Affordances and Models of Cartographic Communication

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Abstract:

While we still don't understand the many ways in which maps serve as instruments of communication and why they work better than other forms of communication, communication models help clarify the steps involved and the overall process. They serve as guiding principles. It is, therefore, important to examine the progression of these models to better understand what cartographers do.

For a discipline based on graphics, cartographers have yet to have an easy time depicting the cartographic communication process. Initial attempts are based on the 1949 Shannon & Weaver communication model (see Fig. 1). The model stresses the concept of "noise" within the communication channel that reduces the amount of information that makes it from the information source to the destination.

Shannon & Weaver Model of Communication
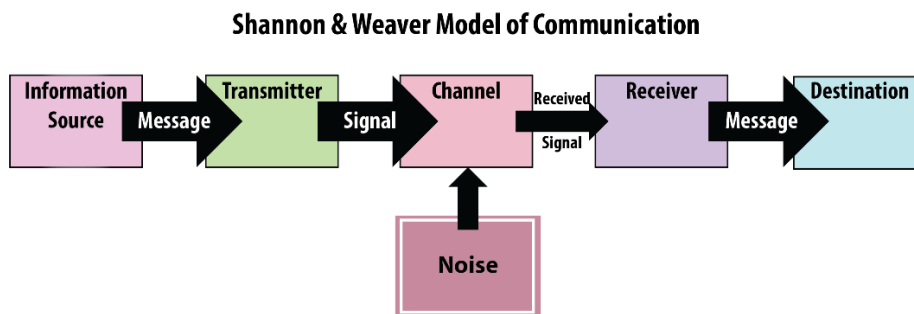
Figure 1. Model of communication according to Shannon (1948). The model is the basis of communication models in cartography.

Initial transformations of the Shannon & Weaver cartography communication model involved adding the cartographer's reality. According to the model, the cartographer encodes cartographic information into a map based on his/her perception of reality and communicates that information in terms of cartographic language through the map to the map user. When communication occurs, there is an overlap between the cartographer's and the map user's reality.

After more than 70 years, many enhancements can be made to models cartographic communication. For example, it would now incorporate the concepts of socially-constructed, semantically-encoded content. McLuhan's medium must also be added to the notion that the medium can have a major effect on the map user. An updated model must also add the cultural background of both the sender (map maker) and receiver (map user). It should also incorporate interaction in the sense that the map user may initiate communication through feedback with the map maker (e.g., a computer program), although likely through another medium. Any model of communication involving visual stimuli needs to incorporate the mental image and the concept that communication may occur with a map's image in the mind after the map has been removed from view. Finally, it should integrate Gibson/Norman notions of affordances in the medium and the map.

One of the suggested reasons for the success of maps is that they offer multiple 'action possibilities.' In terms of the psychologist, Gibson, they offer 'affordances.' The concept of affordances is explored here in the context of maps to determine whether it can contribute to examining the human interaction and experience with maps and whether it helps us understand the nature of maps and mapping. It can potentially also uncover the reasons for the success of maps in human society and help to justify the importance of studying them.

This paper uses models of map communication to examine how maps take their place and play their part in human activity; and why maps, rather than other 'things,' have this role. The general questions to be examined are why maps are

successful in this regard, how humans have embraced the task of mapping and the creation of maps, and how maps function and by doing so, achieve such success. We attempt to answer these questions by integrating several distinct concepts of communication, showing that such investigation can lead to a consistent and uniform new approach to the understanding and practice of mapping.

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