the immediate future, the intermediate future and in the more distant future.

The five major conclusions that I come to in the first article are:

1. The psyches and metabolisms of modern humans were forged over aeons of hunter-gatherer nomadic existence. Our ancient nomadic souls are incongruent with present-day sedentary existence.
2. Human communication past and future range along a *cooperation>competition>confrontation* continuum.
3. From time to time over the past 200,000 years new forms of communication have emerged for survival sake to help humans cope with greater cultural complexification. Nonverbal communication, (popularly known as body language), emerged first and were complemented by verbal communication dur-

... ing humankind's hunter-gatherer phase of existence. About 10,000 years ago ancient forms of graphical representation, found in cave art, successively developed into pictographic, syllabographic and alphabetic writing systems, after our nomadic ancestors learnt to domesticate plants and animals in the Northern Mediterranean climatic zone that stretches across the super-continent of Eurasia.

4. During the era of the Industrial Revolution, starting about 300 years ago, written communication was optimised and stretched to its very limits to cope with accounts of new geographical, technological and scientific discoveries.
5. The first forms of electronic communication, in the form of the telegraph and radio towards the end of the 19<sup>th</sup> Century, signalled the emergence of the Age of electronic communication.

## Social Cognition and Communication

Human communication is underpinned by a social survival imperative, because we are not merely brains in nutrient-rich vats that can exist in isolation of other humans. We are brains, clad in bodies that generate self-aware minds that interact with the minds generated by other body-clad brains in order to exist, survive and thrive. In the words of Blakemore, Winston & Frith (2004: 216):

*Humans crave the company of others and suffer profoundly if temporarily isolated from society.*

Our present-day ability to communicate with anyone anywhere at any time is due to the emergence of electronic communication over the past 100 years. Electronic communication however, is merely the most recent addition to the quiver of forms of communication that our ancestors evolved for survival's sake over the past hundred and fifty thousand years. Our early ancestors were compelled to communicate in order to survive in a hostile world where they formed part of the food chain of more predatory hunters. Those whose genes we carry survived long enough to procreate by conforming to the social will of their band of fellow hunter-gatherer nomads. Social skills enhanced our ancestors' survival chances because the more vigilant eyes and ears and voices there were, the better the individual's chances would have been to survive.

Later on, humans were compelled to evolve further forms of communication, such as public communication and written communication, to cope with the increasing complexity of the societies once our nomadic ancestors settled down in pastoral communities (Diamond (1999)), many of which eventually developed into our present-day villages, towns and cities.

Electronic communication has emerged in information age societies to cope with the increasingly complex global society in which we live. Only after information has been interpreted during communication, it becomes knowledge, the actual currency that drives knowledge economies. In this context, technology is merely the instrument that enables us to communicate information between individual minds. This implies that new Internet-based services like e-business, e-government, and especially e-education should be seen and studied as diversifying forms of maturing e-communication. This of course begs the question, what is communication?

## **Human Communication**

Communication is one of those things that everyone does, but which everyone finds hard to define. To explain what communication is, we have to take as point of departure that humankind fundamentally is a social species. As I have already indicated, since prehistoric times humans have had to depend on others in their bands of fellow nomads to survive.

### ***Intrapersonal and Interpersonal Communication***

Reduced to its essence, communication is a contested meeting of minds, where fellow communicators cooperate, compete or confront one another to clearly convey their intentions and contentions. To achieve such a meeting of minds one simultaneously has to engage in intrapersonal and interpersonal communication.

Intrapersonal communication is one of the most neglected forms of human communication. Yet, it is vital to one's success or failure in persuading others to see one's point of view, and ultimately to whether

one lives a successful or failed life. Intrapersonal communication consists of a range of subconscious reasoning processes that one employs while just thinking about things on one's own, or while one communicates with others. Considering alternatives, deciding between options, weighing up facts, determining the validity of statements, considering interrelationships, discerning the intentions behind the actions of others, or their attitudes, these are all forms of intrapersonal communication that allow us to be well socialised members of the groups to which we belong. Intrapersonal communication goes into overdrive as soon as one actively interacts with others.

A person who is conscious, sober and of sound mind therefore cannot help but engage in intrapersonal communication when interacting with others. Furthermore, even though one may not be saying anything out loud, one's body language is leaking opinions and attitudes all of the time unless one is actively concealing these by intentionally keeping one's facial expressions, gestures, body movements and body stances neutral and non-committal.

In contrast with intrapersonal communication, interpersonal communication can be characterised as any direct interaction between two or more persons with the intention of exchanging knowledge to negotiate social influence. Communication should therefore not be seen as a power-neutral human interaction during which we merely speak or write messages to convey meaning.

A combination of knowledge and communication skills determine the individual's social influence within groups, because they enable the individual to cooperate with others for survival's sake, to effectively compete with others in their group for interpersonal power and social influence, and to attempt to get others to comply with what s/he wants them to do (Gass & Seiter (2003)). It is important to acknowledge that since the beginning of humankind communication is not per se the transmission of meaning from one mind to another, but the contested negotiation of power relationships between individuals through knowledge transmission. The greater the amount of survival related knowledge that one commands, the more one's social influence among

others with whom one interacts, because knowledge allows one to contribute to the ability of one's group to compete with other groups for survival and prosperity. In time of war, for instance, communication is in the heart of any group's preplanned, rehearsed and coordinated ability to engage in forms of confrontation to maintain safety, and to gain and maintain the competitive advantage.

### ***The Cooperation ⇌ Competition ⇌ Confrontation Continuum***

Klopper (2002: 278) posits a three-phase compliance-gaining human interaction continuum as part of a general theory of the optimisation of human communication. Stated briefly, this theory implies that communication interactions are forms of behaviour that range along a continuum: *cooperate ⇌ compete ⇌ confront*. Effective communicators have to be good at all three of these to get along with others in their groups, to realise their best potential in their groups, to withstand rank challenges within their groups, to contribute to the betterment of their groups, and to help survive the hostile intentions of competing groups.

The C⇌C⇌C continuum can be characterized by means of a few axiomatic statements:

1. Humans are driven to communicate for survival's sake.
2. The survival principle of enlightened self-interest determines that one only cooperates with others if it is to one's advantage.
3. People or groups compete to gain and maintain the survival advantage.
4. Competing individuals or groups engage in confrontations to obtain or retain competitive advantage.
5. Humans also employ the C⇌C⇌C continuum in education, business and leisure.

### ***How Communication Evolved During the Different Eras of Humankind***

Taking Toffler (1978/1991) as point of departure, one can discern four consecutive phases of human cultural evolution, namely the nomadic age, the pastoral age, the industrial age and the information age. In each of these ages, particular forms of communication emerged to

help humans cope with new challenges that they encountered in the struggle for survival.

It is a misnomer to limit the term "knowledge economy" only to the Information Age, because the employment of knowledge is a prerequisite for survival whether one is a nomad in pursuit of one's food on foot, whether one is farming with domesticated plants and animals, whether one is using mechanical means to manufacture goods for sale, or whether one is using electronic communication networks to regulate the production, manufacture, distribution and sale of goods and services.

### ***Verbal and Nonverbal Communication, and Graphical Representation Emerge in the Age of the Hunter-Gatherer Nomads***

Kloppe (2002) analyses the different forms of human communication that emerged at the different stages of human cultural evolution. In brief, nonverbal forms of communication (facial expressions, gestures, body movement, body stance and tone of voice) emerged in conjunction with verbal communication in the hunter-gatherer phase.

Kloppe (2002) reviews evidence of how anatomically modern humans emerged from Africa on foot as Stone Age hunter-gatherer nomads in successive waves of migration, particularly during ice ages which eventually caused sea levels to drop and land bridges to open up where continents are only separated by shallow straits. By using these temporary land bridges between North Africa and the Arabian Peninsula and between North Africa and the Iberian Peninsula in pursuit of game, modern humans steadily populated all of the continents of earth on foot over the past 100,000 years. When they encountered Neanderthal man<sup>1</sup> in Europe, they either absorbed them or displaced them, eventually causing their demise.

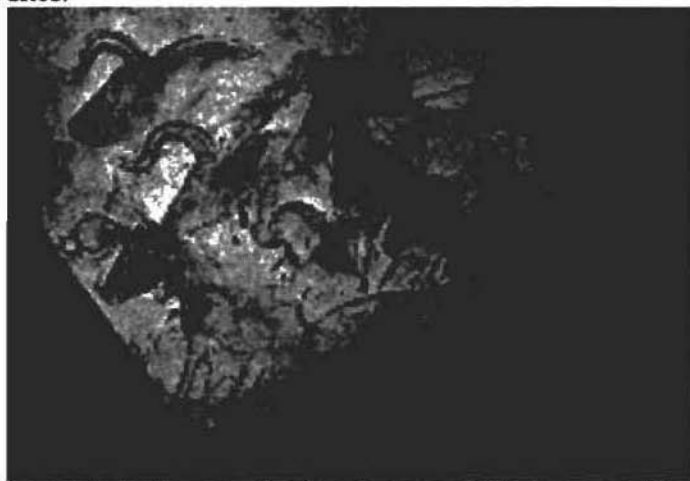
What distinguishes human communication from animal communication is the fact that we use language as a symbolic form of commu-

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<sup>1</sup> According to fossil evidence Neanderthals were the descendants of *Homo erectus* who had exited Africa during a previous ice age about two million years ago.

nication, supplemented by nonverbal indexical forms of nonverbal communication, to convey our perceptions and conceptions to one another, and thereby establishing personal niches for ourselves on the interpersonal social networks that we share with others.

Human symbolic capacity however extends beyond verbal and nonverbal communication to a variety of forms of graphical representation as evidenced in writing systems, drawings, paintings and sculptures. Already in prehistoric times, anatomically modern humans also used their capacity for symbolic thinking to make graphical representations of things that were important to them. There is evidence that as far back as 30, 000 years ago, of graphical symbolic representations in the form rock face paintings, carvings, and statuettes sculpted from stone, ivory and bone, that have been found at European archaeological sites.



**Figure 1:** The bull as prominent symbol on prehistoric cave paintings at Chevaux , Southern France

Symbolic images of bulls, like the ones above, dating back to up to 30, 000 years ago, predominate among the rock face and cave paintings at Chevaux and Lascaux in the South of France. Objects, that were created according to principles of visual aesthetics such as cave

...  
 paintings, engravings and carvings, clearly could be seen as precursors of the representations that formed the basis of pictographic writing systems millennia later, as demonstrated later on in Figure 2 below.

### ***Public Communication and Writing Systems Emerge During the Pastoral Age***

In time, some hunter-gatherer nomads came across and settled down along major river and lake systems that provided year-round sustainable resources for their primary sources of food, game, fruits, grains and tubers. Diamond (1999) presents persuasive evidence that between 13,000 and 10,000 years ago hunter-gatherer bands of nomads were able to settle down along the northern Mediterranean climatic zone, which stretches all of the way from the Iberian Peninsula (Southern France, Portugal and Spain) and North Africa across Eurasia to the Orient. According to Diamond (1999: 131-156), our hunter-gatherer nomadic ancestors were able to settle down in pastoral communities in the northern Mediterranean latitude because the genetic code for domesticating certain plants and animals was cracked in a region known as the Fertile Crescent.

The Fertile Crescent stretched from present-day Israel, through Iraq to Iran. Within a few hundred years, the knowledge about domesticating food resources spread by word of mouth from one band of hunter-gatherer nomads to the next. According to Diamond (1999: 322-333) there is evidence that knowledge of domestication independently arose in China from where it spread throughout the Orient.

Because plants and animals are acclimatised to particular climatic zones, attempts at domesticating Mediterranean type plants and animals as food resources would have succeeded only along the relatively narrow northern band of the Mediterranean climatic zone, which stretches all of the way from the Iberian Peninsula to the Orient.

Where Stone Age nomads would have carried only the barest necessities while moving about on foot, Pastoral Age settlers would have had the first opportunity to acquire a significant number of possessions in the form of agricultural tools, household utensils, weaponry and ob-

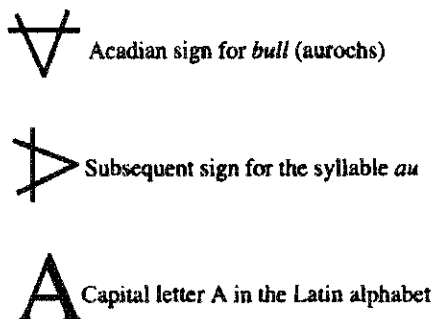


jects of beauty for personal adornment. Where Stone Age nomads would have worn amulets of stone, bone, ivory, crystal or metal to ward off evil forces, it now would have become possible to wear items of beauty for the mere pleasure of owning them and for the pleasure of emphasising one's personal status in the community.

From a religious perspective, the shamans were replaced by political leaders like emperors and kings. This led to the formalisation of public communication because rival leaders now would have had to address their followers during power struggles for supremacy, and they would have had to address their peers in whatever leadership forums there emerged in their communities. With the rise of political leadership, shamans, who were the undisputed leaders during the Stone Age, had to reinvent themselves as priesthoods who were in control of temples where religious matters were interpreted for kings and ordinary people by divination rituals, and particularly through a new invention that only priesthoods understood, namely pictographic writing. For example, the Egyptian hieroglyphic inscriptions found on walls inside the pyramids were instructions to the pharaohs on what they should be doing when they awoke along with their entourage of slaves and vehicles of transport in the underworld.

In response to rapid cultural complexification during the Pastoral Age pictographic writing, which may have been used sporadically before, emerged as a formal system of representation. Along with writing there emerged other forms of graphical representation that were based on precise calculation and measurement to accommodate the more complex societies that were evolving. Early forms of writing used mini word pictures (pictograms) to represent objects in the environment. An instructive example is the image of the bull that already was prominent during the Stone Age as cave art 30,000 years ago. Initially a simple line drawing of a bull's head was used to represent the concept "bull." When it dawned upon the early scribes that thousands upon thousands of such mini word pictures were needed for effective written communication, writing systems were simplified to syllable writing systems, and in some cases to letter-based (alphabetic) writing systems (Gelb

(1969)). In Figure 2 below, one can see the changes that one such writing symbol underwent from representing a bull's head to being the capital letter A of the Latin alphabet:



**Figure 2:** The evolution of a writing symbol from a word picture for bull to the capital letter A in the Latin alphabet

Written communication enabled humans to progress to the crucial stage where different domains of knowledge could be recorded, systematised and critically assessed. In medieval Europe priests in monasteries played a major role to preserve written knowledge by painstakingly copying and adorning manuscripts by hand. Through this knowledge was firmly under the control of the church because ordinary people remained illiterate. Writing became the primary form of knowledge generation and knowledge dissemination after Gutenberg invented the printing press in 1452 by adapting the olive oil press.

Before the existence of printed books, almost all transfer of knowledge was by word of mouth and to a lesser extent, by scribes who, for a fee, would read and write your messages for you. Before the invention of printing, the only way that one could have learned new ideas, or have gained new skills, was by being indentured as a novice trainee with a paid instructor. The invention of the printing press was the beginning of the knowledge revolution because it allowed people to learn independently and to communicate across time and space with

people elsewhere, or with later generations. Printing led to the secularisation of knowledge, which until that time was under the control of the clergy behind monastery walls.

### ***Industrial Age Communications***

The Industrial Age, that is said to have begun about 300 years ago, is characterised by rapid urbanization in already existing metropolises, and the mass production of goods by mechanical means by labourers that fulfilled specialist duties for remuneration as part of an extensive mutual benefit social contract that unfortunately was greatly biased in favour of the industrial masters. The Industrial Age formed the last phase of the colonial era during which massive amounts of raw materials were extracted from far flung colonies, transported by sea to colonial homelands, refined and used in the manufacture of goods for local consumption, and to be exported for sale to other countries. Towards the end of the colonial era rapidly increasing refinements in technological capacities served as push chains, while the vast distances that had to be traversed between colonies and colonial homelands served as pull chains for the development of the first forms of electronic communication, the continental telegraph and the mass electronic forms of communication, the radio and television.

The first forms of global electronic communication emerged in the mid-eighteen sixties with the laying of several Trans-Atlantic telegraphic cables between The United States of America and Europe via Canada, Ireland and the United Kingdom, followed by Trans-Atlantic telephone cables with higher data carrying capacity between the two World Wars. The cordite fumes of the World War II had barely settled when, driven by the human need to know and share knowledge, the half a dozen Trans-Atlantic cables stirred and began creeping along sea beds, connecting major population centres across the globe.

### **Conclusion**

In this article I have shown how the forms of human communication, namely nonverbal communication, small group direct verbal communication, public communication, written communication and

organisational communication have successively emerged to help humans cope with the increasing complexification of human culture when hunter-gatherer nomads learnt to domesticate plants and animals in the Northern Mediterranean climatic zone, which allowed them to settle down in pastoral communities which became evermore complex, eventually evolving into the major metropolises across the world. In the second of the two articles I deal with future forms of communication.

In a subsequent article, *Future Communications: Mobile Communications, Cybernetics, Neuro-Informatics and Beyond*, I will show that a range of mobile communication is becoming the predominant form of interpersonal communication because it restores the ability of humans, who are still nomadic hunter-gatherers in heart and soul, to employ the full range of interpersonal communication while on the move, including the use of facial expressions, gestures, tone of voice, body movement and body stance. By analysing emerging technological trends, I will also predict where mobile communication will take us in the next few centuries to come.

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