

Characteristics of Information

Before the invention of writing, early human societies stored and transferred information orally, through speaking, listening, and remembering. This mode of communication created what's called an oral culture and a social organization different from a culture based on the printed word that we know today.

For example, in an oral culture the transfer of information requires at least 2 people, the speaker and the listener. As a result information becomes a communal experience. The speaker communicates with words, intonation, gestures, and facial expression, and the audience responds emotionally to what they are being told. During the recitation, there's no way of checking the facts, no way of gathering supportive or contradictory data. The listener is a passive recipient of information provided by an authoritative voice. Think about hearing a religious sermon in church. It's a spiritual thing, a group experience that builds common understanding and cohesion among the congregation. There's not a permanent record that you can consult later and analyze against factual data. It's an immediate experience, depending as much upon the delivery as the message.

On other occasions, listeners can ask questions and converse with the speaker, making information negotiable. This type of communication does not promote abstract critical thinking, but rather group cohesion and a common reality. Consider the American jury system. Jurors hear the witnesses' recollections as the lawyers ask their questions. Then based on what jurors hear they determine innocence or guilt. This system is not set up for independent critical thinking but group decision-making and consensus building. How archaic! Why aren't jurors given written documents to pore over and assess?

In addition to being communal, oral communication is transient. Information exists only when it is spoken, then it is gone. There's no permanent record. Even when someone recalls the information and repeats it, that information is subject to change. Each telling is influenced by personal interpretation, including words used, body language, and facial expression. So in an oral culture there is constant informational drift.

Another aspect of information in an oral culture is that it is not retrieved, but performed. Without writing, knowledge must be stored not as a set of abstract symbols, but as a cohesive narrative that can be recalled and recited. Studies of oral cultures have revealed that storytellers do not memorize some authoritative text (there is no text!). Instead they learn key elements of a story and use different mnemonic devices "like rhyme, cadence, and repetition" to aid their recall of these elements. Storytellers communicate the gist of the story, using these devices to give their words meaning and impact. Think of political speeches. The candidates use various rhetorical devices and clichés to appeal to a listening audience. If you read these speeches, they may not have as much substance as you initially thought. They are meant to be heard, not read.

Thus, in an oral culture information is transient and ever changing, depending on the person communicating it and the people hearing it. There is no permanent expression of an idea, a story, or religious belief. Every telling will have slight differences, or modifications so that no two versions will be the same. Every rendition is original.

It's with the invention of symbolic records (the use of designs or pictures to represent something else) that human societies began the long evolution from an oral culture to a print culture. Archaeologists have found in the Middle East what they think are the first records created by humans on ancient bones and rocks. When archaeologists looked at these rocks under a microscope they could see symbols and notches etched on them. These notches represent human's earliest attempts to record information. These notches, however, are not considered writing, for they did not try to communicate abstract ideas or a string of concepts. This was some sort of counting device.

The evolution of writing as a technology is really quite fascinating, and there's some controversy as to just where writing was invented Iraq, Egypt, Asia, Africa? Writing systems were actually evolving in various parts of the world independently around the same time period. Some of the earliest written records were produced in the Middle East and elsewhere during the Neolithic period, from 7000 bce to 3000 bce, as people began to settle in groups and rely on agriculture rather than hunting and gathering for subsistence. Once people had settled permanently in one place, the population began to grow, and for the first time in history human societies began to produce more goods and food than they consumed. This surplus could be traded for items that the community could not make for itself, and large-scale trade began.

These settled communities required some form of record keeping to document production and exchange of goods. In Middle East settlements, these first records are called tokens. They were small pieces of clay molded into various shapes and sizes and then marked with various symbols.

Once people started preserving information in a permanent form, they needed a way to store it. At first, people made holes in their tokens and strung them like beads. So the first archivist could wear the records he maintained!

Eventually people began storing tokens in leather pouches, and then in clay jars or envelopes. The problem however with this system of information storage is access--there was none! Once you put your tokens in the envelope or jar and sealed it up, the information was concealed. So people started marking on the outside of the envelope to show what was inside. At first they literally impressed the tokens into the soft clay of the envelope, making an exact and permanent image of each token that went inside. Then scribes began to draw the shape and markings of the tokens directly on the envelope.

It is believed that eventually the signs drawn on the envelope replaced the tokens altogether; you'd simply have an envelope with the images of the tokens drawn on it. This illustrated envelope would become a tablet, and eventually the tablet would become a text.

Earliest written records on tablets (not tokens but actual records) have been found in the Middle East dating back to about 3,000 bce, in the region known as Mesopotamia. Here in what is now Iran and Iraq, Sumerians lived in villages and towns, and subsisted on an agricultural economic base. The towns eventually developed a fairly elaborate social and political structure with religious and military elites and laborers. Such an elaborate social structure needed to store even more information.

Eventually, full rooms in palaces and temples were devoted to storing important records. Excavations in the Greek Islands (especially on Crete), Turkey, Lebanon, Syria, and elsewhere in the Middle East have revealed just how pervasive libraries were in the ancient world. Thousands of clay tablets have been found in ancient ruins, often to such an extent that it's clear that a library once existed on the site.

One of the most famous of these ancient libraries was discovered in 1839 by British archaeologist, A. H. Layard. The excavation was in Iraq, at an ancient palace site called Nineveh. At first the site looked like a pile of rocks. But when the archeologists started sifting through the mound, they found hundreds of wooden and clay tablets with cuneiform writing on them. There were 25,000 cuneiform tablets in all, carefully stored in large earthen jars and arranged in rows on shelves. And the collection was cataloged! Each tablet had inscribed on its edge a notation indicating the room where it belonged as well as shelf and jar numbers. Each room of the library contained different subjects history, geography, religion, commercial records, etc.

Now jumping forward several hundreds of years information of all types is being created, stored, and accessed continuously. How much information is created each year you might wonder, and of what types. The author of our book, talks about the different types of information, its growth, and use in chapter 1. A study out of UC Berkeley attempted to estimate how much new information is created each year. This study can be found at: <http://www2.sims.berkeley.edu/research/projects/how-much-info-2003/> The entire report is about 100 pages, so you might want to browser the summary of findings or executive summary.

As library professionals entering into a prolific and continuously growing field, it is important to try and keep abreast of the vast amounts of information and its medium in order to assist those interested in accessing and using information. Our roles today are far different than in the times of oral cultures. We are seen as the experts, guides, and keepers of the information landscape, and it is our responsibility to maintain these roles with the highest of standards.

The information in this lecture has been adopted from Dr. Debra Hansen, professor, School of Library & Information Science, San Jose State University.