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The Development of Communication Models

Quick Look

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Introduction

In July 2019, the Joint Requirements Oversight Council (JROC) endorsed a list of specific actions for the Operations in the Information Environment (OIE) DOTMLPF-P[1] Change Recommendation (DCR). A requested action under item 1b asks for a "process to develop a baseline understanding of the IE (Information Environment) and subsequently modify the model of relevant actor perceptions, attitudes, and other elements that drive behaviors." To that end, Lt. Gen Mark Kelly, Operations (AF/A3), requested Strategic Multilayer Assessment (SMA) initiate an effort to better understand and integrate information and influence into operational-level planning, execution, and assessment activities across the competition continuum.

Information influences behavior through the process of communication, and so this report provides a review of formative communication models that underly the baseline SMA Effective Communication Framework (Modeling Effective Communication), developed in support of the A3 request. That generic model of communication establishes a baseline understanding of the information environment (IE), as well as the role of relevant actor perceptions and attitudes that drive behavior. The models reviewed in this report are considered key developments in the theory of communication that undergird that model, and each provides a critical insight into operating in the IE.

Models are essential in the sciences for focusing attention on relevant variables and exposing predictive, or when possible, causal relationships (Bankes, Lempert, & Popper, 2002; Cioffi-Revilla, 2014). The models reviewed here are essential for decomposing the communication process into its constituent elements, and the lines, arrows, and shapes in the models described below represent different communication interactions. These interactions provide hypotheses to be tested when thinking about and conducting IO, and the elements define what aspects of the communication process need to be measured in order to provide measures of effectiveness (MOEs), not just measures of performance (MOPs).

The history of models of communication reveals that as new models were created, the concept of the information environment was expanded; that is, more variables contributing to communication and their interactions were considered. The report begins with a review of linear models that describe communication as a process of transmitting a message from a sender to a receiver. A review of transactional models that describe how the exchange and interpretation of messages between communicators creates meaning follows. Subsequent Quicklook reports describe how strategic communication models build upon this basis to model how communication can be done effectively.

[1] Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities, and Policy

A Linear View of Communication

Models of communication are as old as academia itself and have been elaborated through history to capture key features of what happens in the process of communication. Aristotle was the first to propose a linear model with three elements: speaker, message, and listener (Aristotle, ca. 350 B.C.). The focus is on the speaker and the message, with the receiver being little more than a passive target (Figure 1). This model is important as a first step in modeling the communication process, but it lacks many of the critical dimensions of that process.

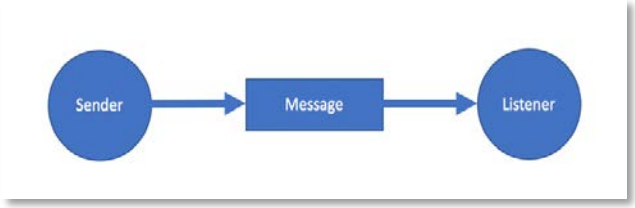

Figure 1. Aristotelian Model of Communication

Systematic empirical research on communication began in the 20th Century, inspired by propaganda during the World Wars. Based on this, Harold Lasswell (1927) proposed a model in which characteristics of the communicator, the message, the medium, and the audience combined to create an impact on the audience (Figure 2). Lasswell's model acknowledges that audiences are not homogenous and can be reached via multiple channels, to varying degrees of success. These insights are reflected in target audience analysis guidelines used by the military regarding understanding one's audience, how the communicator is perceived, and the importance of the medium of communication (U.S. Joint Chiefs of Staff, 2010).

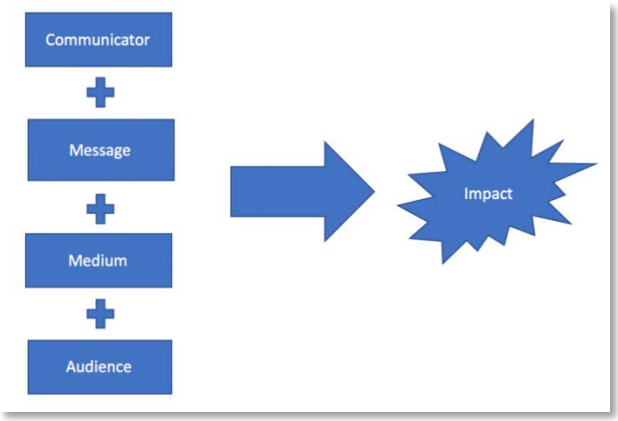

Figure 2. Lasswell's Model of Communication

Claude Shannon and Warren Weaver (1949) proposed a linear model similar to Aristotle's in order to grapple with the technical problem of encoding and compressing information in phone lines. The elements within their model include an information source, a transmitter, noise in the system, a receiver that decodes (interprets) the message, and an ultimate destination. The addition of noise as an obstacle to successful transmission of the message refers to hardware disruption but is later picked up by communication theorists acknowledging that external (or internal) annoyances or disturbances can exist to impede the transmission of the message. One of the obstacles in strategic communication, as an intentional act to influence attitudes and behavior, is when distractions

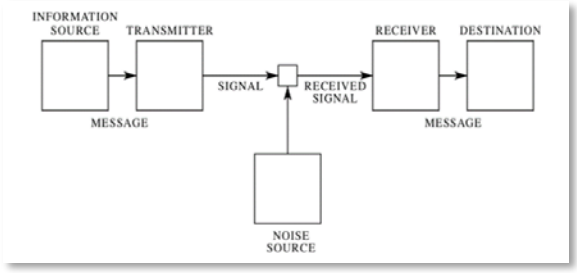

Figure 3. Shannon - Weaver Model of Communication

(electronic interference, mixed messages, competing messages) create a sense of noise that filters out the intended message (Fiske, 1990; Hallahan, Holtzhausen, van Ruler, Verčič, & Sriramesh, 2007). Despite the fact that Shannon and Weaver were focused on attempts to faithfully convey information as a physical engineering problem, their model went on to influence communication theorists concerned with the interpretation of meaning. For instance, psychiatrist Jurgen Ruesch and anthropologist Gregory Bateson adapted the Shannon-Weaver model to human communication by illustrating how the linear transmission of messages would operate in conversations with one's self, between individuals, between groups, and between cultures (Lanigan, 2013).

Wilbur Schramm (1954) included the influence of a sender's and receiver's backgrounds (fields of experience) on encoding and decoding messages (Figure 4). When sending a message, it is important to recognize how one's own field of experience, or worldview, imfluences how one encodes meaning in a message, and likewise, the receivers' worldview impacts how a message is understood.

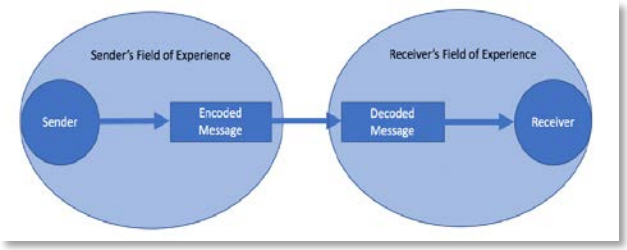

Figure 4. Schramm Model of Communication

In 1958, Roman Jakobsen provided an elaborated model (Figure 5) that included the effects of contact (physical and psychological connection), context (what a message refers to), and code

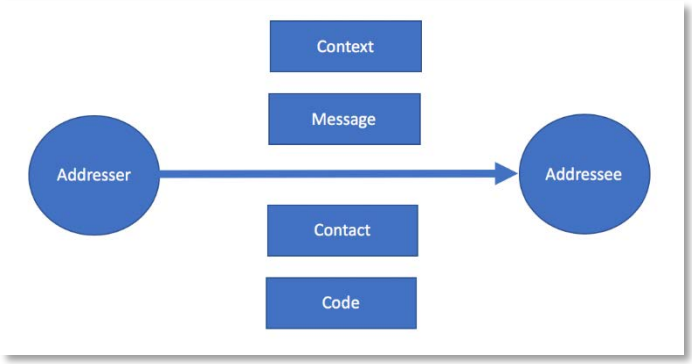

Figure 5. Jakobsen's Model of Communication

(shared meaning) that mitigate the communication of a message between an addresser and an addressee (Fiske, 1990; Lanigan, 2013). Jakobsen's model acknowledges the importance of shared context and connection between two people with similar understanding of meaning for effective communication. A message cannot be separated from this context without losing its meaning. If one's intent is to communicate effectively, it is necessary that the sender understands the influence of the context and the connection between the sender and receiver if the intended meaning of the message is to be understood.

In 1960, David Berlo proposed the SMCR (source, message, channel, receiver) model (Figure 6) which departed from linear models and portrayed communication as a cyclical system in which the sender receives feedback from the

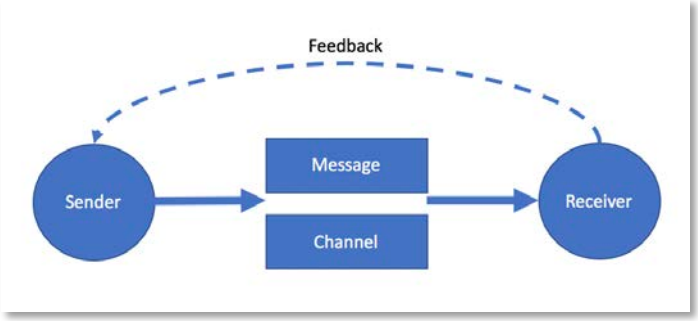

Figure 6. Berlo's SMCR Model of Communication

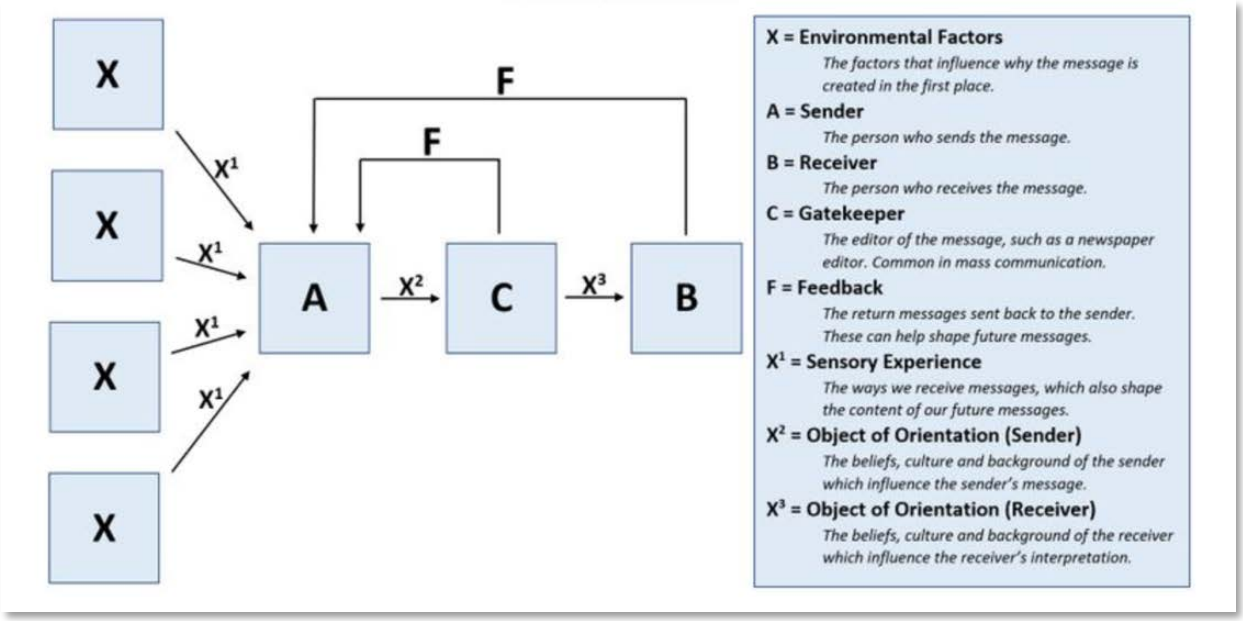

Figure 7: Westley and Maclean Model of Communication

receiver (van Ruler, 2018). Both the source and receiver are influenced by their communication skills, attitudes, knowledge, social system, and culture. Relevant aspects of the message include its structure, content, treatment, and code. The channel is characterized by its sensory elements such as visual, audial, or other senses. Berlo's model highlights four vital elements in the communication process, each of which can be points of message failure. A sender can misidentify a receiver's interests, the right channel could be used at the wrong time, the receiver may be more influenced by his or her background than the sender thought, or even the wrong word choice could alienate or confuse the receiver.

Bruce Westley and Malcom MacLean (1957) provided a more detailed model of how environmental influences and feedback would occur between journalist media and the public that preserved the linear connection between sender and receiver, but added the role of gatekeepers (people fulfilling editorial functions), with sensory experiences (the medium), the fields of experience senders and receivers bring to communication, and feedback from the receivers to the gatekeepers and senders (Figure 7 above). When operating in the IE, it is important to pay attention to gatekeepers who may block, amplify, or distort a message. As with the Schramm and Osgood model, this model also provides for feedback from the receiver. Effective communication requires monitoring feedback from the audience in order to gauge how well the message is received, its effect, and if need be, how to adapt a message to an audience.

Moving Beyond Linear to Transactional and Interactive Models of Communication

Transactional and interactive models fully embrace the feedback between sender and receiver. With the following reciprocal models of communication, senders and receivers are renamed as communicators because messages

are sent and received by all actors. This reciprocation furthermore can be unintentional and sub-conscious. Paul Watzlawick's first axiom of his interactional view is, "one cannot *not* communicate" (cited in Griffin, 2006, p. 177); everything humans do relays meaning, from words and actions, to lack of action, silence, or appearance. This reinforces the fact that communication does not only involve the intentional words and deeds, but also the unintentional. For instance, the US may not intend on communicating a message by stationing a bomber wing in an allied country, but an adversary may perceive the wing as a threat and a provocation that exceeds a critical escalation threshold.

Wilbur Schramm's initial model was essentially linear, but he also built upon Charles E. Osgood's theory of meaning to produce a cyclical model (Figure 8) in which sender and receiver both encode and decode one another's messages in a continuous loop that constitutes a conversation (Schramm, 1954). The conversation creates meaning between the communicators. Such mutual meaning is created during political and military crises when an action provokes an aggressive response from an adversary, which in turn leads to further escalation on the part of the initial communicator.

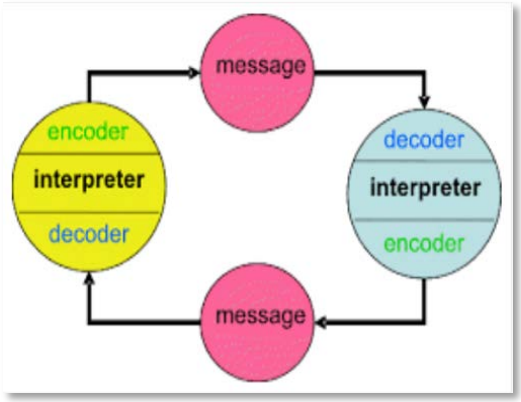

Figure 8. Schramm's Cyclical Model of Communication

John Riley and Matilda Riley (1959) provided an interactive, reciprocal model of sender-receiver messaging in which close social networks (friends, coworkers) influence senders and receivers within their larger social settings, and the act of communication alters senders, receivers, and their messages in a reciprocal process (Figure 9). This model emphasizes how a communicator's social context influences how a message is perceived. For instance, a leader under political pressure at home may be pressured to respond to a provocation by escalating a crisis, or alternatively, if a leader's constituents are not in favor of a conflict, a leader may be pressured not to act when provoked by a foreign threat.

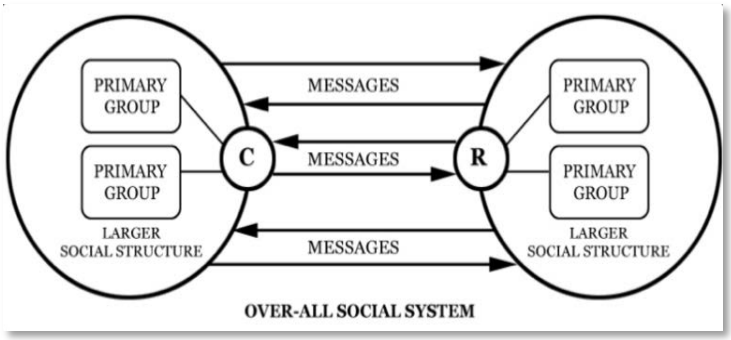

Figure 9. Riley and Riley Communication Model

Communication, Messaging, and Information: An Information Theorist's Definition of Information

- Information theorist Christoph Adami (2016) argues that the way the term information is used in information theory has a useful analogy for theories of human communication.
- To begin with, while there is no universally accepted definition of communication, a starting point for defining communication in general is "social interaction through messages" (Cioffi-Revilla, 2014; Fiske, 1990; Kuznar, 2006). Messages are the signals that are exchanged in an act of communication.
- Adami (2016), following Shannon and Weaver (1949), defines information as that which decreases entropy (uncertainty about the state of the world). Information is generated when a message reduces uncertainty about the state of the world by creating meaning. Knowledge is produced when the meaning information creates impacts the receiver's understanding of the world.
- From this perspective*, information is a quality of a message*, not the content of the message itself. Whether or not messages convey information, and whether or not the information is what the communicator intends, is the subject of strategic communication. Assessing the extent to which messages effectively convey information requires underlying models of the communication process.

Finally, the trend in seeing communication as a reciprocal system in which participants or communicators interact with and influence one another is continued in Dean Barnlund's transactional model of simultaneous and cumulative interaction of cues (Figure 10). An interaction is marked by an innumerable set of private, public, and nonverbal cues available to both individuals, but only a subsection (enclosed by the "/\/\/\" lines in the model) will be available or perceived at a given time. Meaning becomes cumulative with each new cue that is perceived (Barnlund, 1970, p. 59). Barnlund writes that communication is the evolution of meaning, as it is dynamic, circular, continuous, complex, unrepeatable, and irreversible (Barnlund, 1970).

The interactive creation of meaning between communicators is a key theme in constructivist approaches such as those used by George Herbert Mead, Herbert Blumer, and Erving Goffman. George Herbert Mead's work in social psychology recognized that communication occurs through symbols and focused on the interaction of the symbols people used in communication (Mead, 1934). This is why it is important to recognize the symbolic value of religious sites or nationalistic symbols when communicating with others. Mead proposed that it is through the interaction of symbols that meaning is socially created, the idea and label of which was fully developed by Herbert Blumer (1969) as the "symbolic interaction approach." Erving Goffman produced a number of works that

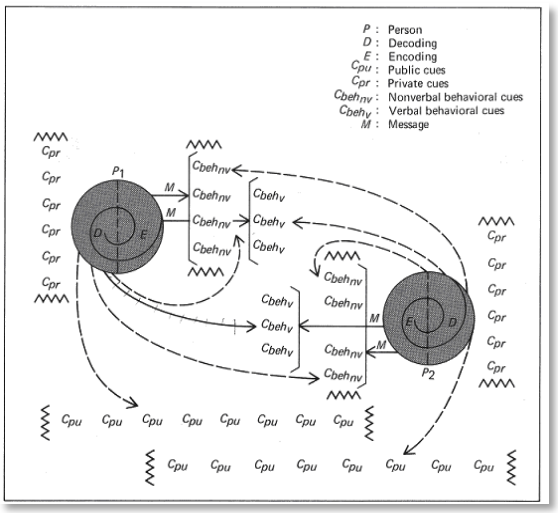

Figure 10. Barnlund's Transactional Model of Communication

addressed qualitative aspects of communication and how the interaction of communicators creates meaning. In 1953, he proposed his dramaturgical approach, emphasizing that people manipulate their presentation of self in different contexts to achieve effects on others, much as an actor does in a play (Goffman, 1956). Goffman's work on framing emphasized that the manner in which a message is conceptually presented can have a profound effect on the meaning it conveys (Goffman, 1974). In more modern political speak, this is referred to the "spin" of a story.

Summary

Explicit, testable models have been elaborated through time to capture the impact of culture and differences in perspective on the meaning of messages, and to capture the interactive nature of communication (Table 1); senders and receivers become communicators who play roles in creating the meaning of messages that are socially shared. These same themes are stressed in constructivist approaches concerning symbolism, presentation of self, and how messages are framed.

The body of essential communication theory therefore highlights the following.

- Human communication is fundamentally about conveying and creating meaning, it involves much more than the simple transmission of information.
- Communicators jointly create the social meaning of messages via interaction.
- Differences in perspective, such as cultural differences, impact how messages are encoded and decoded (understood) by audiences. How a message is presented (framed) impacts its meaning.
- Rather than solely labeled as senders and receivers, individuals are "communicators" that are simultaneously sending and receiving messages and creating meaning, while perceiving and processing cues/information to understand and interpret context/the world (i.e. gain knowledge).

From a military perspective, physical actions such as troop movements, humanitarian aid, or kinetic attacks, or verbal exchanges such as diplomatic communiques, presidential tweets, or strategic communications intended to gain a positive view of the US government are part of the communication process. Current understanding of that process is as a dialogue between communicators who reciprocally create meaning; meaning cannot simply be imposed. The meanings the communicators interpret depend on their own cultural lenses, mediums available, and noise that distorts messages. Effective communication depends on an appreciation of this process and an understanding of the target audience.

Date	Model	Key Characteristics
Sender → Receiver Models		
400 BCE	Aristotle	A sender transmits a message to an audience
1927	Lasswell	Characteristics of the sender, audience, medium influence message impact
1949	Shannon/Weaver	Noise distorts message
1954	Schramm	Sender and receiver's "field of experience" impacts how a message is interpreted (encoded or decoded)
1958	Jakobsen	Communication is effective when senders and receivers have a shared understanding of the world
1960	SCMR (Berlo)	Sender, Message, Channel, Receiver; characteristics of each impact how a message is interpreted
1957	Westley Maclean	Gatekeepers control the messages the public receives
Transactional Models		
1954	Schramm/Osgood	Communication is a reciprocal process between communicators
1959	Riley & Riley	Communicators' social groups influence how messages are interpreted
1970	Barnlund	Meaning is created between communicators in a cumulative process
Constructivist Models		
1969	Symbolic Interactionism	Meaning is created through shared symbols
1974	Framing	How a message is presented influences its interpretation

Table 1. History of Commmunication Models

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