Augmentative and Alternative Communication

Engagement and Participation

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Preface

This book is intended for graduate-level students in speech and hearing and special education, as well as researchers and practitioners from related health professions who are interested in interpersonal communication and augmentative and alternative communication (AAC). For readers, it is an invitation to engage with the theoretical framework as a way to further unpack meaning-making in communication between typical speakers and people with severe communication problems. Although I made an effort to practically apply the core concepts of the theoretical framework, this book is not primarily intended as a practical guide to implementation but rather as a description of insights that could enhance the quality of our intervention practice.

The book, therefore, does not promote the use of specific communication strategies over others but rather hopes to deepen our awareness and understanding of *how* what we do in supporting individuals with severe communication problems impacts the level of meaning developed between users of AAC and their communication partners. The outcomes we work toward do not depend on the particular strategy or technology we use but rather on how strategies or technologies are infused into the lives of individuals to enhance meaning-making in interactions with others. It is the level of shared or common meaning that is developed between communication partners that is central to building friendships and social closeness with others.

The basic ideas for this book originated many years ago when I was a university student talking to my dad, and we were considering the question, "What is dialogue?" At the time, he was a professor at the University of South Africa in Pretoria, South Africa, and I was studying to become a speech-language therapist. We were both fascinated by what happens when two people engage in communication: he, from a sociological (humanistic) perspective, and I, from an interventionist (verbal, nonverbal interaction) perspective. Since then, I established the Center for AAC (CAAC) at the University of Pretoria and for close to 20 years had the privilege of interacting with colleagues and students around this issue, exploring strategies that "could work" in enabling people with little or no speech to

communicate. The elusiveness of what constitutes meaningful interaction between people stayed with me, as I grew in my understanding of ways to facilitate communication between people who can speak and those with severe communication problems.

In 2009, I accepted a position at Indiana University in the United States, and for the first time I was confronted with what it means to be a foreigner in another country. Although I speak English, my accent and South African English vocabulary quickly distinguished me from the other Hoosiers. Although I was raised in a country with 11 official languages, I became deeply aware of the subtle, yet critical impact that different interaction styles and attitudes have on how one is perceived and included within social contexts. These experiences highlighted the complexity and emotional burden that immigrants with severe communication problems and their families must experience when moving to a different country. How does one develop a relationship with an individual who has severe communication problems if you come from a different linguistic and cultural background, and more so, if you can't speak their language? The need to break through these forms of isolation highlighted the importance of empathy and emotional resonance as part of our work as speech-language pathologists and educators.

Then, in 2013, I lost my spouse of 31 years. As many people in the same situation have highlighted, this type of loss is by its nature a solitary experience. Although surrounded by friends and family, there is only so much that others can do. In essence, moving through the grieving process is largely about finding ways to reconstitute meaning in one's own life and relationships. Through this process, I realized how complex the notion of "support" is. We do things (often from our own perspective and perhaps to assuage our own feelings of helplessness) in the belief that what we do is helpful to the other. These "supportive efforts" can, however, be ineffectual, or even obstructive, to individuals and their families as the actions or strategies used do not necessarily address the needs of those we work with. The knowledge of how to support another meaningfully can only develop through cognitive understanding as well as an affective *being with* the other. Thus, supporting individuals and families around AAC strategy use—particularly if we are going to provide support in a sustained way—therefore constitutes a sophisticated skill.

The theory and progression of the ideas represented in this book developed through my consistent interactions with users of AAC, my own children, family, and PhD students and my colleagues, in particular those who were part of the AAC-in-Action Project at Indiana University. Although the theoretical framework is applied to people who use AAC, the basic theory about meaning-making is relevant to all of our interactions. Some of

these insights enabled me (as well as my children) to become more open to new relationships and opportunities, each in our own way reembarking on the meaning-making process after experiencing profound loss.

The purpose of this book is, thereby, to deepen our discussions and insights into the process of interpersonal interaction, not only as a strategic and intervention process for users of AAC but also as a meaning-making process in our own lives as therapists, teachers, and parents.

Part I of the book (comprising the first four chapters) describes the theoretical framework and basis for the book. Chapters 1 and 2 outline the process and elements that constitute meaning-making. Chapters 3 and 4 then describe research conducted by myself, colleagues, and students within school settings. These chapters provide a basis from which to frame the need for reflection and refinement of the theoretical framework presented in the book.

Part II (comprising the following six chapters) then deals with different aspects relating to AAC intervention in relation to engagement and participation. Chapter 5 describes and outlines what a meaning-based approach could look like in AAC intervention, and Chapter 6 provides an application of these principles to two case studies. Chapter 7 describes the process of empathetic communication to further highlight intervention as a process of not merely *doing with*, but of *feeling with* another, and Chapter 8 then applies these principles to communication partner training. Chapter 9 focuses on interaction with people with severe dementia and further explores the basic concepts of meaning-making in specifically constrained situations, where there is limited shared reality (common meaning) between communicators. Although this chapter may appear to be an outlier, it presents an important insight into the theoretical discussion, as it counterbalances the notion of meaning-making as a solely "rational" process. Meaning-making with another is fundamentally also about emotional resonance between people, and exploring interactions with people with severe dementia is an important way of highlighting this notion. The last chapter in this section then deals with an important communicative aspect of our contemporary lives—the impact and use of online communication. The chapter considers digital media and its potential role in facilitating social closeness and friendships between users of AAC and their communication partners.

Finally, Part III provides a future perspective on engagement and participation, by providing some ideas for research and the further theoretical development of the basic tenets of the book.

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I would like to express my appreciation to all my colleagues, friends, and students who, over the years, have contributed to the ideas represented in this book. I trust that they will recognize their contributions in my thinking and accept my deep gratitude for their friendship and dedication in encouraging and supporting the development of this theory.

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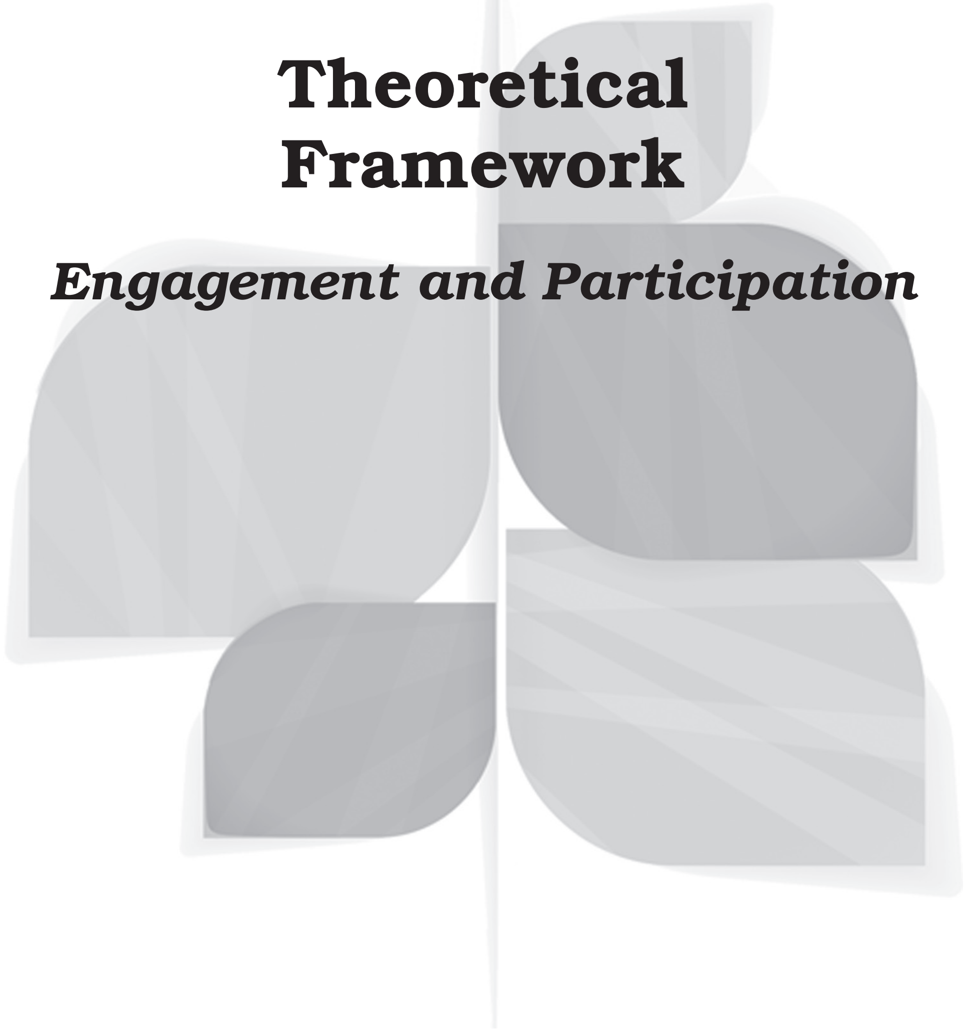
Vir die Oubasie
(To my Dad—who passed away on June 3, 2016).

PART I

Theoretical Framework

Engagement and Participation



1 Social Closeness, Relationships, and Communication

Erna Alant

Introduction

Like many of the most elementary insights into human nature, the premise of this book was in many ways catalyzed by a brief—and unanticipated—interaction.

It was five o'clock on a Thursday afternoon, and I had rushed to the grocery store to buy a packet of white onion soup. A friend of mine was coming over later, and the soup was an integral part of the recipe that I was making for dinner that night. I picked up a shopping basket, as I knew I only needed a few things and would be out of the shop in a few minutes. But when I got to the soup lane, searching for the white onion soup, I saw every possible variation and flavor of soup, but not the one I was looking for! In desperation, I swung around to see if I could identify someone who worked at the store and could help me. Instead, however, I became aware of a young boy in a wheelchair who was watching me closely. His mother was also busy searching for a grocery item, but she was facing the opposite shelf.

The young boy was watching me intently, and I sighed to show that I was tired of searching through the soups. In response he wiggled, shifting around in his chair, and smiled broadly. I winked at him, selecting a

packet of soup that could act as a substitute for white onion soup. Before I left, I turned around and gave him a thumbs up. He made a gesture with his hand and gave me a broad smile. As I got into my car, I realized that my mood had changed: I had walked into the store, a stressed professional who needed to perform a number of duties efficiently—shopping, following a recipe, preparing dinner—but walked out a person who, after the quiet interaction with the young boy, was now on my way home, looking forward to preparing and then sharing a meal with my friend. I already knew I was set for a much better evening.

Somehow a short interaction with a young child in a grocery store had changed my whole approach as well as my expectations of the evening ahead of me. How did this happen? There was neither a verbal exchange involved, nor did we know each other. Reflecting on the interaction, I realized that the child's attention to and his interest in me had encouraged me to stop and pay attention to what really mattered in that moment. The focused attention that the child had given me was effectively an invitation into his mental space, and I was thankfully able to be receptive to it!

What transpired between the child and me is fundamental to the argument of this book and constitutes, I argue, the core of communication—that is, the basic ability to (a) pay attention to the other and (b) be receptive to the other in interaction. It is then somewhat ironic that we tend to get caught up in the technical aspects of communication (e.g., how to speak, operate a device, use communication boards, and teach communication strategies), while the deeper aim of communicating—meaning-making between two people and the developing of friendships—extends well beyond our ability to send and receive messages.

In this chapter, I provide a description of communication as a meaning-based process, discussing the related concepts of emotional resonance and social closeness. I also explain the basic components of communication, engagement, and participation and discuss their application within the context of interaction with people having little or no functional speech. Finally, I describe the characteristics of a meaning-based approach and propose one way of identifying different levels of meaning in interaction.

Social Closeness and Communication

For people to be able to experience friendship (a degree of social closeness), there are three requirements: (1) that they acknowledge one another, (2) that they are curious to get to know the other person, and (3) that this

attention is ongoing so that closeness can be maintained. The process of social closeness therefore emerges from a heightened awareness and continued attention to the other. Prior to the exchange in the grocery store, I would not have responded to the young boy if I had not become aware of him focusing his attention on me. Similarly, if he had not responded to my gestures (nonverbal messages), I would simply have continued with my shopping.

For a friendship to develop, a feeling of closeness with another is required. This closeness functions to enhance the time that is spent together sharing thoughts, ideas, and stories. For example, if two children meet and become friends at school, they are more likely to want to increase the number of opportunities for play outside of school. This additional time together not only provides them with enhanced opportunities to share their common interests but also increases potential opportunities for expanding their understanding and appreciation of each other—or not!

In this sense, social closeness is not about finding a cure or a solution to one another's problems or difficulties, but rather it is the enactment of a loosely choreographed process, focused on exploring being with the other person. In this sense, communication is not a means to an end but a process that allows people to gain and deepen their understanding of each other.

A Creative Dance

Engaging in what could usefully be described as the *creative dance* of social closeness, partners have the freedom to use and interpret verbal and nonverbal symbols in ways that are conventional but also unique to their particular relationship. This freedom allows for the development of meaning during communication, regardless of the cognitive level of communication partners or the modalities used during interactions. Let us consider the personal testimonies of two users of augmentative and alternative communication (AAC) describing their interactions with typical communication partners.

In Jean-Dominique Bauby's book, *The Diving Bell and the Butterfly* (1998), he describes his speech therapist, Sandrine, as his guardian angel. She is the person who sets up the alphabetic code that he uses to communicate. Apart from using the alphabet coding system, he also uses very limited facial expressions, winks and nods to communicate. He expresses his fondness of the alphabetic code, describing it as a "hit parade in which each letter is placed in its frequency of use in the French language" (Bauby,

1998, p. 27). While his communication partners would read out a list of these letters, he would blink to indicate the correct letter—the combined letters spelling out words to then produce phrases.

In describing this means of communication, he notes that some of his communication partners fare better at using the alphabet system than others. Some partners, he says, "reel off the alphabet tonelessly, at top speed, jotting down letters almost at random . . . they take charge of the whole conversation, providing both questions and answers," and, with irony he notes, "I am spared the task of holding up my end" (p. 29). Additionally, he outlines the difficulties involved in communicating with "reticent" or "meticulous" communicators, with each of these introducing their own specific way of using the alphabet code—making interacting with them very challenging as he has to adjust to the way in which the communication partners use the code system all the time. He also highlights the frustration of interacting with people who are nervous or embarrassed in his presence, noting the ways in which their behavior forecloses the possibility of meaningful interaction. In fact, most of what he describes centers on the inability of many of his communication partners to focus on actually communicating with him, rather than completing the technical task of deciphering an alphabetically coded message.

In contrast, he describes how Sandrine, the speech therapist, brightens his day when they interact. She is, contrastingly, able to *dance* with him, constructing messages while observing him and using the alphabet code while facilitating his interactions also with others in creative ways. He describes waiting for her presence to call his family and friends, helping him communicate with his loved ones: "to intercept and catch passing fragments of life, the way you catch a butterfly" (p. 49). He then reflects on how difficult it must be for his 8-year-old daughter and his 93-year-old father on the other side of the telephone line to have to deal with all his silent responses while Sandrine acts as an interpreter. "How dearly I would love to respond with something other than silence to their tender calls" (p. 49).

Bauby was living with locked-in syndrome, meaning that he was cognitively and emotionally present during interactions but not physically able to participate in the process of communicating with others. Within this context, few people were capable of engaging with him in a way that could help him to transcend his physical limitations. Not only Bauby's physical disability but also limitations of the communication partners to engage in interaction in an atypical way reduced opportunities for dancing (meaning-making) and interaction. The question then becomes: what would this type of communicative dance look like? How would it manifest in real life? Bauby provides one answer to this question by describing the birthday present he receives from Sandrine. On his birthday, she helps

him to pronounce the whole alphabet more or less intelligibly. "I could not have had a better present," he notes. "It was as if those twenty-six letters had been wrenched from the void; my own hoarse voice seemed to emanate from a far off country" (p. 49). As he is not able to communicate using speech, this could objectively be viewed as a pointless activity to engage in; however, on a personal level, the activity has great value to him —and Sandrine is engaged enough to realize this. Thus, communication is not just about sending and receiving messages, but it is about our ability to engage, to emotionally resonate with another as part of a process of symbolic interaction.

Similarly, Martin Pistorius (2011), a user of AAC, describes an interaction between him and his wife in which they are able to meaningfully interact without him using his communication board. In this instance, Martin draws letters on his wife's skin with his finger, which she in turn reads. This intimacy and physicality of their communication is facilitated by what Pistorius describes as the common ground (Clark, 1996) that has developed between them as part of their interactions. "We've said enough after so many months of talking and often don't need words because Joanna understands so much just by looking at my face" (Pistorius, 2011, p. 240). Through the creative dance of looking at Martin's face and following the letters he draws on her skin, Martin and his wife are able to use symbols in meaningful ways to promote closeness and intimacy.

Emotional Resonance

Thus, the long-term value of communication greatly exceeds the superficial exchange of information or content. It is the development of an emotional resonance (correspondence) with the other that facilitates the authenticity and intimacy of Pistorius and his wife's interactional experience. Resonance, rather than specific insights or conceptual understanding, is in effect a correspondence with the subjective world of the other—and is therefore the essential substance of the content of the interaction (Coburn, 2001). It is the *music* behind the words, the sharing of subjective experience, which unfolds a sense of authenticity and vitality in interaction. This unconscious level of communication in which emotional resonance is established greatly impacts the gains or value derived from being together: Most significantly, the realness and aliveness of these interactions provides a deep intrinsic motivation for sustaining contact and developing relationships further.

One could also postulate that these Bauby and Pistorius examples reflect a level of caring in interactions with the communication partner.

Caring in this sense can therefore manifest in terms of accepting what is real in the situation and the willingness to work with the realities (abilities of both interactors) in an attempt to make contact with the other. Hence, this process is often less about how effective communication attempts are and more about the ongoing interest and attention focused on being with each other. However, in most meaningful interactions, there is a delicate balance between the effort invested to communicate and the ability to maintain ongoing attention. For example, when Bauby notes that he struggles to communicate with the pedantic communicator, it is because the effort to produce the messages using the alphabetic code often outweighs the benefits for interaction as the communication partner gets distracted and the capacity to pay attention to Bauby as the person he or she is communicating with decreases. If we are willing to take the premise that *all can communicate* seriously, then the effort required for communication is actually dependent on our own expectations of what the process should look like, rather than on our interest in the other. Herein lies the fundamental complexity of dialogue: It requires a delicate balance between effort invested and gains derived from the process, which means (a) suspending one's own conceptions of what the process should look like, (b) an openness to be receptive to how the other uses symbols, and (c) participating in an exchange to interpret symbols to create new nuanced meaning between communication partners.

The Development of Meaning

Meaning is commonly described as making sense about or doing something of significance or value within a specific context. The process of "sense-making" entails the subjective or connotative meaning of what is communicated as well as the shared or "common meaning," which relies on the denotative or conventional meaning of constructions, words, or symbols exchanged between people.

Denotative and Connotative Meaning

This distinction between subjective and common meaning, however, is not necessarily easy to identify. Although we are theoretically able to distinguish between denotative and connotative meaning, in practice the meaning of our exchanges relies heavily on both, and the consistent interplay between these meanings makes it difficult to isolate them in practice. The

interplay between these two types of meaning, though, creates opportunities for individuals to construct new associations through sharing and interpreting symbols. These associations can then be used to enhance their relationship. The following example illustrates this process.

A para-educator is observed interacting with a young boy (B) with autism who has little speech (8 years). She is trying to encourage B to put on his shoes, as it is time for them to go for a walk outside. "We need to put on your shoes to go for a walk," she says. She holds the shoes in her hand and shows them to him while he lies on his belly, on top of a beanbag, faced to one side. After a couple of nonverbal prompts to try and get him to respond, *she finally puts the shoes next to his nose on the beanbag*. "Come on . . . time to put on shoes!" she says. This time B lifts his head and smiles, getting up to put on his shoes. Here, the smell of the shoes, together with their positioning close to B's face, as well as the verbal prompting and touching by the para-educator are sufficient to motivate B to put on his shoes. No bribing or rewards will be necessary.

In this way, the para-educator was able, in a playful way, to construct meaning with B by using a variety of modalities, including speech, smell, touch, and the positioning of his shoes, the whole while measuring his responses. What she was doing was augmenting her verbal message with different communication modes to facilitate the development of meaning between her and B. The common meaning of the word "shoes" was thus supplemented by B's subjective experience of shoes as represented by a combination of the smell and visual proximity of the shoes, which aroused him by attracting his attention. This "new nuanced" meaning developed between the two communication partners represents an example of dialogue as a creative synthesis of meaning.

Dialogue

The process of dialogue as a creative synthesis, however, poses a major challenge to the field of AAC. Communicative exchanges with or among users of AAC are often limited to the simple exchange of messages without incorporating the more subjective aspects of meaning-making between individuals. There are a variety of reasons for why these exchanges can become rather "scripted" in nature. These include, first and foremost, the difficulties faced by users of AAC in expressing themselves, the limitations of the communication system itself (these may include lack of flexibility and access), and/or the limitations of the communication partner who might not be able to pick up on subtle messages that are being communicated. Jan Staehely (2000), a user of AAC, describes her experiences

of interaction as follows: "I had become so used to not being able to say something in depth to a person that I started to believe that I was a person who didn't have much to tell people . . . I fooled myself into thinking that I didn't have anything to say" (p. 9). Although this statement represents the frustration of the user of AAC primarily with the form or modality of communication that she is using, it is also important to acknowledge the limitations of the communication partners in this particular example in engaging in communication with the user of AAC.

The efficacy of communication as a meaning-based process depends on the ability of *both* partners to interpret and use a variety of symbols in constructing joint meaning. In the above example with the para-educator and B, it was evident that both participants were engaged in an interaction that was meaningful, signaled by B smiling and putting on his shoes. It is, however, unclear whether this would have been the case had the para-educator not positioned the shoes so close to B's nose!

Communication With a User of AAC: Communication Rules and Expectations

Lloyd, Quist, and Windsor (1990), in their description of the AAC communication model, postulate that communication involves the exchange of messages between communication partners where at least one of the partners is a user of a visual, tactile, or auditory system that adds to or replaces speech, is purposeful and rule governed, and occurs in the context of other behaviors.

Communication Model

This basic communication model, presented in Figure 1–1 (based on Lloyd, Fuller, & Arvidson, 1997), highlights the various factors involved in message transmission, the impact of the sociocultural environment, and the communication context feature as important components of the communication model. It thus emphasizes both the exchange of information as well as the feedback that is received and interpreted by the communicators as part of the interactional process. This model will provide a basic point of departure for the further discussion on meaning-making.

Following from the model, the rule-governed nature of the communication process, although central to the development of meaning, presents as a point of vulnerability within the process, as foreign or new symbols or technologies need to be introduced in a way that conform to preexisting communication rules. These rules not only include conventions relat-

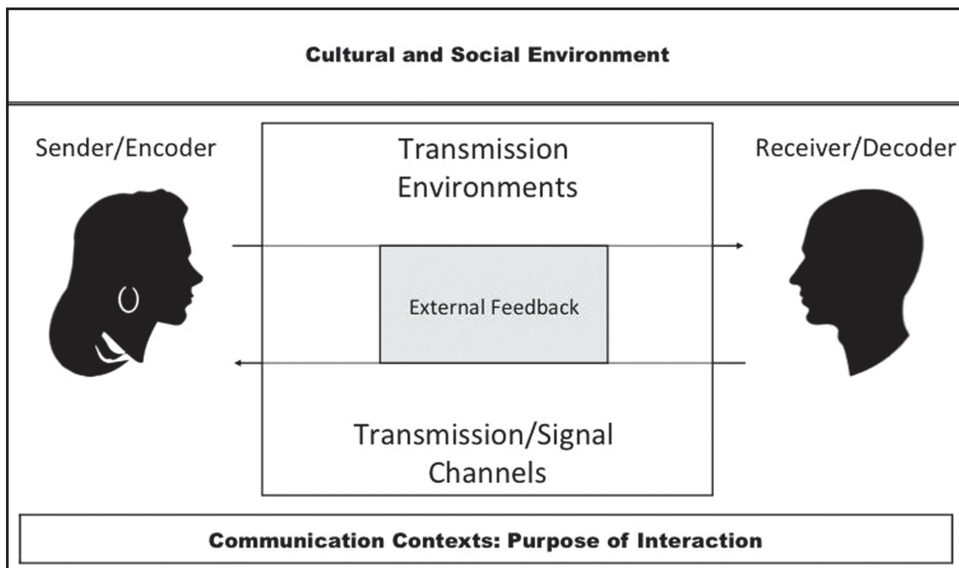


Figure 1–1. Basic communication model. Modified from Lloyd, L., Fuller, D. R., & Arvidson, H. H. (1997). *Augmentative and alternative communication: A handbook of principles and practices.* Boston: Allyn and Bacon, with permission.

ing to cultural and linguistic use but are also strongly influenced by the specific purpose of the interaction and its context. Thus, the modality is often constrained by various and sometimes conflicting external influences, and amid this tension, the intended meaning of the exchange can be distorted or lost, leading to communication breakdowns. Our ability to interpret communication rules and to repair breakdowns when these rules are violated plays a significant role in facilitating interactions with others. Thus, our own expectations and our exposure to different ways of communicating greatly determine our ability to be flexible and tolerant in our use and interpretation of communication symbols. For instance, it is much easier to understand a person who speaks with a foreign accent if you have previously been exposed to that particular form of pronunciation. This also applies to users of AAC. As many communication partners' exposure to the use of AAC technology is quite limited, their ability to adjust to this way of communicating—to internalize the rules that facilitate interaction—will generally be compromised.

That being said, communication rules are usually not explicit. The way we interact is not fully conscious—we learn and derive rules (both explicit and implicit) from our exposure to other communicators. When exposed to new interactions, we are often forced to become much more explicitly aware of how we communicate to allow us to improve our

communicative competence. A heightened awareness of how we ought to be communicating can, however, impact the level of meaning development between people. The more aware we are of our manner of communicating, the more artificial our interactions tend to become. The use of technology can therefore be a major detractor from interactions. Typically, the more skill and familiarity that a particular communicator has with an AAC strategy (its operation and rules for use) and their communication partner, the more likely it is that they will be able to develop meaning on a deeper level during interactions. These factors also influence how long they will be able to sustain interactions with the other. It is therefore not surprising that teachers, parents, and users of AAC often prefer to use low-tech or no-tech options to communicate, as these approaches tend to be more familiar, with communicators feeling more comfortable using them.

Use of Assistive Technology in Daily Living Activities

Literature on the effective use of assistive technology in daily living contexts (and the barriers that individuals face in integrating them) has emphasized the need to view assistive technology as an extension of the individual in facilitating the use of assistive technology devices (Cook & Hussey, 2002; Scherer, 1996). Factors that could support optimal AAC device use have also received increased attention (Alant, 2005; Angelo, 2000; Judge & Parrette, 1998; Light & McNaughton, 2015; Parette & Brotherson, 1996); these factors include strategies related to the abilities of the user, the match between the system, and the individual, training, and environmental supports. Nevertheless, even in the context of this research, relatively little attention has been paid to understanding how individual AAC systems impact interactions between communication partners as they engage in the personal process of constructing meaning.

The difficulties that users of AAC face in building relationships and personal networks have, though, often been reported. For example, Blackstone and Hunt-Berg (2003) and Light and McNaughton (2013) indicate that the social networks of individuals who use AAC are limited. Consequently, interventions focused on partner and peer interactions have become more prevalent in order to facilitate the development of skills related to social interactions (Kent-Walsh & McNaughton, 2005; Light & McNaughton, 2013; Lilienfeld & Alant, 2002; Müller & Soto, 2002). These approaches acknowledge that the outcomes of intervention largely depend on the extent to which the AAC system facilitates or detracts from the process of dialogue between people.

In this light, the nature of interactions between users of AAC and partners has often been described as limited because they are based on

question-answer strategies and prerecorded messages (Hoag, Bedrosian, McCoy, & Johnson, 2008). Although there is no doubt that competent users of AAC may independently develop the skill to engage in meaningful interaction with others, our understanding of the critical factors impacting on such outcomes remains vague. Ultimately, communication requires more than providing the user with access to symbols or the skill to manipulate a device. Rather, it requires infusing the AAC system into the dynamic process of interaction between people.

Nature of AAC Interactions

Research exploring the nature of AAC interactions has taken a variety of forms. These have included analyzing narrative accounts of users of AAC (Balandin, Hemsley, Hines, & Waller, 2006), identifying barriers to interaction (McCoy, Bedrosian, Hoag, & Johnson, 2007), describing the nature of interactions (Soto, Solomon-Rice, & Caputo, 2009; von Tetzchner & Martinsen, 1996), identifying social aspects of communication competence (Hoag, Bedrosian, Johnson, & Molineux, 1994), and describing multiple meanings derived from signs and symbols (Gove, Dockrell, & Woll, 1996). In addition, a consideration of the advantages and disadvantages of prestored messages, their ease of retrieval, and the personalization of messages has been part of the search for understanding factors that impact on the communication process (Higginbotham, Shane, Russell, & Caves, 2007; Kent-Walsh & McNaughton, 2005; Light & McNaughton, 2012, 2014, 2015; Todman, Alm, Higginbotham, & File, 2008). McCoy et al. (2007) summarized the issues involved in AAC interactions by stating that people with severe speech impairments who use utterance-based systems (e.g., Schema Talk™, Talk Boards™) are forced to make less than optimal choices when previously stored messages are imperfect fits for their discourse context. The result is that they end up imparting either too much or too little information. Grice (1975) outlined the cooperative principle by defining four conversational maxims: The maxim of quantity refers to one's ability to provide information as needed and no more, the maxim of quality refers to the ability to be truthful by not giving information that is false, the maxim of relation refers to the ability where one expresses content relevant to the discussion, and the maxim of manner refers to when one tries to be as clear and brief as possible to reduce ambiguity. From this it is evident that the restrictions imposed by the AAC system exact a cost, as participants are forced to violate one conversational rule to satisfy another. These limitations of AAC systems impose significant challenges on the interaction process while also contributing to the uniqueness of the interaction process between users of AAC and their partners.

Meaning-Making in Interactions

Despite the limitations, the personal process of developing meaning requires interpretations that surpass the level of symbolic exchanges. This latter process cannot be reduced to a description of how different individuals use symbols but goes beyond to include a broader understanding of the nature of the relationship between two communicators. For instance, a user of AAC may be proficient in using a device but might prefer to use a manual alphabet communication board to interact socially in some situations. In the case of Martin Pistorius (2011), he used his finger to spell out words in interactions with his wife. Although this preference seems to discount the value or benefits of speed in speech production, it can be understood in relation to the goal of joint development of meaning that fosters social closeness: The more flexible format of an alphabet system may better support the personalized development of meaning through successive dialogic interchanges between partners. Thus, a simpler technology, like an alphabet board, may better serve the dynamic process of interpretation and expression between communication partners that contributes to the development of meaning.

Information and Communication

Bruner (1990), in his discussion of learning processes, makes a distinction between meaning-based learning, which focuses on the *construction* of meaning, and information-based learning, which focuses on the *processing of information* to decode and attach meaning. He emphasizes the profoundly different routes followed in these processes and the key role played by the approach to information processing (computation).

Information Sharing

"Information," he asserts, "is indifferent with respect to meaning. In computational terms, information comprises an already pre-coded message in the system. Meaning is pre-assigned to messages" (Bruner, 1990, p. 4). Units of information are computed (put together) to compile a message without any reference to contextual use of language. Information, therefore, is conveyed; it is not developed as an outcome between interaction partners. Thus, an information-based approach cannot deal with anything beyond well-defined arbitrary entries that are in specific relationships and governed by specific rules and operations.