

Handbook of Communication and Social Interaction Skills

Edited by

John O. Greene
Brant R. Burleson

HANDBOOK OF COMMUNICATION AND SOCIAL INTERACTION SKILLS

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JOHN O. GREENE AND BRANT R. BURLESON
PURDUE UNIVERSITY



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FOREWORD

John M. Wiemann
University of California, Santa Barbara

Readers of this book almost certainly agree that many of the most important activities in which we engage are communicative. Our ability to create and sustain our social world depends in large measure on how well we communicate. People's social skills are crucial to their well-being—individually and collectively. The importance of understanding skillful behavior in all its complexities cannot be overstated.

This *Handbook* is a milestone in the study of communication skills. In its depth and breadth, it is a remarkable work that both chronicles the field and provides a framework for the next generation of theory and research. When such an important milestone has been reached, it is useful to reflect on the journey thus far.

The history of the discipline of communication (broadly conceived) is the story of identifying, investigating, and teaching social skills. There is also an ethical aspect to communication skills in that they can be used for good or ill; the playground bully and the political demagogue may use certain communication skills that accomplish their goals and motivate others to act on their behalf, but bring evil results. The roots of understanding and teaching social skills were decidedly in the service of the public welfare, however. The earliest teaching of oratory was motivated by the need for citizens to be competent to participate in democratic governance (and even today, local, national, and international participation requires that citizens learn to speak effectively to others).

Over time, of course, our understanding of what it means to be a socially skilled citizen has broadened. Not only do people need to deliver public speeches effectively, they also need to manage social and intimate discourse, as well as to use and respond to various technologies. Moreover, we have realized that adults are not the only ones needing social skills; children also need a repertoire of sophisticated social skills to interact effectively in their families, peer groups, and schools. Recognizing this, the National Communication Association has devoted resources to the assessment and development of communication skills in children from kindergarten through high school. In fact, pedagogical concerns and the expansion of communication curricula into the interpersonal domain were among the factors that sparked interest in communication competence in the late 1960s and early 1970s.

Research examining communication and social skills extends to the mass media as well. Media researchers have long been interested in strategies for effectively informing people and changing attitudes and behaviors through news reports, advertising, public information campaigns, and documentaries. Today this interest extends to “new media,” for instance, in areas such as the design of web pages that effectively inform and persuade.

Research in interpersonal communication typically has been directed at understanding how communication is used in forming relationships and making them happier. I find this centuries-old concern with the commonweal one of the heartening characteristics of the study of communication. It is one of the reasons that focusing on what people actually do is so important.

To be sure, the focus of inquiry in communication research has undergone periodic shifts. At times, skillful behaviors themselves have been the primary focus of the discipline. At other times, greater emphasis has been given to the cognitive and social-psychological processes assumed to underlie these behaviors. Although approaches emphasizing the behavioral aspects of social skill have not always dominated the research scene, scholars have continued to find that a concern for skilled behavior is necessary for progress in their understanding of communication at every level of analysis. Skills-based work remains a central focus of communication scholars, one that has the potential to integrate various perspectives because it demands a focus on what people do in real life. Through such research, we have come to understand how psychological, cognitive, and emotional processes all contribute to communication behavior. We have made great progress in showing how people’s motivations and goals are realized through social interaction.

The integration of behavioral and psychological approaches (broadly construed) has been, and continues to be, one of the greatest challenges in the study of communication and social interaction skills. In the 1950s and 1960s, when scholars in various disciplines (e.g., sociolinguistics, social psychology, and sociology, as well as communication) developed a renewed interest in social skills, the multi-front attack on the problem eventually led to remarkable progress. Not surprisingly, allegiance to one’s own approach sometimes hampered integration of this work. Another, more interesting impediment to integration was the “problem of context.” Behavior is situated in context and so is the study of behavior and the psychological processes that accompany it. The problem of context is how to transcend it without losing the richness of information that context provides both the actors being studied and the scholar doing the studying.

In the mid-1970s, my attempts (e.g., Wiemann, 1977) to integrate the work of various disciplinary perspectives and deal with what I saw as the problem of context led me to link contextualized behavior to trans-contextual functions (control, affiliation, and task). By doing so, I hoped that a theory of communication competence could be developed that was robust, yet could be used to understand communication behavior in a specific situation. As work in this area progressed beyond simple distinctions between “skilled” and “unskilled” behavior, the importance of individual and relational goals, strategies and motivations for achieving these goals, planning routines, emotions, and cognitive abilities became evident. It also became clear that prescriptive conclusions about which skills “worked” or which were “good,” encouraged by the very pedagogical concerns that motivated much of the work in the discipline at that time, were not going to be very useful.

Each advance in research required a new round of integrative theoretical work that, in turn, spurred a new wave of empirical investigation. These advances required

scholars to put aside their own disciplinary and methodological allegiances (a move that I know from personal experience is, at times, difficult to make!) to take advantage of the knowledge that was being produced.

Along the way, we have become more sophisticated about what it means to be competent or skilled. The move from focusing on individuals to relationships has been very important because through it we learned that the sheer number of “skills” (the ability of an individual to produce desired behavioral routines) did not necessarily predict happy, successful, productive—that is, competent—relationships. Some scholars (see Cupach & Spitzberg, 1994) began to examine how skilled communicators could intentionally produce very negative outcomes for their partners. For example, maintaining an “enemy relationship” without driving the other person away requires a great deal of skill and such a relationship might even be called “competent” (if only in a twisted sort of way) if both partners were achieving their goals, no matter how destructive.

I am pleased to see that work under the rubrics of communicative competence, social interaction, social skills and the like has continued to prosper. The comprehensive theory I was looking for is not yet developed, but as this book indicates, we are closer to achieving that goal.

As the various chapters in this *Handbook* demonstrate, there are a variety of useful ways to approach communication and social interaction skills. The gathering together of these various perspectives in one place underscores the power of the collective work of the discipline over time. It also encourages new combinations and syntheses of these approaches. The synthetic possibilities are timely. Distinctions among what some have called “levels of analysis” of communication (interpersonal, mass, organizational, etc.) become less meaningful as new technologies, globalization, and even our own understanding of communication processes call for theory and research that is integrative—research that recognizes that traditional ways of thinking about scholarship no longer capture the complexities of our experiences.

As this *Handbook* presents the many aspects of social skills, it should also serve as a springboard for future research and theory development. Current research into the use of new communication technologies, for example, might benefit from the collective wisdom of this book. Today, prescriptive approaches to communication using technology could be more integrative and sensitive to the context-dependent applications of social skills in mediated situations.

The scholars contributing to this *Handbook* are an impressive lot. They represent the many perspectives that have developed in social skill research, and they synthesize decades of research on social skill acquisition and performance in different relationships and multiple contexts. This work provides a backdrop for understanding relationships now, and sets the stage for future advances in social skill research, as we continually seek better ways to create and sustain our social world.

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PREFACE

Communication processes are a source of fascination for scholars and laypersons alike. Our collective penchant for inspecting, explicating, and critiquing this uniquely human activity is remarkable, on one hand, for its enduring character (being the object of two millennia of recorded intellectual scrutiny), and on the other, for the panoply specific phenomena, philosophical perspectives, and theoretical frameworks brought to bear in this endeavor. And yet, there is a thread that runs through all this work—over the centuries and across the spectrum of thought. This unifying theme is a concern with *skill*—the notion that communication may be done “well” or “poorly”—and *skill enhancement*, the idea that individuals, properly informed or trained, might come to “do it better.”

The focus on communication skill is doubtless due, in part, to the fact that much communication is a pragmatic enterprise—directed at accomplishing an array of practical tasks (e.g., negotiating treaties to resolve armed conflicts between nations, conveying information clearly in the classroom, winning votes in popular elections, consoling a sad friend, preserving one’s property and freedom in courts of law, enhancing cohesiveness in work teams, settling on a price for potatoes in the village marketplace). But the importance of communication skills does not stem entirely from the influence they exert in accomplishing such specific, situation-bound objectives. Beyond these narrower ends, professional success, relationship satisfaction, personal fulfillment, psychological well-being, and even physical health depend upon the social interaction skills of the individual—and those of his or her associates and interlocutors.

In light of the importance of communication skills, it is hardly surprising that they have been a continuing object of study by scholars and researchers from numerous disciplines, including virtually every branch of communication (e.g., interpersonal, group, organizational, health, public, mass), several areas of psychology (cognitive, social, clinical, developmental, and industrial), as well as a variety of other disciplines, including education, family studies, business management, and nursing. Scholars investigate public speaking, group discussion, listening, persuasion, conflict management, explaining, organizational leadership, social support, relationship

management, and on and on, frequently with an eye toward helping people to learn to do these things more effectively.

The enduring and widespread concern with communication skill and skill enhancement suggested to us that a survey of work in these areas would have broad appeal for scholars and students across the spectrum of disciplines devoted to the study of social interaction. Equally important, we became convinced of the practical value of reviews of current research and theory on social skill for clinicians, therapists, trainers, and laypersons. These complementary concerns, scholarly and practical, led us to undertake the project that culminated in the production of this volume.

The initial impetus for the book, then, was simply the idea that social skills are important, and that, for this reason, there is real value associated with being conversant with the work on skilled performance, skill development, and skill assessment. As the project took shape, however, we articulated four ancillary features that we felt would make the book particularly useful.

First, the contributors to this volume were selected because they had established reputations as preeminent researchers and writers in their respective domains of study. These authors, drawn from several different academic disciplines, were invited to contribute to this project because their expertise and professional standing made them particularly well qualified to prepare chapters in their respective areas of specialization.

Second, this volume provides a broad, comprehensive treatment of work on social interaction skill and skill acquisition. We originally identified approximately 30 topic areas and research traditions for inclusion, and, thanks to the efforts of the contributors, we obtained chapters for 24 of these areas. Thus, the chapters in this book reflect a breadth of scholarly work pertinent to communication and social interaction skill.

Third, the emphasis for each chapter is on providing an up-to-date review of research in the area. In some cases, previous reviews of the topics addressed in this book are now 10 to 20 years old, and for other topic areas, there simply have been no prior reviews.

Finally, each chapter emphasizes, at least to some extent, empirically supported strategies for developing and enhancing specific skills. All theoretical orientations are not equally congenial to the notion of skill development, and prescriptions for skilled conduct are better supported in some literatures than in others. Still, each of the chapters suggests important implications for improving communication effectiveness. In the end, then, our aim was to produce the most comprehensive, authoritative source available on communication skills and skill enhancement—a volume with both practical and theoretical significance.

The chapters comprising this volume are organized into five major units: (1) general theoretical and methodological issues (e.g., models of skill acquisition, methods of skill assessment, techniques for social skill training), (2) fundamental interaction skills (i.e., those that are transfunctional and transcontextual, e.g., nonverbal skills, message production skills, message reception skills), (3) function-focused skills (e.g., informing, persuading, managing conflict, providing emotional support), (4) skills used in the management of personal relationships (e.g., friendships, dating relationships, marriage, parenting), and (5) skills employed in various public and professional contexts (e.g., negotiation, group decision making, teaching).

The authors of each chapter were asked to address a set of core questions or issues. It was not our intention that these questions serve as the organizational scheme for the chapters; rather they were intended to assist the authors in producing more

comprehensive reviews and to provide greater coherence across the various domains being surveyed (recognizing, of course, that the status of the literature in particular areas dictated that certain chapters would touch on only some of these questions). The core questions posed for our contributors, then, were as follows:

1. What is the nature of the skill (or skills) with which you are concerned? How should these skills be conceptualized and defined? What does it mean to be skilled with respect to this area?
2. What is the practical significance of possessing this communication skill? What enablements or advantages does this skill provide? What are the consequences of low skill in this area?
3. What methodological issues are encountered in assessing and/or studying this communication skill? What are particularly good ways of assessing this skill?
4. What individual-difference variables have been found to be related to this communication skill? How do these variables contribute to competence in or enactment of this skill?
5. In what contexts or domains is this skill typically used? With what effect?
6. What are the implications of research on this skill for training and development? How can people become more proficient with respect to this skill?

Taken as a whole, this book reveals that social scientists have made considerable progress in probing the dynamics of skillful interaction and skill acquisition. In these chapters the reader will find summaries of programmatic research, sophisticated conceptual frameworks for organizing and making sense of those research findings, and practical guidelines for social conduct and training that are based on theory and data. At the same time, a look to the future suggests the need for further work to address a number of issues:

- In many of the domains surveyed here, there is a need for better, theoretically grounded, models of skilled performance. What counts as “skillful” communication in a particular domain and why? What empirically based criteria should be used in assessing skillfulness in varied forms of communication?
- What are the personal, relational, social, and organizational consequences of skilled and unskilled communicative performances in various domains? Why do communication skills matter and just how do they matter?
- How do people learn or acquire various communication skills “naturally” over the course of development? How can parents, teachers, consultants, trainers, and therapists enhance various communication skills more effectively? What theoretical models of skill training and development do the best job of informing educational efforts? What instructional or training methods are most effective with particular skills?
- What strategies should be utilized in more thoroughly evaluating skill training efforts? What are the most sound approaches for assessing whether (a) programs actually teach intended skills (instructional fidelity), (b) students or clients learn the skills taught (instructional effectiveness), (c) students actually utilize the skills they have been taught in real-world situations (skill transfer and generalization), (d) learned skills continue to be used over time (skill persistence) and (e) students achieve desirable personal, relational, and instrumental outcomes when using the skills they have learned (skill effectiveness)?

Beyond these directions for future work, it should also be apparent that, despite our intention to produce the most comprehensive survey of social interaction skills possible, there are communication skill domains that are not represented in this book. We wanted to include a handful of other chapters, including ones on computer-mediated communication, listening, social perception, interaction management, and presentational skills. Unfortunately, for one reason or another, we were unable to include reviews on these topics (perhaps we were lacking in requisite communication skills!). Their absence should not be construed as any indication that we consider them somehow less important, and, indeed, we hope to include such chapters in subsequent editions of this book.

We wish to express our heartfelt appreciation to the people who've played such important roles in this project: to Karin Wittig Bates at Lawrence Erlbaum for all her work in managing the details associated with the production of a book this size, and especially to Linda Bathgate, who believed in this project from the start, and supported us throughout its completion. Finally, we are indebted to the authors of the chapters who shared our commitment to the importance of this undertaking and so generously contributed their time and expertise in bringing it to be.

John O. Greene
Brant R. Burleson

HANDBOOK OF COMMUNICATION AND SOCIAL INTERACTION SKILLS

PART

I

GENERAL THEORETICAL AND METHODOLOGICAL ISSUES

EXPLICATING COMMUNICATIVE COMPETENCE AS A THEORETICAL TERM

Steven R. Wilson

Purdue University

Christina M. Sabee

Fresno State University

There is a vast research literature on communicative competence. By searching the PsycInfo database in January 2000, using only the terms *communicative competence* and *communication competence*, we generated a list of 570 dissertations, articles, books, and book chapters. Although our list includes entries dating back to the mid-1950s, more than 90% of the works have been published since 1980, and 50% have appeared since 1990. A parallel search of PsycInfo using the broader term *social competence* produced 2,616 relevant works.

Research on communicative competence is diverse. Works on our list are authored by scholars from communication, psychology, sociolinguistics, human-computer interaction, child development, gerontology, education, speech disorders, social work, medicine, management, and marketing. Some investigate communicative competence within professional roles and relationships, such as competencies for teachers (e.g., Rubin & Feezel, 1986), health care providers (e.g., Cegala, Coleman, & Turner, 1998), patients (e.g., McGee & Cegala, 1998), organizations and their members (e.g., Jablin & Sias, 2001), and conflict mediators (e.g., Donohue, Allen, & Burrell, 1988). Others explore competence within personal relationships such as friendships (e.g., Collier, 1996) and families (e.g., Lindsey, Mize, & Pettit, 1997). Some specify competencies for students from preschool (e.g., Stohl, 1983) to college (National Communication Association, 1998). A burgeoning literature highlights competencies that facilitate intercultural interaction (e.g., Chen & Starosta, 1996; Wiseman & Koester, 1993).

Why have so many scholars, from so many fields, studied communicative competence within so many relational, institutional, and cultural contexts? Our hunch is that scholars, as well as the contemporary Western societies in which most live and work, widely accept the following tacit beliefs: (a) within any situation, not all things that can be said and done are equally competent; (b) success in personal and professional relationships depends, in no small part, on communicative competence; and (c) most

people display incompetence in at least a few situations, and a smaller number are judged incompetent across many situations. Reflecting these beliefs, several introductory texts aim to help students assess and enhance their communicative competence (Berko, Rosenfeld, & Samovar, 1997; Cupach & Canary, 1997; O'Hair, Friedrich, Wiemann, & Wiemann, 1995; Trenholm & Jensen, 2000; Verderber & Verderber, 1998).

Despite the intuitive importance of communicative competence, scholars studying the concept frequently voice two concerns. One concern is that it is difficult to define exactly what constitutes communicative competence. Definitional concerns take several forms. For example, communicative competence has been defined in widely divergent ways. In their review of competence and organizations, Jablin and Sias (2001) noted, "there are almost as many definitions of communication competence as there are researchers interested in the construct" (p. 820). Wiemann and Bradac (1989) identify two schools of thought in defining competence. Scholars from the "structuralist" school emphasize that communicators normally are competent in the sense that they succeed "in making their intentions understood, in seeming coherent, in seeming communicatively usual, in eliciting communicatively relevant responses from others, in distinguishing random movement from purposeful action, etc." (p. 265). The central problem for this school is explicating the structures that make communication possible and, in most cases, nonproblematic (see Sanders, this volume). Scholars from the "functionalist" school emphasize that communicators vary considerably in their success at accomplishing goals such as gaining another's compliance or creating a desired impression; hence, "relative competence" is the modal state of affairs. Functionalists seek to identify skills and strategies that enhance a communicator's likelihood of accomplishing goals. As Wiemann and Bradac (1989) noted, these two schools of thought contain "a number of assumptive disparities" (p. 262) about competence.

Definitional concerns also arise when scholars attempt to explicate subcomponents of communicative competence (e.g., empathy, flexibility), whether through literature review or data reduction. After reviewing 30 lists of attributes that facilitate intercultural competence, Spitzberg (1989) argued that these works fail to (a) define attributes with the same label (e.g., empathy) consistently and (b) conceptualize interrelationships among attributes on each list.

Definitional concerns arise even when scholars search for consensus. As an example, Rubin (1990) argued that "virtually every definition of communicative competence includes the mandate that communication be both appropriate and effective" (p. 108). Yet areas of surface agreement such as this dissipate once explored in detail. Should appropriateness and effectiveness be weighted equally when assessing communicative competence? What about other possible criteria for evaluating competence, such as efficiency (Berger, 2000) or ethicalness (Jablin & Sias, 2001)? And, of course, appropriateness and effectiveness themselves must be defined (Rawlins, 1985). Appropriate by what standards, according to whom? Effective in whose eyes, over what time frame? Chen and Starosta (1996) noted that "although researchers conceive of communication competence as the ability to interact effectively and appropriately with others, their definitions betray greater or lesser degrees of ambiguity, confusion, and imprecision" (p. 358).

Aside from definitional vagaries, a second concern is that the literature on communicative competence lacks theoretical grounding. Two decades ago, Spitzberg and Cupach (1984) described most competence research as "variable analytic," arguing that there existed "a painful paucity of research aimed at constructing or testing

theoretical explanations of competent and incompetent interactions” (p. 75). Ten years later, Greene and Geddes (1993) observed that the competence literature still was “characterized by frequent calls for ‘more theory’: for more adequate explanations, for broad integrative conceptual frameworks, for heuristically rich perspectives” (p. 44). Calls for theory reflect that discussions of communicative competence often are not grounded firmly within specific theoretical frameworks that offer principled answers to questions such as the following: What qualities are necessary for communicating competently? Why do individuals or relationships display incompetence? What units of analysis are fruitful for conceptualizing communicative competence? Absent theoretical grounding, we are left without a “road map to the often bewildering range of activities associated with communicative competence” (Parks, 1994, p. 612). Or as Spitzberg (1993) wrote in more dire terms, “The concept of interpersonal competence has wandered the scholarly landscape for several decades. Finding permanent shelter in neither a home discipline nor a grounding comprehensive theory, it continues to lack coherent direction and focus” (p. 137).

Definitional problems and lack of theory are common laments by scholars studying communicative competence. What is recognized less often, or at least less explicitly, is that these two concerns are intimately interrelated. Our primary claim in this chapter is that we, as a community of scholars, will gain deeper and more useful insights if *communicative competence* is defined within the parameters of specific communication theories. We advocate treating it as what Kaplan (1964) called a “theoretical term” rather than as a construct. Many stumbling blocks to defining communicative competence become nonissues or are redefined in productive ways once competence is conceptualized within multiple theories.¹

We develop our argument for treating communicative competence as a theoretical term in three sections. Section one clarifies the distinction between a theoretical term and a construct, arguing that communicative competence typically has been explicated as a construct. Section two explicates communicative competence within five families of communication theory. Section three discusses implications of conceptualizing communicative competence as a theoretical term.

TWO WAYS OF EXPLICATING COMMUNICATIVE COMPETENCE

Constructs Versus Theoretical Terms

Abraham Kaplan (1964) proposed a pragmatic perspective on methodology for the social sciences (for a discussion of Kaplan in relation to pragmatism as a philosophy of science, see Diesing, 1991). Rather than asking how to verify the truth of a proposition, pragmatists begin by asking what difference it would make if the statement were true (Kaplan, p. 42). For the pragmatist, scientific inquiry begins with questions or problems—practical problems of living as well as technical problems of theory and method. A concept’s utility thus depends on its use. Printers and freight agents classify books by size and weight even though these concepts are of limited use to librarians and most readers (Kaplan, p. 51).

¹To place feasible boundaries on our discussion, we focus strictly on conceptions of *communicative* competence. However, related terms such as *social*, *interpersonal*, or *relational* competence also can be conceptualized within multiple theoretical frameworks, and it likely will be difficult to define them clearly and precisely outside specific theories.

As part of this pragmatic perspective, Kaplan (1964) distinguished two types of scientific concepts: constructs and theoretical terms. Kaplan described constructs as "terms which, though not observational either directly or indirectly, may be applied and even defined on the basis of observables" (p. 55). *Government*, *money*, and *taboo* are examples of constructs, because each has been defined individually, in isolation from larger theories. As Kaplan wrote, "we may speak of government in a variety of political theories, and *perhaps without explicitly theorizing about it at all*" (p. 57; emphasis added). Constructs are defined by, and their meaning arises from, vertical connection with observables (i.e., measurement procedures).

In contrast, a theoretical term derives its meaning not just from summarizing observables, but primarily "from the part it plays in the whole theory in which it is embedded, and from the role of the theory itself" (p. 56). Kaplan (1964) offered *castration complex*, *marginal utility*, and *Protestant ethic* as examples of theoretical terms. Such terms cannot be understood in isolation, for a theoretical term such as *castration complex* is "meaningless if dissociated from psychoanalytic theory" (p. 57). Theoretical terms possess *systemic meaning*; that is, the "theory as a whole is needed to give meaning to its terms, even those parts of the theory in which the terms in question do not explicitly appear" (p. 65). Theoretical terms are defined primarily through horizontal connection with other concepts in a larger theory. Of course, at least some terms in an empirical theory eventually must be connected with observables if we are to assess its utility. The systemic meaning of a theoretical term, however, mandates that to define it, "we must be prepared to send not a single spy but whole battalions: what begins as the effort to fix the content of a single concept ends as the task of assessing the truth of a whole theory" (Kaplan, p. 57).

Examples from communication theories may clarify the distinction between constructs and theoretical terms. Within action assembly theory (AAT), Greene (1984, 1997a) proposed the concept of *procedural records* as one of several theoretical terms. One can try to define procedural records in isolation; for example, Greene and Geddes (1993) describe them as "modular memory structures which . . . preserve relationships between three types of symbolic elements: (1) behavioral features, (2) outcomes associated with those features, and (3) situational and intrasytematic features that have proven relevant to the action-outcome relationship stored in the record" (p. 30).

Yet one cannot adequately define nor understand procedural records in isolation from other terms in AAT (e.g., activation and assembly processes, coalitions, the output representation) as anyone not already familiar with the theory will attest. Procedural records represent action-relevant information in multiple formats, from propositional codes underlying abstract ideas to sensimotor codes for muscle movements. This makes sense only in light of other assumptions from AAT, such as that any behavior is composed of a large number of elemental units from multiple levels of abstraction. Greene also does not directly "measure" procedural records; rather, he makes predictions about the content and paralinguistic features of messages produced under varying conditions based on the relationship between procedural records and other terms in AAT. These same points are evident if one tries to define *the maxim of quantity* without also discussing other terms in Grice's (1975) theory of conversational implicature, or *multivocality* without other terms in Baxter and Montgomery's (1996) theory of relational dialectics. The meaning of theoretical terms such as maxim of quality or multivocality can "be specified only as they are used together with other terms" (Kaplan, 1964, p. 63).

Communicative Competence as a Theoretical Term

Communicative competence, to date, typically has been treated as a construct rather than a theoretical term. Scholars have spent much time trying to define communicative competence (for a sampling, see Parks, 1994) and developing measures that assess competence (see Spitzberg, this volume). Most work of this type lacks any explicit theoretical grounding. Other works draw loosely from several different theoretical traditions. Bochner and Kelley (1974), in formulating their definition of interpersonal competence, drew from the humanistic psychology of Rogers, the neo-Freudian writings of Adler and Erikson, Lewin's field theory, and Watzlawick et al.'s analysis of relational communication. Wiemann (1977), in creating his definition and measure of communicative competence, drew from self-presentational (Goffman, 1959), T-group (Argyris, 1965), and social skill (Argyle, 1969) approaches. Works such as these seem to assume that if scholars could develop a clear, comprehensive, and consensually agreed upon definition of communicative competence, and create reliable and valid measures of that concept, then we could get about the business of developing an encompassing theory of communicative competence.

Viewing communicative competence as a theoretical term flips such thinking on its head. A call to explicate communicative competence no longer is satisfied solely by a conceptual definition, nor even by an accompanying measurement procedure. Rather, a call to explicate communicative competence is an appeal to analyze its meaning and role within a theory of communication (i.e., its horizontal connections). Theory is the starting point, not the destination, for such a journey. From this view, the question "what is communicative competence?" seems incomplete or ill formed because one necessarily must know from within what larger theory of communication the term is being analyzed to answer it.² "How should communicative competence be measured?" posed in the abstract, suffers the same problem.

Keeping with Kaplan's (1964) pragmatism, we argue that treating communicative competence as a theoretical term rather than a construct will result in greater progress in solving problems, both theoretical (e.g., understanding the roots of incompetence) and practical (e.g., helping people achieve competence). A few works have begun the task; for example, Parks (1985, 1994) explicated communicative competence within cybernetic control theory, and Baxter and Montgomery (1996) explored competence within their theory of relational dialectics. We now analyze communicative competence within multiple families of communication theory.

EXPLICATING COMMUNICATIVE COMPETENCE WITHIN COMMUNICATION THEORIES

This section explicates communicative competence within five groups or "families" of communication theory (see [Table 1.1](#)). We acknowledge, at the outset, that these

²Some examples from this section may have created the mistaken impression that a theoretical term must be part of one and only one theory (or a single family of theories), in the way that *castration complex* is associated with psychoanalytic theories. What makes something a theoretical term, however, is not its association with a single theory but rather its definition through horizontal connection with other terms within whatever theory it appears. Kaplan (1964, p. 73) noted that *culture* is a theoretical term within many social-scientific theories. We see no problem in treating communication competence as a term within multiple, distinct communication theories. One consequence of doing so, however, is that the precise meaning of communicative competence will vary somewhat when conceptualized as part of different theories of communication. We return to this point in the final section of our chapter.

TABLE 1.1
Five Theoretical Perspectives on Communication Competence

Points of Comparison	Psychological Perspectives					Social Perspectives
	Theories of Message Processing		Theories of Message Production			
	Expectancy Theories	Attribution Theories	GPA Theories	Hierarchical Theories	Dialectic Theories of Relationships	
	Competent communicators are responsive to expectations	Competent communicators are optimistic yet realistic about success	Competent communicators possess an anticipatory mind-set	Competent communicators implement action programs skillfully and gracefully	Competent interactions are sensitive to the demands and possibilities of contradiction	
Central theme						
Key concepts for understanding communication competence	1. Expectancies for verbal/nonverbal behavior	1. Attributions for success/failure	1. Multiple goals	1. Levels of procedural knowledge	1. Dialectical tensions (contradictions)	
	2. Positive/negative violations	2. Attributional style	2. Situational ambiguity	2. Integrating knowledge	2. Change/process	
Qualities needed for competence	3. Source reward valence	3. Overattributing negative intent	3. Plans (complexity)	3. Self-directed attention	3. Multivocality/dialogue	
			4. Online planning	4. Executive processes	4. Pragmatic patterns	
			5. Plan modification			
Knowledge	1. Situationally and culturally relevant expectancies	1. Factors influencing success/failure (obstacles)	1. Factors relevant to forming goals	1. Programs/plans for achieving goals	1. Personal, relational, and cultural standards for judging competence (evolving)	
	2. Factors affecting own reward valence	2. Behaviors that increase chance of success	2. Obstacles to achieving goals	2. Concrete behaviors to enact programs which to enact programs		
		3. Possible mitigating information	3. Plans for achieving goals (contingencies)	3. Conditions under which to enact programs		
			4. Plans for integrating multiple goals			

Motivation	1. To create/maintain positive impression 2. To understand and adapt to expectancies	1. To succeed at a task 2. To persist in face of initial failure (hope) 3. To understand others' perspectives/feelings	1. To accomplish goals 2. To reconcile conflicting goals 3. To develop/adjust plans	1. To accomplish goals 2. To correct/reduce discrepancies 3. To behave smoothly, in a timely fashion	1. To continue relating 2. To appreciate/respond to contradictions 3. To listen to multiple voices, balance power
Skills	1. Identifying relevant expectancies 2. Recognizing strategic violations 3. Following or positively violating expectancies	1. Recognizing when obstacles are/aren't controllable 2. Enacting behaviors that increase chance of success 3. Recognizing multiple potential interpretations	1. Identifying "situationally relevant" goals 2. Enacting plans 3. Monitoring and adjusting plans	1. Recalling/integrating levels of procedural knowledge 2. Implementing programs quickly, smoothly without error 3. Adjusting attention based on task	1. Behaviors that promote dialogue (listening, negotiating, etc.)
Potential sources of incompetence	1. Lack of knowledge about expectancies 2. Inaccurate assessments of reward valence 3. Conflicting expectancies 4. Narrow latitude of acceptable behavior	1. "Learned" helplessness 2. Lack of knowledge/skill about behaviors that lead to success 3. Depression/stress 4. Attributional biases (automaticity)	1. Forming "inappropriate" goals 2. Lack plan alternatives 3. Impaired online planning focus 4. Cognitive load	1. Lack of programs 2. Lack of rehearsal 3. Time demands 4. Too much arousal 5. Multiple task demands	1. Power discrepancies 2. Disapproval by larger social network 3. Relationship reconfigurations 4. Individual qualities (need to control others; attachment)
Strategies for improving communication competence	1. Teaching behavioral expectancies 2. Training to recognize strategic violations 3. Advocating expectancy change	1. Attributional retraining 2. Teaching/practicing behaviors that increase chance of success 3. Alleviating stress/depression	1. Clarifying "situationally relevant and appropriate" goals 2. Learning and practicing new plans 3. Removing impediments to monitoring/adjusting goals and plans	1. Teaching new programs 2. Rehearsing programs 3. Teaching task adaptation 4. Managing arousal	1. Seeking advice from third parties 2. Strengthening supportive social networks 3. (Re)training skills/values

are not the only theories within which communicative competence can be explicated.³ We have chosen these five families of theory for two reasons. First, they offer multiple perspectives on the nature of communication and hence nicely display how competence takes on systemic meaning when explicated within different theories. Theories shown in the first four columns of Table 1.1 are “psychological” (Craig, 1999; Fisher, 1978) in that they emphasize mental processes underlying communicative behavior. Communication theories in the psychological tradition are not homogenous, and hence the four are further subdivided into (a) theories of message processing that focus on how people attend to, interpret, and evaluate their own and others’ behavior; and (b) theories of message production that focus on how people generate and enact communicative behavior in pursuit of interaction goals (Littlejohn, 1999). Because critics charge that the study of interpersonal communication is overly dominated by psychological theories (e.g., Baxter & Montgomery, 1996; Burgoon & Buller, 1996; Burgoon & White, 1997; Lannamann, 1991, 1995; Shepherd, 1998, 1999), we also explicate communicative competence within Baxter and Montgomery’s (1996) theory of relational dialectics (see column five in Table 1.1). By discussing a more “social” approach to communicative competence,⁴ we show how the analytic framework outlined in this chapter can be applied to highly diverse genres of communication theory.

Second, these five families of theory, although diverse, each embody what might be termed a *process* perspective. That is, these five families draw attention to psychological and interactional processes, such as message production or relationship definition, that have implications for communicative competence in virtually any context. When applied thoughtfully, process theories offer insights and suggestions for enhancing competence in a host of specific relationships, institutions, and cultures. Moreover, as will become apparent, these insights are not limited to the individual unit of analysis; rather, process theories highlight individual, relational, organizational, and societal factors that undermine or promote competent communication. Adopting a process perspective thus is advantageous in terms of theoretical scope.⁵

We compare these five families of communication theory in several respects (see Table 1.1). Initially, we present a central theme about the meaning of communicative competence when explicated within each theoretical family. The second row of Table 1.1 describes key concepts for each family of theories. These concepts represent the “other terms” that must be understood to grasp the meaning of communicative competence within that theory.

³As one example, competence might be envisioned within theories of mutual influence, such as Burgoon and White’s (1997) interaction adaptation theory or Giles and colleagues’ communication accommodation theory (Giles, Coupland, & Coupland, 1991).

⁴Encompassing a broad range of theories, social approaches typically (a) focus largely on behaviors occurring between people, rather than on individual perceptions of behavior; (b) treat communication as a process of constructing and negotiating reality; (c) emphasize cultural and social identities and contexts; and (d) adopt a reflexive stance about the interplay of observer/observed and theory/practice (Craig, 1995; Leeds-Hurwitz, 1995).

⁵Aside from process theories, communicative competence alternatively might be explicated within theories that foreground specific relationships (e.g., Rawlin’s [1992] dialectic analysis of friendship), institutional contexts (e.g., Babrow and Mattson’s [in press] analysis of unique topoi for health communication theories), or cultures (e.g., works in the “ethnography of communication” tradition; see Philipsen, 1992). We encourage others to explicate the meaning of communicative competence within alternative forms of theory as long as such efforts genuinely treat competence as a theoretical term. Scholars who instead generate ad hoc lists of qualities that describe or facilitate communicating competently in specific relationships, institutions, or cultures will only reinforce the prevailing tendency to treat competence as a construct.

Row three describes each theoretical family's view about key qualities that facilitate communicative competence. Following Spitzberg and Cupach (1984, 1989), we group these qualities under the global categories of knowledge, motivation, and skill. *Knowledge* refers to information that an individual, a dyad, or a group needs to communicate in ways perceived as competent, such as knowing what one is expected to say, how others are likely to feel and behave, which different courses of action might be taken, which factors affect the likely outcomes of various actions, and so forth. *Motivation* refers to an individual's or a group's desire to communicate in ways that will be seen as competent, such as wanting to approach or avoid particular situations or accomplish specific goals. *Skill* refers to an individual's or a group's ability to carry out processes that promote perceptions of competence, such as distinguishing between one's own and another's perspective under stress or enacting a newly learned behavior in a timely and smooth fashion.

Each family of theories presents a distinct view about causes that underlie incompetent communication. We compare sources of incompetence in the fourth row of [Table 1.1](#). Finally, we analyze what each family suggests about enhancing competent communication in row five.

Psychological Theories: Theories of Message Processing

Expectancy Theories. Communication expectancies “are enduring patterns of anticipated verbal and nonverbal behavior” (Burgoon, 1995, p. 195). People hold expectancies about how others will communicate during any encounter, including norms for nonverbal behaviors (e.g., gaze, distance) and language (e.g., verbal aggressiveness). Expectancies specify what typically occurs (descriptive) as well as what should occur (prescriptive). At first it might seem that competent communicators would say and do what is expected, and hence persons who violate expectancies would appear incompetent. Both Burgoon's (1995) expectancy violations theory (EVT) and Grice's (1975) theory of conversational implicature, however, suggest that the relationship between expectancies and competence is more complicated.

According to EVT, expectancies for any interaction are derived from information about communicator characteristics, relational characteristics, and context. As an example, norms for conversational distance vary depending on participants' age and gender, how well they know each other, and where they interact (Burgoon & Hale, 1988). Communication expectancies also vary across culture. Societies varying along the cultural dimension of individualism—collectivism, for example—hold different preferences for direct versus indirect forms of communication (Kim 1994; Kim & Bresnahan, 1996). Co-cultures also may hold unique expectancies about which behaviors create perceptions of communicative competence (Bradford, Meyers, & Kane, 1999).

Expectancy violations are “actions sufficiently discrepant from the expectancy to be noticeable and classified as outside the expectancy range” (Burgoon, 1995, p. 200). According to EVT, when an interaction partner engages in unexpected behavior, our arousal increases. Arousal leads to an “orienting response” in which we shift attention away from the topic of conversation to the interaction partner in an attempt to interpret and evaluate the unexpected behavior.

According to EVT, violations may be either positive or negative. Positive violations occur when communicators are judged to have produced more favorable effects by deviating from, rather than adhering to, expectancies. Deviations that produce less

favorable outcomes are negative violations (Burgoon & Hale, 1988). Reactions to expectancy violations depend on both the nature of the violation and the violator. Some violations are likely to produce negative outcomes regardless of who commits them. Reactions to ambiguous violations, however, vary depending on communicator valence, which refers to “whether, on balance, a communicator is deemed rewarding or not and, by extension, whether an interaction with that person is expected to be pleasurable or not” (Burgoon, 1995, p. 201). Judgments of another’s reward valence may be based on that person’s attractiveness, expertise, gender, socioeconomic status, perceived similarity, and communication style (Burgoon & Hale, 1988). A key prediction of EVT is that communicator valence moderates reactions to ambiguous expectancy violations.

M. Burgoon, Birk, and Hall’s (1991) application of EVT to the health care context illustrates how source valence can moderate expectancy violations. Although physicians as a group are held in high regard in this society, Burgoon et al. argued that male physicians typically are viewed as more credible than their female counterparts because until recently men have dominated the role (see Eagly, Karau, & Makhijani, 1995). According to EVT, male physicians thus should have greater latitude than female physicians to deviate from expectancies. To test this thinking, Burgoon et al. (1991) had adults in one study rate the degree to which they expected male and female physicians to use a variety of compliance-seeking strategies. Participants in a second study read a hypothetical scenario in which a male or female physician used either nonaggressive, moderately aggressive, or highly aggressive compliance-seeking strategies. These participants then rated (a) the likelihood that they would comply with the doctor’s recommendations and (b) the appropriateness of the doctor’s communication. Female more than male physicians were expected to use nonaggressive compliance-seeking strategies, and the female physician was rated as most effective at gaining compliance when she conformed to this expectancy (i.e., used only nonaggressive rather than moderately or highly aggressive strategies). Male physicians were expected to use moderately aggressive strategies, but the male physician actually was rated as most effective when he deviated from this norm (i.e., used nonaggressive or highly aggressive strategies). Findings for perceived appropriateness of the doctor’s communication followed a similar, albeit weaker, pattern. None of these findings were qualified by participant gender, and the basic findings have been replicated (Klingbe & Burgoon, 1995).

As these findings illustrate, the EVT framework highlights a *paradox of presumed communicative (in)competence*. Specifically, persons presumed communicatively competent—because they possess specific socio-demographic characteristics or already have demonstrated desirable qualities—in some cases can enhance their perceived competence further by violating communication expectancies.⁶ Male physicians who use aggressive compliance-seeking strategies may be interpreted as demonstrating concern for their patient, which in turn enhances their perceived competence. In contrast, persons presumed less communicatively competent may

⁶One limitation here is that EVT does not provide precise, a priori predictions about exactly when source reward valence will moderate the effects of expectancy violations on outcomes. Although high-valence communicators in some cases benefit from violating expectations and low-valence communicators suffer from the same violations, in other cases communicator valence has no moderating effect (e.g., Burgoon & Hale, 1988) or moderates interpretations but not the outcome of violations (e.g., Burgoon, Walther, & Baesler, 1992). Clarifying the conditions under which source valence does (not) moderate the outcomes of expectancy violations is critical for understanding the role of communicative competence in EVT.

be evaluated favorably only when they conform to communication expectancies. Thus, a female physician may find that she receives the most favorable reactions when using nonaggressive compliance-seeking strategies, even though such behaviors inadvertently reinforce expectancies (i.e., gender stereotypes) that lower her perceived communicative competence in the first place.

Aside from EVT, Grice's (1975) theory of conversational implicature suggests that competent communicators must be able to both follow and strategically violate communicative expectations. Grice presumes that conversation is a "cooperative" activity, meaning that it requires at least minimal levels of collaboration and coordination. Given this, conversationalists are expected to follow the *cooperative principle*, namely; "Make your conversational contribution such as is required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged" (p. 45). Grice proposes four *maxims*, the following of which lead to behavior consistent with the cooperative principle. The quantity maxim, which pertains to the expected amount of talk, is violated when speakers are over- or under-informative. The quality maxim involves the truthfulness of talk, such as expectations that speakers will avoid deception, hearsay, or gossip. The maxim of relation says that speakers should make relevant contributions given the current topic and purpose of talk. The manner maxim involves the clarity of talk, such as expectations that speakers will avoid obscurity, ambiguity, and other factors that may hinder understanding. These maxims specify what "participants must do in order to converse in a maximally efficient, rational, co-operative way" (Levinson, 1983, p. 102).⁷

Grice (1975) readily admitted that people often do not follow these maxims, to the letter, during conversation. But when a speaker does not follow the maxims at a literal level, our initial impulse is to assume that, contrary to appearances, the speaker still is adhering to them at some deeper level. This general expectation about cooperation creates an opportunity for what Grice calls "flouting" the maxims. Speakers flout when they purposefully and blatantly violate a maxim to achieve some communicative purpose understood by both participants. Many nonliteral forms of speech, such as irony, metaphor, sarcasm, tautology, and transparent questions can be understood as flouts (see Bowers, Elliot, & Desmond, 1977; Levinson, 1983).

Grice's theory of conversational implicature offers several insights about communicative competence. First, speakers who violate maxims seemingly without purpose are perceived as incompetent. In a detailed comparison of discourse patterns exhibited by mild versus advanced Alzheimer's patients, Ellis (1996) illustrated how patients in the advanced stages of the disease often are unable to order information temporally when recounting events (manner), connect a preceding clause with pronouns in a subsequent clause (relevance), or complete scripts that provide a larger coherence to individual events (manner and relevance). Such instances "provide explicit linguistic evidence of the [advanced patients'] decreasing ability to engage the necessary components of the language system for competent communication" (Ellis, 1996, p. 491).

⁷Grice's (1975) theory of conversational implicature could be taken to represent a uniquely Western perspective on communication in which concerns for clarity and efficiency are valued over relational harmony. Yet surely all cultures share expectations about what is an appropriate amount of talk within specific situations, what counts as a relevant contribution, and so forth, even if the precise content of these expectations varies. Grice's theory thus provides a useful perspective for studying communication competence across cultures as well. His analysis of conversational implicature, for example, clarifies why communicating competently in a second language involves much more than simply learning the meaning of words (Bouton, 1994).

Second, communication competence requires the ability to recognize when others are flouting maxims. With maturation, children become increasingly adept at interpreting nonliteral speech such as irony, metaphor, and sarcasm (Ackerman, 1982; Andrews, Rosenblatt, Malkus, Gardner, & Winner, 1986). Speakers learning a second language, including those who have mastered basic vocabulary, struggle for years before being able to interpret specific implicatures in fashion similar to native speakers (Bouton, 1994).

A third insight is that communicative competence entails knowing when and how to violate expectations covertly. In an extension of Grice's framework, McCornack's (1992) information manipulation theory (IMT) conceptualizes deception as messages that covertly violate one or more conversational maxims. Deceptive messages purposefully lead hearers to believe that a speaker is adhering to conversational expectations (i.e., the cooperative principle and maxims) when in fact the speaker is not. Completely disclosive messages, although honest, are not always seen as the most competent responses to sensitive situations. When confronted by a romantic partner regarding one's opinions about the partner's family, a speaker who adhered to all the maxims was rated as less appropriate than a speaker who omitted (quantity) or ambiguated (manner) some negative information (Hubbell, 1999). Although IMT has little to say about when deceptive messages will be perceived as competent, these data suggest that competent communicators at times only create the appearance of adhering to conversational expectations.

Although different in orientation, Burgoon's (1995) EVT and Grice's (1975) theory of conversational implicature suggest complementary insights about qualities that facilitate communicative competence (see [Table 1.1](#)). *From this view, competent communicators are responsive to expectations.* They understand which verbal and nonverbal behaviors are (un)expected within specific situations and cultures. They know when to follow, to appear to be following, and to violate expectancies. They make accurate assessments of their own reward valence and hence anticipate likely consequences of violating expectancies. They recognize when others strategically violate expectancies. Sources of perceived communicative incompetence, from this view, include that a speaker (a) lacks knowledge about relevant expectancies, (b) lacks motivation to learn or act on relevant expectancies, (c) makes inaccurate assessments of his or her own reward valence, (d) faces conflicting expectancies (e.g., the employee evaluated by multiple supervisors from different cultures), or (e) rejects a narrow range of expected behaviors (e.g., the female physician who resists using only nonaggressive compliance-seeking strategies).

Expectancy theories suggest multiple avenues for enhancing communicative competence (see [Table 1.1](#)). Chen and Starosta (1996) argued that persons can enhance their intercultural communicative competence by being culturally aware, which refers to

an understanding of the conventions of one's own and others' cultures that affect how people think and behave. . . . Based on some of the universal commonalities of human behavior, such as eye contact, turn taking, gesturing, and the use of politeness norms, an individual can begin to understand how people from diverse cultures adapt such universal behaviors to the unique expectancies of intercultural communication settings. (p. 365)

Chen and Starosta also stressed the importance of affective qualities, such as being open-minded and nonjudgmental, that promote motivation to learn about others'

expectancies. Aside from implications for individuals, expectancy theories also suggest that we, as a society, at times need to rethink expectancies. Burgoon et al.'s (1991) study of female and male physicians illustrates how societal expectancies may limit opportunities for whole groups of people (i.e., women) to be perceived as competent in particular roles. In such cases, communication scholars should promote societal scrutiny of expectations.

Attribution Theories. Attributions are causal judgments for behaviors or events. Actors make attributions about their own communication, which may lead to feelings of (in)competence that impact their subsequent performances. Actors make attributions about their interaction partner's behavior, which may lead them to respond to the partner in ways that others judge (in)competent. Actors, partners, and third parties may make discrepant attributions for an actor's behavior and thus divergent assessments of the actor's competence. Here we review the meaning of communicative competence within Weiner's (1986, 1996) attributional theory of motivation and emotion and Milner's (1993, 2000) information-processing model of abusive parenting.⁸

Weiner's (1986) theory explains people's reactions to success and failure. Consider a female student who received a poor grade on her first public speech. Given the outcome, she likely will experience negative affect (e.g., sadness, frustration). When an outcome is negative, unexpected, and important, the student also is likely to consider why she did poorly on the first speech. She might attribute her poor performance to a host of specific causes, for instance, she did not prepare adequately, the assignment was unclear, she did not feel well that day, or she lacks talent at public speaking. According to Weiner, specific causes can be arrayed along three causal dimensions: (a) locus (i.e., does the cause lie within or outside the actor?), (b) stability (i.e., is the cause always present, or does it vary over time?), and (c) controllability (i.e., is the cause controllable by anyone?). Additional affective reactions, expectations about future performance, and subsequent behavior all depend on the student's attribution along these three dimensions.

Imagine that our student attributes her poor performance to lack of ability; she is "not good at public speaking," and thus feels incompetent as a public speaker (Weiner, 1986, p. 163). Put differently, she perceives the cause of her initial failure as internal, stable, and uncontrollable. Operating under this perception, the student is likely to (a) feel that her poor performance reflects on her self-worth (because the cause is internal), (b) feel hopeless about doing better on future speeches (because the cause is stable), and (c) feel ashamed, but not guilty, about her performance (because the cause is beyond anyone's control). Given these conditions, the student is not likely to engage in extra preparation and practice that actually might improve her future performance. She grows anxious and depressed as the next speech approaches.

In contrast, imagine that our student instead attributed her poor performance on the first speech to inadequate preparation and poor strategy (e.g., she practiced

⁸These theories are not the only possible avenues for framing competence within attributional perspectives. Canary and Spitzberg (1990), for instance, drew on the actor-observer differences literature to explain discrepancies in conflict participants' judgments of communicative competence. The attributional theories of Weiner and Milner, however, are complementary in that the former focuses on people's attributions for their own behavior, whereas the latter explores people's attributions for the behavior of their interactional partner.

silently rather than out loud). Both causes are internal, unstable, and controllable. Because she attributes her poor grade to unstable causes, she is reasonably confident about succeeding on future speeches; she remains hopeful. Although her self-esteem temporarily may be lowered, she also knows that her instructor is not satisfied with her first effort and feels somewhat guilty about not having spent enough time preparing. Given these facts, she selects the topic for her next speech much earlier, completes more library research, and practices the speech out loud. She wants the chance to perform better.

A good deal of research supports these depictions. Both adults (Weiner, Russell, & Lerman, 1979) and children (Graham, Doubleday, & Guarino, 1984) reported feelings of pride and personal competence when they attribute success to internal causes. College students, after experiencing initial failure, maintain higher future expectations and thus persist and succeed more often when they attribute the initial failure to unstable and controllable rather than stable and uncontrollable obstacles (Anderson, 1983; Anderson & Jennings, 1980; Wilson, Cruz, Marshall, & Rao, 1993). Finally, both affective reactions and expectancies of future success mediate the effects of attributions for an initial failure on the quality or effectiveness of subsequent performance (Covington & Omelich, 1984; MacGeorge, 2001). Several other programs of research also have generated findings compatible with Weiner's theory, including studies of "mastery-oriented" versus "helpless" motivational patterns in children (Dweck, 1998), as well as attributional perspectives on hopelessness and depression (Peterson & Seligman, 1984).

As is apparent, Weiner's (1986, 1996) theory highlights the potentially *self-perpetuating nature of communicative incompetence*. Individuals who perceive themselves as communicatively incompetent tend to attribute specific difficulties in communicating to internal, stable, and uncontrollable causes. Because they feel hopeless, these individuals often avoid or withdraw from similar situations in which they otherwise might improve their competence. Attributional principles also clarify how failure in a particular context (e.g., giving a public speech) can lead to generalized feelings of communicative incompetence across contexts (see Parks, 1994, p. 608).

Aside from self attributions, communicative competence also is revealed in a person's attributions about others. Scholars explicating competence from diverse perspectives (e.g., Baxter & Montgomery, 1996, pp. 200–201; Parks, 1994, pp. 189, 211) concur that intimate violence nearly always should be regarded as communicatively incompetent. Given this, Milner's (1993, 2000) social information-processing model of child physical abuse also is relevant here. According to this model, abusive parents possess preexisting schemas that bias their attributions and responses to child behavior. Bavelok (1984) argued that abusive parents hold four dysfunctional beliefs about childrearing: unrealistic developmental expectations, lack of awareness about children's emotional needs, strong belief in the necessity of physical punishment, and inappropriate expectations about children's abilities to provide social support.

Preexisting schemas impact four stages of information processing. At Stage 1 (Perception), physically abusive parents are thought to be less attentive to and aware of child-related behavior. For example, abusive parents decode their child's emotional states less accurately than nonabusive parents (Kropp & Haynes, 1987). At Stage 2 (Interpretation and Evaluation), physically abusive parents judge their child's behavior less charitably. For example, abusive parents often make internal, stable, and controllable (i.e., intentional) attributions for their child's negative behavior (Bauer & Twentyman, 1985; Larrance & Twentyman, 1983) and view themselves

as less responsible than nonabusive parents for unpleasant interactions with their child (Bradley & Peters, 1991; Bugental, Blue, & Cruzcosa, 1989).⁹

At Stage 3 (Information Integration and Response Selection), abusive, relative to nonabusive, parents may fail to adequately integrate information and may possess less complex plans for regulating child misbehavior. For example, parents at high risk for child physical abuse are less likely than low-risk parents to alter their attributions in light of mitigating information (Milner & Foody, 1994). At Stage 4 (Response Implementation and Monitoring), abusive compared with nonabusive parents are thought to be less skilled at implementing, monitoring, and modifying responses. For example, abusive parents are more likely to display noncontingent responses to their child's positive behavior (Cerezo, D'Ocon, & Dolz, 1996).

Milner's model (1993, 2000) assumes an ecological context in which child, family, community, and cultural-level factors influence abusive parents' attributions and behavior. Factors such as young parental age, limited education, single parenthood, and unemployment may be associated with preexisting schemas that bias attributions and responses to perceived child misbehavior (Wilson & Whipple, 2001). Such factors also can increase levels of parenting stress and depression (Whipple & Webster-Stratton, 1991), which in turn may shift parents increasingly toward automatic as opposed to controlled processing at each stage of the model. Thus, parents who normally would pay attention to circumstances surrounding their child's behavior may fall prey to attributional biases due to external stressors in their lives.

Physically abusive parents display several signs of communicative incompetence that are interpretable within Milner's model (see Cerezo, 1997; Wilson, 1999; Wilson & Whipple, 2001). For example, physically abusive parents tend to rely on power-assertive forms of discipline regardless of how their child has misbehaved, whereas nonabusive parents use different combinations of inductive and power-assertive discipline depending on the nature of their child's misbehavior (Trickett & Kuczynski, 1986; Wilson, Whipple, & Grau, 1996). Abusive parents rely rigidly on power-assertive discipline, in part because they overattribute negative intent to their child while discounting mitigating information. Physically abusive parents also resort to verbal and physical aggression more quickly than nonabusive parents in the face of child noncompliance (Reid, 1986; Whipple & Richey, 1997). Child noncompliance creates parenting stress, and this leads parents at risk for abuse to make increasingly biased attributions relative to low-risk parents when faced with repeated child resistance (Dopke & Milner, 2000).

As is apparent from this discussion, Weiner's (1986, 1996) attributional theory of motivation and emotion and Milner's (1993, 2000) social information-processing model of child physical abuse suggest complementary insights about communicative competence (see [Table 1.1](#)). *From an attributional perspective, competent individuals are optimistic yet realistic about factors that impact communicative success.* Competent communicators set challenging but realistic goals and expectations, both for themselves and for others. They are sensitive to unstable, controllable obstacles

⁹Readers may wonder whether abusive parents' attributions reflect that their children actually are more difficult to manage than children in nonabusive families (Cerezo, 1997). Abusive parents do perceive their children to be more aggressive, hyperactive, and problematic than nonabusive parents; however, these perceptions appear exaggerated because independent raters in some cases do not detect behavioral differences when observing the same groups of abused and nonabused children (e.g., Reid, Kavanagh, & Baldwin, 1987). More important, physically abusive parents' indiscriminate and inconsistent communication practices inadvertently reinforce child noncompliance and thereby help create child behavioral problems.

that impede their success (Ifert & Roloff, 1998; Marshall & Levy, 1998) and seek information about how to overcome such obstacles. They are resilient in the face of failure. They understand when to persist, to try something different, to bide their time, or to throw in the towel. When evaluating another's performance, competent individuals are sensitive to mitigating information that may account for the other's shortcomings. Competent communicators feel a sense of personal control (Parks, 1985, 1994): They perceive themselves as able to exert at least some impact on the likely outcomes of many interactions and view themselves—and not just their interaction partner—as having some ability to alter unpleasant interaction patterns.¹⁰ Sources of communicative incompetence, from this view, include: (a) making attributions for initial failure that undercut one's confidence; (b) lacking knowledge or skill needed to enact behaviors that might overcome obstacles; (c) falling back on well-learned patterns of biased attributions about oneself or one's interaction partner, especially during stress or depression.

Attribution theories suggest several routes for improving communicative competence. Interventions designed to prevent or alleviate problems such as academic failure or child abuse often incorporate "attributional retraining" or "cognitive restructuring" (see Goddard & Miller, 1993; Parks, 1994; Weiner, 1986). Students are taught to shift from making negative attributions about their own abilities to developing positive expectations and alternative problem-solving strategies, just as parents are trained to shift from making negative assessments of their child's attributes to exploring their child's circumstances and perceptions, avoiding snap judgments, and emphasizing positive child behaviors. Although helpful, research indicates that attributional retraining is most successful when incorporated within a multicomponent curriculum that also includes skills training and relief of affective distress (Allen, Hunter, & Donohue, 1989). For example, one successful child-abuse prevention program provides multiple services such as parent education, child-based interventions, social support groups for parents, access to health care, and adult education and employment training (Lutzker, 1994).

Psychological Theories: Theories of Message Production

Discussion to this point has focused on how individuals attend to, interpret, and evaluate both their own and others' communicative behavior. In the last two decades, communication scholars have moved from focusing only on such "input" processes toward describing mental processes that give rise to communicative behavior (Berger, 1997; Greene, 1997b; Wilson, 2002; Wilson, Greene, & Dillard, 2000). Communicative competence can be envisioned within two families of "message production" theories: (a) those falling within a goals-plans-action (GPA) framework and (b) those emphasizing multiple hierarchical levels of procedural knowledge.

Goals-Plans-Action (GPA) Theories. Many contemporary theories assume that speakers produce messages to accomplish goals and thus develop and enact plans for pursuing goals (Berger, 1997; Dillard, 1990; Schrader & Dillard, 1998; Wilson,

¹⁰We acknowledge exceptions to this latter statement. For example, a woman who is being terrorized by a violent partner has no ability to alter unpleasant and dangerous interaction patterns. The only way she may regain a sense of personal control is by leaving the relationship, even though this itself is difficult and potentially dangerous. But in most cases, individuals do have some ability to alter unpleasant interaction outcomes. Parent education programs presume that abusive parents play an important role in creating and perpetuating unpleasant interactions with their child, and hence parents can alter the outcomes of such interactions by changing their own behavior (e.g., Reid, Taplin, & Lorber, 1981).

1997, 2002). Here we discuss communicative competence within Wilson's (1990, 1995) cognitive rules (CR) model of interaction goals as well as Berger's (1997) and Waldron's (1997) work on planning.

Interaction goals are states of affairs speakers desire to attain or maintain through talk (Dillard, 1997). Speakers often attempt to pursue and coordinate multiple goals during conversation (Dillard, Segrin, & Harden, 1989; Hample & Dallinger, 1987, O'Keefe, 1988), and their goals often change quickly during the course of conversation (Waldron, 1997; Wilson & Putnam, 1990). Communicative competence is evident in the number and types of goals that speakers spontaneously form and pursue (Clark & Delia, 1979; Tracy, 1989). Thus, we may gain insights about communicative competence by exploring how individuals form interaction goals.

Wilson's (1990, 1995) CR model provides one account of the mental processes underlying goal formation. Briefly, the CR model assumes that people possess cognitive rules, or associations in long-term memory, between representations of interaction goals and numerous situational features. For example, a parent might associate the goal of "giving advice" with features such as "my child is contemplating a problematic action," "my child has not considered alternative actions sufficiently," and "I care deeply about my child's well-being." The CR model assumes that a spreading activation process operates in parallel on this associative network, such that cognitive rules can be compared with ongoing perceptions of situations without substantial demand on processing capacity and situations can activate rules for forming multiple goals simultaneously. However, a cognitive rule must reach a certain activation threshold before it is triggered and forms a goal. The probability of a rule being triggered is a function of three criteria: fit, recency, and strength. Individuals are more likely to form a goal when they perceive that many rather than only a few conditions represented in the rule are present in the current situation (the fit criterion). Yet many situations are ambiguous or open to multiple interpretations and hence partially match and activate a large number of cognitive rules. Within ambiguous situations, cognitive rules are more likely to be triggered if those rules have been activated recently (the recency criterion) or frequently in the past (the strength criterion).

Several insights about goals and competence are interpretable within the CR model. For example, speakers may be judged incompetent for pursuing goals that others evaluate as "inappropriate" by some standard. Intercultural interactions may prompt such occurrences. Persons entering a new culture may give advice when native speakers view it as inappropriate or fail to give advice when doing so is obligatory (Fitch, 1998; Kim, 1993, 2001). From the CR perspective, acculturation necessitates associating goals with new sets of situational features.

Even within a single culture, speakers may be judged incompetent for pursuing goals that others view as inappropriate. Consider O'Keefe's (1988) analysis of regulative communication situations, in which a speaker must correct another's problematic behavior. Undergraduates imagined they were working on a group project with another student (Ron) who, after repeatedly failing to do his part, called to say that he would be late again with his work. O'Keefe coded some responses to this scenario as "goalless" because "the message producer ha[d] an unclear or empty set of goals" (p. 90).¹¹ Consider two examples of "goalless" messages (p. 100):

¹¹O'Keefe (1988) coded written regulative messages for the "design logic" or system of means-ends reasoning underlying the message, as well as for the number of goals pursued by the participant. Regarding the latter dimension, "multifunctional" messages were seen as pursuing two or more competing goals, "unifunctional" messages seemed to pursue one goal to the exclusion of others, and "goalless" messages did not seem to pursue any situationally relevant objective.

1. Look, I can't handle this any more. Why do you keep doing this to me? Just go away!
2. You a--hole. I knew you wouldn't do your work. I am going to see that you are fired.

Readers no doubt can infer goals that could have motivated these messages. Both participants surely wanted to let Ron know they were angry and frustrated. The first also may have wanted to calm down before planning further actions, whereas the second seems to have decided that collaborating with Ron was more problematic than trying to have him removed from the group. O'Keefe coded these messages as goalless because they failed to pursue goals that are "conventionally relevant to the regulative task" (p. 100). That is, neither message does anything to encourage or help Ron to finish his part of the group assignment. Yet these messages are "goalless" only in relation to O'Keefe's analysis of which interactional goals are "conventionally relevant" (i.e., ought to be pursued) in regulative communication situations. These messages were coded as goalless and also judged by peers as less competent than other responses (O'Keefe & McCornack, 1987), because the students who wrote them chose to pursue the wrong goals.

According to the CR model, why would a speaker form and pursue goals that others judge to be inappropriate? One possibility, already noted, is that the speaker possesses an especially strong rule that is easily triggered (i.e., chronically accessible; Grant & Dweck, 1999; Wilson, 1995). The participant who generated Message 2 above, for example, might strongly associate the situational feature of "being taken advantage of" with goals such as "not looking weak" or "getting even." According to the CR model, differences in rule strength should be especially apparent in the goals people form within ambiguous situations. Consistent with this claim, Dodge (1993) reported that aggressive and nonaggressive adolescent boys differ primarily in their retaliatory responses in situations in which a peer's intent is ambiguous.

Aside from pursuing inappropriate goals, speakers also may seem communicatively incompetent for failing to pursue goals that others view as desirable or obligatory. Actions such as asking for assistance, giving advice, attempting to change another's political views, or offering criticism create potential threats to both the speaker's and the hearer's face (Brown & Levinson, 1987). To appear oblivious to such threats is to risk appearing communicatively incompetent. The professor who writes critical feedback with no apparent regard for a student's feelings may seem needlessly harsh, just as the student who asks, "are we going to be doing anything important in class today?" may seem hopelessly inept. Speakers who attend to the face wants of both participants while pursuing their primary objective typically are viewed as more communicatively competent than those who appear concerned only about the primary goal (Adams & Shepherd, 1996; Bingham & Burleson, 1989; Kline & Floyd, 1990; O'Keefe & McCornack, 1987; O'Keefe & Shepherd, 1987, 1989; Schrader, 1999; Tracy, Van Dussen, & Robinson, 1987).

Why would speakers fail to form and pursue goals that others, given the situation, view as desirable or obligatory? Speakers may (a) lack perspective-taking skill needed to recognize psychological implications of their actions; (b) associate goals such as providing face support with an insufficient number of situational conditions; (c) possess rules for forming supportive goals that, because they reside at a low level of activation, are triggered only by an almost complete match with perceived situational conditions; or (d) fail to mentally link rules for different goals, so that the triggering of one rule (e.g., for the goal of giving advice) does not automatically spread activation to the rule for a second goal (e.g., the goal of not appearing nosy). Other possibilities fall beyond the CR model—speakers simply may not care whether

they appear competent or may want to support face but be unable to generate or implement actions that integrate this concern with their primary goal given time constraints (Berger, 1997; Kellermann & Park, 2001).

Finally, speakers may be judged communicatively incompetent for failing to alter their interaction goals across situations. For example, Wilson (1990) found that persons high in interpersonal construct differentiation (see Burleson & Caplan, 1998), when attempting to convince a target person to fulfill an obligation, varied their supportive interpersonal goals depending on why the target had failed to fulfill an obligation as well as on how close they were to the target. Less differentiated persons did not vary their supportive goals in response to manipulations of attributions or intimacy. Adaptability and flexibility often are described as critical components of communicative competence (Parks, 1994; Rubin, 1990; Spitzberg & Cupach, 1989). The CR model suggests several explanations for failing to adapt interaction goals, including that speakers may (a) associate interaction goals with only a small number of situational conditions; (b) fail to develop subcategories of a goal that apply to different situations; or (c) overemphasize base-rate data and underemphasize individuating information, especially under conditions that promote heuristic processing (see Wilson, 1995).

Although the CR model offers insights about communicative competence, it clearly is not a sufficient explanation. Speakers differ not only in their goals, but also in their procedural knowledge (plans) for coordinating multiple goals as well as skill at enacting plans (Berger, 1997; O'Keefe, 1988). Plans are knowledge structures representing actions necessary for overcoming obstacles and accomplishing goals (Berger, 1997). A teacher's plan for talking to a student dissatisfied with a grade on a paper might include actions such as "set up an appointment during office hours, explain any written feedback that is unclear, and discuss how the student can perform better on the next assignment." Plans are mental representations of actions, whereas strategies are overt behaviors exhibited by individuals (Greene, 1990).

Plans for accomplishing social goals vary in complexity and specificity (Berger, 1997; Dillard, 1990; Waldron, Caughlin, & Jackson, 1995). Complex plans include a larger number of action units than simple plans. The aforementioned plan for talking to a student dissatisfied with a grade included three distinct actions and thus is more complex than the plan "explain how the grade was assigned." Complex plans also include contingencies; thus, a plan that includes "if the student appears upset, reinforce that I know a lot of hard work went into the paper" is more complex than a plan with no contingencies. Specific plans are fleshed out in detail, whereas abstract plans provide only vague guidelines for action. An example of a vague plan for dealing with a dissatisfied student is "talk about the grade."

Plan complexity and specificity should facilitate communicative competence in many situations. Persons with complex plans have multiple alternatives should their initial efforts fail; those with specific plans already have considered how to implement abstract acts during conversation itself. Berger and Bell (1988) found that lonely and shy college students had less complex plans for social goals such as asking for a date or impressing a new roommate than did students who were not lonely or shy. Plan complexity in turn was positively associated with others' perceptions of whether a plan was likely to succeed. Waldron and Lavitt (2000), in a study of women transitioning from welfare to paid work, showed that participants who articulated specific and complex plans for a job interview were more likely to be employed full-time 2 to 3 months later relative to women who articulated vague and simple interview plans.

Although these and other studies (Jordan & Roloff, 1997; Waldron & Applegate, 1994; Waldron et al., 1995) indicate that plan complexity and specificity facilitate communicative competence, several qualifications should be noted (Berger, 1997; Wilson, 2000). First, a complex plan is neither necessary nor sufficient for competent performance. In the former case, a simple plan may include an appropriate and effective action that obtains the desired results. In the latter, speakers still need skills to enact a complex plan in an efficient, smooth, and error-free fashion (Berger, 1997; Greene & Geddes, 1993). Second, planning too many alternatives in advance itself can undermine fluid speech performance (Knowlton & Berger, 1997). Third, the relationship between plan specificity and competence may vary depending on whether a culture values detailed, short-range plans versus flexible, long-range plans (Cai, 1998). Finally, complex and specific plans still must be adapted in light of changing circumstances and unforeseen opportunities during interaction (Hayes-Roth & Hayes-Roth, 1979) even though such changes are cognitively taxing (Berger, Knowlton, & Abrahams, 1996; Knowlton & Berger, 1997). Given such considerations, communicative competence is evident not simply in the complexity of a person's plans, but perhaps most important in planning processes themselves.

Planning is the set of psychological and communication processes involved in generating, selecting, implementing, monitoring, adapting, and coordinating plans (Berger, 1997; Dillard, 1990; Waldron, 1997). Planning occurs in advance of many interactions, but a good deal also occurs "online" as a conversation unfolds (Waldron, 1990; Waldron et al., 1995). Competent communicators are adept at monitoring and adjusting their plans online during conversation.

Along these lines, Cegala and Waldron (1992) explored how perceived communication competence is evident in people's online planning. The authors reanalyzed data from two earlier studies of recalled thoughts and feelings during get-acquainted conversations. Undergraduate participants in these studies sought information about their new partner's religious or political background. Coders analyzed the degree to which participants used effective and appropriate information-seeking strategies. Based on these two criteria, students were subdivided into high, medium, and low competence groups. Students rated as highly competent in these studies, compared with moderate and low competence participants, had a larger percentage of plan-oriented thoughts during conversation (e.g., thoughts about indirect means for acquiring information from their partner). In contrast, students rated as low in competence reported a larger percentage of self-assessment cognitions. Cegala and Waldron (1992) speculated that incompetent communicators, because of low self-esteem, experience many conversations as stressful events, which leads to an "inward orientation [that] probably accounts, in part, for their ineffectiveness at accomplishing task goals" (p. 119).

Aside from stress, problems with executive control also may hinder a person's ability to monitor plans during conversation. Executive control processes are a set of higher order mental activities, including decisions about (a) selection (e.g., which knowledge to access from memory given the current situation), (b) regulation (e.g., how much time or attention to devote to processing information), and (c) monitoring (e.g., whether current conditions warrant a change in processing) (Jordan, 1998). Individuals differ in the efficiency of their executive control processes, with inefficiency being reflected in performance errors, slips of the tongue, and lapses (Reason, 1990). Drawing on this idea, Jordan (1998) showed that people's cognitive efficiency is positively associated with the ease with which they can develop a preinteraction plan for persuading others, and hence with their own confidence that the plan will

succeed. Plan confidence in turn predicts whether individuals actually carry out their plans. In sum, communication competence is evident in people's ability to deploy, monitor, and adjust plans efficiently during interaction.

Although Wilson's (1990, 1995) cognitive rules model and Berger's (1997) and Waldron's (1997) work on conversational planning focus on different aspects of the message production process, they offer complementary insights about communication competence (see Table 1.1). *From the Perspective of the GPA framework, competent communicators possess an anticipatory mind-set.* They foresee likely implications of their actions for both their own and their interactional partner's identities, as well as potential obstacles to their plans for accomplishing goals. Competent communicators understand the goals that particular audiences will view as (in)appropriate, desirable, or obligatory within a specific situation. They typically pursue multiple goals, and possess plans with multiple options for pursuing and integrating goals. Competent communicators adjust both their goals and their plans in light of situational, relational, and cultural circumstances. They devote periodic attention to monitoring their goals and plans online, avoid mulling over negative thoughts and feelings about themselves and others, and adjust initial goals and plans when necessary. Sources of communicative incompetence, from this perspective, include (a) overly accessible or inaccessible rules for forming goals (in)appropriate to the current situation, (b) lack of knowledge about alternative means for pursuing or integrating goals, and (c) impairment of one's ability to monitor and adjust goals or plans, whether due to personal anxiety, fatigue, or competing situational demands on processing capacity.

The GPA framework suggests several avenues for improving an individual's communication competence. Training might focus on teaching people to identify "situationally relevant" goals (O'Keefe, 1988). As an example, a training session for new graduate teaching assistants (TAs) might discuss how any interaction with a student regarding the student's grades has implications for both the student's and the TA's face, as well as how threats to either party's face can divert attention from the issue of helping the student develop plans to improve future performance (Sabee, 2000). Such discussion might lead TAs to associate providing face support with a broader range of situational conditions, or strengthen the connection between situational conditions and the goal of supporting face. Discussions of this sort may be especially important for international TAs teaching students from the United States for the first time (and for U.S. students who are likely to have international TAs). Training also could focus on helping TAs learn and practice a broader range of actions relevant to pursuing goals (e.g., means for providing face support). TAs with high levels of state anxiety could benefit from techniques for managing their own apprehension and defensiveness, thus allowing them to focus on monitoring and modifying goals and plans during potentially difficult discussions with their students. TAs also might be taught to identify signs that their initial plans are not working and encouraged to interpret such signs as evidence that they need to "try something different" (Wilson, 2000). After a time, giving additional reasons why a student received a poor grade on a recent assignment may only upset or demoralize the student. The same points might be made more effectively in the context of discussing how the student can improve on future assignments. Finally, TAs could be taught to identify, and when possible alter, situational impediments to monitoring goals and plans. For example, new TAs might be instructed to ask a student who wants to discuss a disappointing grade to make an appointment to do so during office hours rather than trying to talk with the student, in front of others, immediately after the class in which the grade was received.

Hierarchical Theories. Hierarchical theories, although still stressing that message production is a goal driven, differ in several ways from the GPA framework. Hierarchical theories emphasize that communicating competently requires procedural knowledge at multiple levels of abstraction, including low-level knowledge typically ignored by the GPA framework (Greene, 1990; Wegner & Vallacher, 1986). Competence also requires coordinating multiple levels in a smooth and timely performance. To clarify these points, we discuss communicative competence within cybernetic control theory (Carver & Scheier, 1982) and action assembly theory (Greene, 1997a).

Cybernetic control theory is a general approach for understanding self-regulating systems (Littlejohn, 1999). Key concepts include the negative feedback loop, hierarchical organization, and self-directed attention. The basic unit of a cybernetic system is the negative feedback loop, which includes an input (perception) function, a comparison value (goal), and an output (behavior) function (Miller, Galanter, & Pribram, 1960). When traveling on a two-lane highway in the United States, for example, a driver attempts to keep his or her vehicle within the middle of the right-hand lane (comparison value). If the road curves to the left, the driver eventually notices that the car is moving toward the right shoulder (input). This position deviates from the standard of comparison; hence, an experienced driver turns the steering wheel slightly to the left (output) in order to reduce discrepancy between the desired and actual position of the car (Carver & Scheier, 1982, p. 112). Although this driving example involves a single individual acting in isolation, Cappella and Greene (1982) invoked the "negative feedback loop" in their discrepancy-arousal explanation for mutual influence processes during infant-caretaker and adult-adult interaction.

Within cybernetic control theory, individuals are portrayed as hierarchically organized systems with superordinate and subordinate goals (i.e., standards of comparison). Goals at various levels of abstraction are monitored via an interconnected set of negative feedback loops. Drawing on the work of Carver and Scheier (1982), Parks (1985, 1994) conceptualized personal action as a process of self-regulation across nine levels of abstraction. According to Parks,

each level operates by sensing the condition in the level below it, comparing it with some "reference" value from the level above it, and then acting so as to reduce any discrepancies. . . . As a result, widely varying behaviors are marshaled into a coherent performance in which, if we are competent, we are constantly adjusting our muscles to help us say and do the things that serve the goals and understandings that are in our heads. (1994, pp. 596–597)

The most concrete levels of self-regulation in this hierarchy are labeled intensity control (Level 1), sensation control (Level 2), configuration control (Level 3), and transition control (Level 4). Intensity control involves the world "just inside the skin" (Parks, 1994, p. 597), such as rudimentary information about the intensity of sensation or muscle movement. Competence at this level might be impaired by physiological damage such as hearing loss. Sensation control is where diverse bits of sensory information are gathered and directed. Competence at this level includes the ability to package specific muscle movements into larger verbal and nonverbal cues. Small packages of muscle movements and sensory inputs are organized into broader configurations at the third level. Competence here includes the ability to decode verbal and nonverbal cues of emotion accurately. Transition control allows persons to perform

an organized movement such as waving hello or pronouncing a word. Incompetence here might be revealed through “verbal slips” such as mistakenly substituting one word for another.

Sequence control (Level 5), relationship control (Level 6), and program control (Level 7) represent moderate levels of abstraction in the hierarchy. The fifth level is where perceptions and actions are organized into sequences that serve higher order goals. Competence here includes the abilities to select conversational topics that are relevant and appropriate for the moment and to synchronize the tempo of one’s own speech and gestures with those of one’s interactional partner. Relationship control involves judgments about how one’s own actions relate to the actions of others and to the larger context, including judgments of proximity, inclusion–exclusion, covariation and causality, and so forth. Competence at this sixth level includes the abilities to predict and explain another’s behavior, to interpret actions from multiple perspectives, to recognize multiple goals that plausibly might be pursued in a situation, and to adapt one’s messages to the background and interests of an interactional partner. Program control involves broader structures and sequences underlying action, including decision rules about how to act under specific circumstances. The concept of “plan” from the GPA framework falls at this level. Competence here includes the abilities to draw on preplanned actions and to enact behaviors so as to maintain one’s own and others’ public identities or face.

Principle control (Level 8) and system concept control (Level 9) lie at the highest levels of the control hierarchy. Principles guide decisions about which programs to execute, how to monitor programs, whether to generate new programs, and how to respond when one’s own or another person’s programs fail. Incompetence at this level may occur because individuals lack programs to actualize their principles, mistakenly believe that their programs are effective, lack creativity needed to generate or adapt programs, or fail to engage with others in collaborative repair activities when programs fail. The highest level of the control hierarchy involves idealized self-concepts. As an example, an individual who believes “I am a responsible person” might act on this belief by drawing on the principle that a person should “follow through on commitments made to others,” which in turn might set programs into motion (Carver & Scheier, 1982, p. 115). Competence at this highest level includes the abilities to translate idealized selves into principles and to project public identities that others plausibly can support.

Although positing nine distinct levels of control ranging from muscle movements to idealized selves, cybernetic theorists do not assume that every level is involved during all acts of behavioral self-regulation. To understand this point, the concept of self-directed attention must be introduced. According to Carver and Scheier (1982), “the highest level of control operating at any given moment corresponds to the level at which the person is focally attentive at the moment” (p. 118). For example, if a person is attending to the program level of control without awareness of higher order goals, then for the time being the program level is “functionally superordinate.” Carver and Scheier claimed that the program level often is functionally superordinate, because even “scripted” conversations such as informal initial interactions contain sufficient variation such that participants must make ongoing decisions about which action programs to enact at specific points in time (see Kellermann, 1995). However, a person’s attention also shifts periodically to other levels in the control hierarchy. Attention may be drawn momentarily to a lower level; for instance, a speaker, on visually encountering an acquaintance whose name is difficult to pronounce, might concentrate momentarily on the transition control level. Attention may be drawn

upward, to the principle and system concept levels, when circumstances occur that encourage persons to reflect on "who they are" and "in what they believe" (Snyder, 1982).¹²

One implication of this discussion is that communicative competence may be reflected in how an individual allocates attention across levels of the control hierarchy. Carver and Scheier (1982, p. 130) proposed that for any given activity there is an *optimal level of self-regulation*. Support for their speculation can be found in action identification theory (Wegner & Vallacher, 1986). Briefly, this theory assumes that a person can identify anything he or she does in many different ways, and possible identities for an act are organized hierarchically. Low-level identities specify how one does the act; for example, "lifting a glass" is a low-level act identity for "drinking alcohol." Higher level identities express why or with what effect one does the act; for instance, "relieving tension" is a higher level identity for "drinking alcohol" (Vallacher, Wegner, McMahan, Cotter, & Larsen, 1992). When actions are complex, unfamiliar, and so forth, Vallacher et al. argue that actors who identify those actions at a low level (e.g., by concentrating on how to perform them) will perform most effectively. In contrast, simple, familiar actions are performed most effectively when actors conceptualize them at a higher level (e.g., by concentrating on why they are performing those actions). Results from several experiments are consistent with their claims (Vallacher et al., 1992; Vallacher, Wegner, & Somoza, 1989).

In sum, cybernetic control theory suggests that competent persons vary their attention across levels in the control hierarchy depending on the communicative task. In contrast, incompetent communicators may focus attention rigidly on higher levels in the control hierarchy during novel or difficult tasks (e.g., interviewing for a job), even though focusing on the process of enacting programs would be more beneficial. Attending primarily to the upper levels of the control hierarchy during difficult tasks is not just ineffective, it has "the added consequence of repeatedly (and painfully) reminding [incompetent communicators] of their inability to reduce the discrepancies" (Carver & Scheier, 1982, p. 125). In this way, self-directed attention may reinforce an incompetent communicator's feelings of frustration and despair (Parks, 1994).

Action assembly theory (Greene, 1984) also falls in the realm of hierarchical theories. Our description draws heavily on Greene's (1997a) "second-generation" action assembly theory (AAT2). From the perspective of AAT2, any behavior is "an inherently creative, multifunctional complex comprised of a very large number of elemental units" (Greene, 1997a, p. 152). AAT2 assumes that procedural knowledge underlying behavior is stored within an associative network model of long-term memory. The basic network unit is the procedural record, which, as we noted in the first section of this chapter, is a structure composed of interconnected nodes representing features of actions, outcomes, and situations. A single procedural record represents action-relevant information that may pertain to abstract plans, concrete muscle movements, or anything in between these levels. Procedural records are formed and strengthened without awareness when the environment activates nodes simultaneously and

¹²This discussion is not meant to imply that persons spend a great deal of conscious attention during interaction contemplating their goals, plans, principles, or ideal selves. According to Carver and Scheier (1982), the terms *self-directed attention* or *self-focus* "mean little more than the momentary shifting of attention to the salient standard and the standard-relevant aspect of one's present behavior . . . we assume the discrepancy-reduction process [itself] to be relatively automatic. We do not assume that the person necessarily thinks the matter through in verbal or near-verbal terms. . . . We assume only that the reference value and the perception of present behavior are temporarily focal and that one is used to guide the other" (p. 120).

are formed with awareness when persons consciously contemplate relations among actions, situations, and outcomes.

Given this picture of a long-term memory store with an almost countless number of procedural records, how is the subset of records that underlies a person's current behavior actually selected? AAT2 addresses this question by specifying an activation process. At any point in time, each node in a procedural record is characterized by some level of activation. Nodes representing situational conditions and desired outcomes are activated when they match a person's perception of the current state of affairs. A node representing a specific behavioral feature (e.g., the speech act of "promising") thus receives activation through its connection with already activated nodes representing situational features, outcomes, and other behavioral features. One key assumption of AAT2 is that activated nodes decay rapidly with shifts in a person's perception of the current situation. The theory "assumes a very large decay parameter which rapidly drives the activation of a node back to resting levels" (Greene, 1997a, p. 158).

How are activated procedural records integrated together, before they decay, into an output representation that comprises a person's current behavior? Aside from activation, AAT2 also specifies an assembly process based on the metaphor of "coalition formation." A coalition is "a momentary assemblage of activated behavioral features that could be said to "fit" together. Thus, a behavioral-feature node representing a syntactic frame with slots for a noun and a verb might coalesce with a particular activated noun and verb" (p. 159).

Coalitions have both vertical and horizontal dimensions: They may integrate procedural records in the same code temporally (e.g., a string of words) or records in different codes at various levels of abstraction (e.g., the words *I promise* and the motor program for pronouncing those words).

AAT2 assumes that coalition formation helps offset the rapid decay of activated nodes. Procedural records that are temporarily integrated do not decay as rapidly as those that do not find their way into coalitions. Greene (1997a) described the process as follows:

The image of behavioral production in AAT2, then, is of a very rapid process of coalition formation where multiple, and potentially competing, coalitions "recruit" activated features, each additional feature resulting in a more extensive output specification and incrementing the activation level of the coalition. A person's behavior at any moment . . . is nothing more nor less than the constellation of coalitions operating at that time. (p. 160)

Aside from activation decay and coalition building, executive processes and conscious awareness also are important in AAT2. As we noted in the section on planning, executive processes are higher order mental activities such as behavioral rehearsal, editing, and monitoring. Within AAT2, executive processes are assumed to occur through the application of procedural records activated by situational and intraindividual conditions. Becoming momentarily aware of a goal, for example, may activate procedures for planning how to accomplish it. Because executive processes are initiated by activated procedural records, these processes help maintain the activation level of coalitions to which they are applied. Because executive processes arise via the same mechanisms as other action-relevant processes, however, they are subject to the same limitations (e.g., rapid decay in response to changing activating conditions). By enhancing the activation level of specific coalitions, executive processes also may "overwhelm" other coalitions. Put simply, planning or monitoring for one

task may impair a person's ability to simultaneously perform a second task (Greene, 1997a, p. 164).

Finally, AAT2 explicitly considers the role of physiological constructs in the production of communicative behavior. Greene (1997a) discussed the effects of momentary changes in arousal levels as well as long-term changes in synaptic density that occur during later life. Increased physiological arousal, for example, is posited to heighten the activation of all nodes in long-term memory. Up to a point, arousal should further heighten the activation of behavioral features that already match the present situation so that coalitions form around them. Too much arousal, however, also heightens the activation of irrelevant behavioral features to the point that competing or inappropriate coalitions may be formed.

AAT2 portrays people as extremely rapid yet fallible information processors (Greene, 2000). People are capable of reacting quickly (activation speed) and creatively (coalition formation) in response to a host of activating conditions. Yet we also are prone to loose track of what we are saying (activation decay) and to experience difficulty integrating our goals, thoughts, words, and movements (problems with coalition formation, executive processes, or arousal).

AAT2 offers specific insights about the production of (in)competent communicative behavior. For example, the theory helps explain why behavior acquired in one setting may not transfer automatically to other settings. A couple who learns active-listening techniques during a counseling session still may fail to use these techniques, because practicing the techniques during counseling may associate them with a set of situational conditions quite different from those that typically exist at home (see Greene & Geddes, 1993, pp. 34–35). AAT2 also helps account for the *potential paradoxes of behavioral rehearsal*. In general, speakers can improve their speed and fluidity by planning and rehearsing in advance. Rehearsal allows speakers to assemble at least the abstract elements of a message plan; these elements, then, are more likely to be activated together again and thereby facilitate coalition formation in the moment (see Greene, 1995). By the same token, however, rehearsing in advance can hinder competent performance under some conditions (see Greene & Geddes, 1993, p. 37). Relational partners who each mentally plan and rehearse arguments to support their own position in an anticipated dispute, for instance, increase the chance that those arguments actually will be activated and shape coalition formation during interaction. Both partners thus may have difficulty breaking out of a pattern of destructive “serial arguing” even though each may realize, after the fact, that discourse beyond arguing is needed to manage their disagreement (Johnson & Roloff, 1998). In all of these cases, AAT2 suggests reasons persons may be motivated to communicate competently and “know what to do” but still enact incompetent behavior.

As is apparent from our discussion, cybernetic control theory and AAT2 suggest complementary insights about communicative competence (see [Table 1.1](#)). From the viewpoint of hierarchical theories, *competent communicators implement action programs skillfully and gracefully*. Competent communicators possess procedural knowledge ranging from programs for achieving social goals to ideas, words, and movements needed to implement programs. More important, competent communicators integrate everything from action programs to muscle movements into a smooth, well-timed performance. They find appropriate words to express ideas, use gestures and vocal tones to clarify (or ambiguate) meanings and emotions, and talk without excessive speech errors or hesitations. Competent communicators possess a keen sense of timing. Their behavior flows smoothly and seamlessly into the unfolding interaction, being relevant to the current topic, interpretable in light of their own programs, coordinated with the temporal pattern of their partner's behavior, and

responsive to their partner's likely goals and plans. Competent communicators also select and implement action programs in a fashion that promotes, or remains consistent with, their principles and idealized selves. Finally, competent communicators are sensitive to the communicative task, altering their levels of arousal and self-directed attention depending on the task's complexity and familiarity.

Sources of communicative incompetence, from this perspective, are factors that inhibit smooth, timely performance (see [Table 1.1](#)). Incompetence may arise when individuals lack action programs; for example, a person wants to be liked but does not know what to say to be likable. Incompetence also may occur, however, when an individual possesses action programs but cannot enact them skillfully in the moment. During face-to-face conversation, pauses between turns produced by different speakers in most cases are less than 1 second (McLaughlin, 1984, pp. 111–112). Speakers thus may have difficulty deciding what to say, and how to say it, before the relevant moment passes. This is especially likely to occur when speakers attempt to enact newly learned programs, fail to anticipate their partner's moves, experience too much arousal, or attempt to address multiple tasks simultaneously.

Hierarchical theories suggest several strategies for helping people enhance their communicative competence. Behavioral rehearsal, via role playing and coaching, takes on special significance from this point of view (see Greene, this volume). Individuals need opportunities to practice enacting newly acquired action programs during interaction to master issues involving transition, sequence, and relationship control. Rehearsal needs to occur under conditions similar to those for which the programs are intended. To achieve smooth, well-timed performances, persons may need many more practice trials than typically are provided in skill-based communication courses (Greene, Sassi, Malek-Madani, & Edwards, 1997). Along with rehearsal, individuals need feedback on adopting optimal levels of self-directed attention when they undertake difficult communication tasks with major obstacles or conflicting goals, because people's natural proclivity is to focus (unproductively) on higher levels of the control hierarchy at such times (Vallacher et al., 1992). Individuals also may need instruction in techniques for optimizing levels of arousal in relation to the complexity of the communicative task (Greene, 1997a).

We have now explicated the meaning of communicative competence within four families of communication theory. Although each provides unique insights about competence, they all share assumptions that differ from a more "social" perspective on competence.

Social Theories: A Theory of Relational Dialectics

Psychological perspectives highlight qualities that enable people to communicate competently (see [Table 1.1](#)). Social approaches, in contrast, draw attention away from individuals as the primary unit of analysis, posing questions about competent relationships, groups, or interactions. As an exemplar, we analyze Baxter and Montgomery's (1996) treatment of interactional competence within their larger "relational dialectics" theory.¹³ Their thinking draws heavily on the ideas of Mikhail Bakhtin, a Russian

¹³Relational dialectics is not a "theory" in the sense of being an interrelated set of propositions developed with the goals of prediction and causal explanation. More broadly, however, "it is a theory in the sense of a coherent vocabulary and a set of questions to bring to the understanding of communication" (Baxter in Baxter & Montgomery, 1996, p. 236). As with any theory, these questions and vocabulary "are not without tendency . . . asking dialectic questions about communication focuses the attention on some things as opposed to other things" (Baxter in Baxter & Montgomery, 1996, p. 236).

philosopher who wrote extensively about the centrality of dialogue to social life. Key terms include *contradiction, change, totality, multivocality and dialogism, and praxical patterns.*

Dialectic scholars assume that "relationships are organized around the dynamic interplay of opposing tendencies as they are enacted in interaction" (Baxter & Montgomery, 1996, p. 6). Contradictions refer to functionally incompatible forces, each of which is necessary for creating and sustaining relationships but which also negates the others. For example, people desire some degree of certainty in their relationships (Berger & Calabrese, 1975; Berger & Gudykunst, 1991). But as dating partners may become increasingly certain about their relationship over time, paradoxically this may create a need for the partners to enact unplanned activities, violate social norms, and change themselves lest they begin to feel "trapped" in a relationship that is "stuck in a rut." Desires for certainty, then, play out against contradictory desires, such as certainty–novelty, certainty–spontaneity, and certainty–excitement. In this sense, dialectical contradictions have a "both–and" rather than "either–or" quality.

Being inherent to social life, contradictions are not taken as signs of relational problems. Ongoing contradictions, however, do create constant change within relationships. Baxter and Montgomery (1996) rejected linear stage models in which relationships "develop" or "progress" from separateness to connectedness or closedness to openness. Contradictions are not "worked out" or "overcome" through a lasting synthesis as a relationship processes; rather, they mark the very existence of a relationship and abate only if the potential for future contact ceases. Relationships also are not "maintained" in a stable state between their "development" and "deterioration" (Baxter, 1995). Change and stability themselves are related dialectically, and this opens the possibility for a variety of temporal patterns such as spiraling change.

The third term, totality, emphasizes that the social world is a series of interrelated contradictions. Internal tensions play out between members of a dyad; external tensions play out as the dyad interacts with larger social units (Baxter, 1995; Rawlins, 1992). For example, cross-sex friends must themselves manage dialectical tensions of expressiveness and protectiveness, but they also must decide how much to reveal or conceal about their relationship with others in a society with few scripts for cross-sex friendship (Werking, 1997). Neither internal nor external tensions operate in isolation; for instance, cross-sex friends themselves may find predictability in deviating from societal expectations about gender and friendship.

Closely related to totality are Bakhtin's concepts of multivocality and dialogism. Partners give life to the contradictions of personal relationships through communication. Each "utterance" in a conversation expresses multiple voices (multivocality), representing one link in a chain of preceding and future dialogue. The meaning of an utterance is evident only in relation to immediately prior utterances, in the way that "I feel the same way" is interpretable only based on what was said just before. Utterances also may be linked to voices quite distant from the current talk, such as when a couple's expression of love sparks memories of earlier times. In a "both–and" fashion, an utterance "echoes the past at the same time that it contributes something new in the present" (Baxter & Montgomery, 1996, p. 28). Persons anticipate their relational partner's response when speaking, and the meaning of the utterance may be evident only in light of that response. Persons also may anticipate the responses of larger social groups, or what Bakhtin called the "superaddressee." Before saying "I love you" to another for the first time, an individual may consider the larger societal expectations invoked by this declaration. In this sense "an utterance is far from a solo performance enacted by an individual. . . . [It] is closer to an ensemble composed of

the speaker, the listener, the inner dialogues of the speaker [e.g., voices from the past] and the superaddressee" (Baxter & Montgomery, 1996, p. 29). Dialogism refers to an ongoing exchange of utterances, "an exchange that is unfinalizable, never ending in ultimate truths and never exhausting all possibilities. For Bakhtin, the fated uncertainty of dialogism liberates people from oppressive monological belief systems, whether those be represented in pronouncements from the state, the church, or a single individual" (Baxter & Montgomery, 1996, p. 200).

The final term, praxis, focuses attention on concrete ways by which people enact and respond to the contradictions of social life. Baxter and Montgomery discuss several praxical patterns that partners display as they live out relational contradictions, some of which are regarded as more "functional" than others. Denial occurs when relational partners attempt to hide or ignore the presence of contradiction by valorizing one pole (e.g., certainty) to the exclusion of its opposites (e.g., novelty, unpredictability). Disorientation occurs when the parties view relational contradictions as inevitable but negative and display incoherent behaviors indicative of being trapped by contradictions. Praxical patterns with more functional possibilities include spiraling inversion (the parties sway back and forth between opposite poles of a dialectic over time), segmentation (the parties for a time prioritize one dialectic pole for some topics or activities but the opposite pole for others), balance (the parties compromise for a time at some level between dialectic poles), integration (the parties find means, such as rituals, of temporarily responding to both poles while still conceiving them as opposites), recalibration (the parties find means for temporarily recasting the poles as not in opposition), and reaffirmation (the parties for the time accept but celebrate the contradiction as part of the "richness" of relating). These praxical patterns reveal attempts by relational partners to respond actively to the contradictory forces of relating. Paradoxically, such attempts may create life circumstances or reinforce relational and social expectations that in turn constrain the partners' future choices.

What is the meaning of communicative competence within this theory of relational dialectics? Baxter and Montgomery (1996) distinguished their treatment of competence from earlier approaches on two grounds. First, relational dialectics *treats competence as a social judgment that implicates multiple, often contradictory viewpoints*. According to Baxter and Montgomery (1996), prior approaches tend to reflect the prevailing culture's viewpoint by generating lists of ideals about how people ought to communicate with one another (see Rawlins, 1985; Spitzberg, 1989). Yet couples develop their own unique standards for communicating well, and their standards may deviate from cultural ideals (Wood, 1982). Reflecting the ideas of totality and multivocality, the authors argued that judgments of competence "reflect, to varying degrees, cultural or groupwide consensus, unique relational meanings, and idiosyncratic or individual views" (p. 187). Each of these viewpoints may lead to a different judgment about competence, be more or less salient at any moment, and impact the other viewpoints in dynamic ways over time.

Second, relational dialectics *views competence as a judgment about interaction*. Baxter and Montgomery argued that most existing measures of communicative competence assess the degree to which individuals display particular qualities (e.g., self-disclosure) or enact specific behaviors (e.g., eye contact) (see Spitzberg & Cupach, 1989). They critiqued such approaches for being "too static to represent the constant flow of utterances and their attendant competency judgments and too individualistically focused to capture the dynamic synergy of this process" (p. 192). They adopted the term *interactional competence* to emphasize their unit of analysis.

Baxter and Montgomery (1996) proposed four dialogic principles for judging interactional competence in relationships. First, *competent interaction reifies contradiction*. Rather than identifying a type of behavior (e.g., eye contact) as competent and its opposites as incompetent, the competence of any behavior must be assessed as coupled with its opposites: "Competence, then, is not assessed with a checklist of discrete behaviors . . . but, at least partly, with an assessment of how sensitive the relational unit is to the contradictory nature of the social situation" (Baxter & Montgomery, 1996, p. 198).

Along these lines, disorientation and denial are purported to be less competent than other praxical patterns in that they do not recognize and re-create the dialectical nature of social reality.

The second principle is that *competent interaction reifies respect for multivocality*. Competence requires being sensitive to multiple, simultaneously salient viewpoints for evaluating the relationship. Thus, "a couple's behavior is interactionally competent when it is judged to be sensitive to each partner's logic, to the logic of their relational culture, and to the logic of broader social cultures" (Baxter & Montgomery, 1996, p. 200). The third principle is that *competent interaction reifies fluid dialogue*. Dialogue entails multiple voices participating in an ongoing, unfinalizable exchange. Behaviors that inhibit or curtail dialogue, such as interpersonal violence, are deemed incompetent. Conflict itself is not taken to be incompetent, but patterns of conflict that discourage open exchange may be perceived as incompetent (Baxter & Montgomery, 1996, p. 201; but see Buzzanell, 1994; Kim & Leung, 2000). The final principle is that *competent interaction reifies creativity*. Appreciating the dialectical nature of social life requires that relational partners be "dyadically proactive, imaginative, and figuratively moving forward" (Baxter & Montgomery, 1996, p. 205). The authors argued that many of the praxical patterns by which couples enact and respond to contradictions display a creative element.

As is apparent, relational dialectics offers a unique perspective on communicative competence. Points of comparison between relational dialectics and the four families of "psychological" theories are drawn in [Table 1.1](#). Before addressing these comparisons, we offer two caveats. First, several categories in our table must be reframed or applied differently from the perspective of relational dialectics. The "central theme," for example, describes competent interactions rather than competent communicators. "Qualities needed for competence" also should be revisioned as qualities of a relationship at a particular place and time rather than qualities of individual communicators. For example, it may be more important that relational partners possess similar rather than high levels of the "skills" listed in [Table 1.1](#) (Burlinson & Denton, 1992; Burlinson & Samter, 1996). Second, "relational dialectics" offers a newer, and less developed, perspective on competence relative to the four families of psychological theory. Baxter and Montgomery (1996) acknowledged that "the data from which to argue strenuously for our view of interactional competence simply do not yet exist" (p. 206). The authors also have not (to our knowledge) written about some points of comparison listed in [Table 1.1](#), and hence parts of the table represent our best attempt to infer their position.

From the viewpoint of relational dialectics, *competent interactions are sensitive to the demands and possibilities of contradiction* (see [Table 1.1](#)). Competent interactions validate the importance of each pole forming a dialectic tension. Close friends, for example, realize the simultaneous need for protectiveness as well as expressiveness during talk (Rawlins, 1992), even within a larger culture that at times glorifies friends who can "say anything" to each other (Parks, 1995). Competent interactions

also incorporate active responses to relational contradictions. Responses may include temporal spiraling, topical segmentation, or other praxical patterns, but they involve more than despair and resigned acceptance that nothing can be done to change unwanted patterns (Cronen, Pearce, & Snavely, 1979; Sabourin & Stamp, 1995). Finally, competent interactions exhibit creativity and flexibility. Interactions with rigid patterns of competitive symmetry (Escudero, Rogers, & Gutierrez, 1997; Sabourin & Stamp, 1995; Wilson, Paulson, & Putnam, 2001) or demand/withdraw (Caughlin & Vangelisti, 1999) are characterized by outcomes such as impasse, relational dissatisfaction, inequity, and violence.

Sources of communicative incompetence, from the perspective of relational dialectics, reside at several levels of analysis. Baxter and Montgomery (1996) identified power discrepancies as one relational quality that can increase the likelihood of incompetent interactions. Persons with less power than their relational partner may avoid voicing concerns (dialogue) out of fear of their partner's reaction (Cloven & Roloff, 1993). Persons with greater power may have diminished incentive to understand their partner's views (multivocality) and negotiate differences (dialogue) because their personal outcomes are less dependent on their partner's actions. Consistent with such thinking, partner violence is positively associated with the inequitable distribution of power in intimate relationships (Babcock, Waltz, Jacobson, & Gottman, 1993; Coleman & Straus, 1990).

Aside from relational qualities, criticism from larger social networks may increase the likelihood of incompetent interactions (totality). For example, gay and lesbian couples may find it challenging to enact functional praxical patterns when some of their own social network, as well as the larger society, disapproves (or at best is ambivalent) of their relationship. Responding to dialectical tensions, such as how partners reveal or conceal their relationship with others, certainly is more complicated in such cases (e.g., Ben-Ari, 1995; Prescott & Le Poire, 1999).

Transitions that require relational reconfiguration may, at least temporarily, lead to incompetent interactions. Dialectics such as autonomy–connection and expressiveness–protectiveness play out differently after the arrival of one's first child, and couples report stress as they attempt to negotiate new ways of living these tensions (Stamp & Banski, 1992). Blended families also report stressors following reorganization; for example, stepparents face challenges in building involvement with their new stepchildren without being seen as trying to "replace" the absent biological parent (Braithwaite, Baxter, & Harper, 1998; Cissna, Cox, & Bochner, 1990).

Finally, some individual qualities may increase the likelihood of incompetent interactions. Baxter and Montgomery (1996) argued that a desire for personal control does not promote, and may undermine, their sense of interaction competence. The authors strongly cautioned

against conceiving of relationally-based competence in the same power and control terms adopted in individual-based conceptions of competence. . . . [T]he strategic ability of an individual to bring about a personal goal can work in opposition to the dialogic principles of ongoing exchange, joint action, and interactive creativity. (p. 202)¹⁴

¹⁴In our view, Baxter and Montgomery's (1996) claim about the desire for personal control being antithetical to relational competence is too simple. Drawing on attributional and hierarchical theories, Parks (1994) located "communicative competence judgments in the cognitive and behavioral activities associated with personal control" (p. 595). According to Parks, incompetence occurs when an individual perceives that (a) no discernible pattern or logic exists regarding the factors that affect whether s/he

Attachment orientations, when considered in combination, might represent another case in point. Persons who early in life formed a dismissive/avoidant attachment with their primary caretaker may now find it difficult, as an adult, to enact functional praxical patterns with partners who possess an anxious/ambivalent orientation (Le Poire, Shephard, & Dugan, 1999).

Relational dialectics suggests several avenues for helping partners stuck in patterns of denial or disorientation to improve their interaction competence (see [Table 1.1](#)). Individuals themselves may seek out advice from friends, family, or counseling professionals on how to transform interactions with their partner. Young adults, for example, may turn to friends for advice about how to manage competing tensions between autonomy and connection in their dating relationship (Goldsmith & Fitch, 1997; Rawlins, 1992). Yet advice from friends or family can be a mixed blessing. Especially when unsolicited, relational partners may view advice from third parties as intrusive, uninformed, and misguided (Goldsmith, 2000; Petronio, Jones, & Kovatch, 2000; Pudlinski, 1998). Too much advice from third parties also may hinder relational partners in developing their own unique, creative means of addressing relational contradictions.

Programs designed to build supportive social networks may help relational partners transform incompetent interactions. For example, interventions designed to prevent the (re)occurrence of child physical abuse often aid parents in developing social networks, through means such as establishing support groups in which parents can discuss childrearing challenges with peers in their community; providing information about government and social-service agencies during prenatal home visits; encouraging parents to join civic and religious organizations; and creating residential programs for mothers trying to regain custody of their children from the state (e.g., Olds, 1997; Whipple, 1999; see Schellenbach, 1998). These programs have the potential to transform problematic parent-child interactions by helping parents develop an ongoing network of peers who can (a) assist when brief breaks from a child are needed, (b) brainstorm alternative ways of responding to relational tensions, (c) reinforce norms that discourage severe physical discipline, and (d) provide information and understanding in coping with stressors. Although such programs typically are based on ecological and systems frameworks (e.g., Belsky, 1993) rather than a relational dialectics perspective, they are consistent with the themes of totality and praxis.

Finally, individual- or couple-based skills training and values education may be useful in helping relational partners to transform incompetent interactions. Respect for multivocality requires the abilities to identify and comprehend multiple points of view (personal, relational, cultural) including those that differ from one's own lived experience. Dialogue may be enhanced when participants use active-listening and negotiating skills (see Hart & Newell, this volume; Roloff & Putnam, this volume). Equally important, participants must be encouraged to adopt values that promote

can achieve personally desired outcomes; or (b) a pattern or logic may exist, but s/he lacks the ability to affect these factors (pp. 606–607). Incompetence, for Parks, is equated with feelings of helplessness, hopelessness, and despair. Such feelings sound to us quite similar to the praxical pattern of “disorientation,” which Baxter and Montgomery (1996, p. 198) deemed incompetent. Personal control need not imply an individual who attempts to achieve his or her goals without regard for others. “Pursuing any one goal by means of socially inappropriate behavior may jeopardize the individual's other goals and would therefore be a mark of incompetence” (Parks, 1994, p. 596). Although a strong “need to control others” may well be associated with incompetent interactions, we believe that feelings of “personal control” both contribute to and are a by-product of interactional competence.

Bakhtin's concept of dialogue, such as a commitment to empowering others rather than only oneself, being true to the demands of one's own beliefs while also respecting those with different beliefs, and remaining open to new positions about complex issues.

Section Summary

This section has explicated the meaning of communicative competence within five families of communication theory. From the viewpoint of each theory, we have described a core theme about communicative competence and related terms necessary for understanding competence, qualities that enable competent communication, sources of incompetent communication, and strategies for enhancing competence. More generally, this section has attempted to show how communicative competence can be explicated as a theoretical term. Yet an important question remains: Why bother? Or, to return to the pragmatic themes sounded at the start of this chapter, what difference does it make if we—as a community of scholars—conceive of communicative competence as a theoretical term rather than as a construct? Will doing so help address problems of theory and method as well practical problems of living, or will it simply create greater confusion? Our final section briefly considers the advantages and challenges of treating communicative competence as a theoretical term, both for scholarship and for teaching.

IMPLICATIONS OF TREATING COMMUNICATIVE COMPETENCE AS A THEORETICAL TERM

Implications for Research About Communicative Competence

As scholars, we see important advantages in treating competence as a theoretical term rather than a construct. Taking this tack helps avoid, or reframe, several persistent conceptual and methodological problems. Consider four examples:

Why Can't Scholars Agree on a Single Definition of Communicative Competence?

This chapter opened with two frequently voiced complaints: Scholars have not developed a clear, consensual definition of communicative competence, and research in the area lacks theoretical grounding. Treating competence as a theoretical term obviously addresses the latter complaint, but our key point is that such a move reframes the former worry, too. When competence is viewed as a construct (i.e., as something defined primarily by vertical linkages with observables, and hence something any researcher can define in the same way regardless of his or her assumptions and purposes), then definitional divergence is a serious concern. Viewed as a construct, definitional divergence must reflect what Miller (1990) labeled "Humpty-Dumpty impulses," by which he meant failing to define concepts explicitly, meaning different things by the same label or the same thing by different labels, and so on. Definitional divergence is especially problematic from this view because scholars cannot develop larger theories of communicative competence unless they first agree on what needs to be theorized. In sharp contrast, when communicative competence is treated as a theoretical term (i.e., as something defined primarily by horizontal linkages with other terms composing a specific theory, and hence as something a researcher can define only within a particular theoretical framework to

accomplish specific aims), then some degree of definitional divergence is expected. Competence can be conceptualized within multiple communication theories, and, because theoretical terms have “systemic” meaning (Kaplan, 1964), its meaning will vary somewhat across theoretical frameworks (see Table 1.1).

Treating competence as a theoretical term is not an excuse for sloppy conceptualization. Kaplan (1964) stressed that systemic meaning is not the same thing as ambiguity: “I must emphasize that I am not saying that [theoretical] terms cannot or do not have their meanings specified; I am saying only that, because of the openness of their meaning, the specification is not by way of definition in the strict sense” (p. 73). Thus, theoretical terms are not specified by a conceptual definition (i.e., a set of synonyms) that can be transferred out of context across different families of communication theory. Theoretical terms can be defined clearly only within larger frameworks. Kaplan provides an example: “We learn what is meant by “culture” in a certain theory as we see what the theory says about culture, what inferences it draws from these assertions, what evidence it adduces on their behalf. We are provided, not with a dictionary of terms, but with a guidebook to their subject-matter” (p. 73). Thus, scholars are responsible for explicating, clearly and in detail, their own theoretical foundations and what communication competence means within those foundations. Scholars also should analyze similarities and differences in the meanings of competence across different families of communication theory (see Table 1.1). Treating communicative competence as a theoretical term, however, saves us as a community from needing to reach consensus about a single, final, and best definition. It frees us to theorize communicative competence in multiple ways.

Some readers may worry that treating communicative competence as a theoretical term will lead to a proliferating number of meanings associated with the label and hence only greater conceptual confusion. Relatedly, some may question whether distinct meanings of communicative competence (e.g., its meaning in attributional versus relational dialectic theories, see note 14) are so divergent that different labels really ought to be used. Despite such divergence, scholars explicating “communicative competence” as a theoretical term can find stases for comparing their own view with those from other families of communication theory (see Craig, 1999, and Table 1.1). We see great scholarly and pedagogical value in such discussion. Besides, treating communicative competence as a construct has not prevented these problems. When communicative competence is explicated within a particular family of communication theory, grounds exist for determining which psychological and behavioral qualities are central to competence, how they are associated with each other, and how they enable competence. Such grounds vary across different families of theory, but they exist within each family. In contrast, explicating competence as a construct has left us with hodge-podge lists of qualities and no principled grounds for addressing such issues.

How Should Scholars Select, Develop, and Assess Measures of Communicative Competence? There is no shortage of operationalizations for communicative competence; indeed, Spitzberg and Cupach (1989) reviewed nearly 80 existing measures. Some procedures ask participants to describe or evaluate their own behaviors, beliefs, or feelings, whereas others ask interactional partners or trained observers to rate the degree to which participants display concrete behaviors (e.g., eye contact) or abstract qualities (e.g., considerateness). Some measures focus on competence in particular relationships (e.g., heterosocial skills) or populations (e.g., young children). How should researchers decide whether to use an existing measure or develop their own?

Developing reliable and valid operationalizations still is important when communicative competence is treated as a theoretical term rather than a construct, because ultimately the theory as a whole must be tied to observables. The manner in which researchers select or develop measures, however, changes in important ways. First, researchers should select an existing measure of communicative competence if, and only if, it taps the specific meaning of competence within the larger theory of communication guiding the research. When investigating competence from the perspective of attributional theories, researchers should select measures that assess the degree to which participants set developmentally and contextually appropriate expectations for themselves and others, perceive themselves as having some ability to affect interaction outcomes, alter judgments about their own and others' performance in light of mitigating information, and so forth. Many existing measures do not provide information relevant to this conception of communicative competence. When investigating competence from the perspective of relational dialectics theory, researchers should select measures that focus on interaction patterns rather than individuals. Most existing measures are not cast at the relational level.

Second, researchers should validate new competence measures, and revalidate existing measures, by showing that they relate to other concepts as predicted by the larger communication theory guiding the research. When investigating competence from the perspective of attributional theories, one might validate a new measure by showing that it distinguishes persons who give up easily from those who persist in the face of initial failure to accomplish goals (Dweck, 1998) or that it correlates inversely with self reports of chronic depression and hopelessness (Peterson & Seligman, 1984). Showing that a new measure correlates with an existing competence measure (e.g., Duran, 1983; Rubin, 1985; Stohl, 1983; Wiemann, 1977) offers evidence of convergent validity if, and only if, the existing measure taps key elements of competence as defined within the relevant theoretical perspective. Whether measures of communicative competence developed within different theoretical frameworks should be expected to correlate highly depends on whether competence has similar meanings within those frameworks. Thus, the same measure may be valid for assessing competence within some theoretical frameworks but not within others.

How Can "Culture" Be Integrated Into Conceptions of Communicative Competence? This question subsumes several more specific issues such as (a) to what degree are judgments about the competence of specific behaviors (e.g., avoidance conflict tactics) culturally general versus specific, (b) to what degree do the qualities or processes that enable competence vary across cultures, and (c) to what degree do our communication theories themselves reflect "Western" beliefs and values (see Lannamann, 1991; Kim, 2001)? Explicating communicative competence as a theoretical term frees us from expecting to find one "correct" answer to these questions and offers useful avenues for theorizing such issues.

Regarding cultural specificity versus generality, consider EVT. From this view, understanding communicative competence requires both forms of analysis (Burgoon, 1995). Researchers must carefully analyze implicit beliefs and values shared by particular groups, because several theoretical terms (e.g., clarity and strength of communication expectancies, specific behaviors perceived to violate expectancies, qualities that contribute to assessments of reward valence) likely vary depending on national origin, ethnicity, religious background, and so forth. Researchers also must analyze general processes (e.g., the arousal-eliciting function of expectancy

violations, the potential for reward valence to moderate interpretations and evaluations of unexpected behavior) presumed to remain constant across culture. Researchers working with EVT can test and refine these predictions about communicative competence and culture, whereas those working with attribution, GPA, hierarchical, or relational dialectic theories can develop their own blends of culturally specific and general analysis.

Treating communicative competence as a theoretical term also challenges scholars to consider how their larger frameworks are embedded in cultural values. When scholars spell out their assumptions about communicative competence, explicitly and in detail (see Table 1.1), they are better positioned to analyze the cultural and ideological underpinnings of their views. Parks (1994), whose definition of communicative competence is based on hierarchical and attribution theories, explicitly considered how his view might be explicated meaningfully in non-Western cultures (p. 612). Baxter and Montgomery (1996), whose definition of interactional competence is based on relational dialectics theory, explicitly considered whether their dialogic perspective transcends, and provides a meaningful frame for analyzing, different cultures (p. 205). Regardless of whether one agrees with their positions, we think it not a coincidence that these two works, which both attempt to explicate communicative competence as a theoretical term, also explicitly consider the cultural assumptions underlying their views.

How Might "Ethics" Enter into Conceptions of Communicative Competence? Several points in this chapter implicate ethical issues or "judgments . . . [about] degrees of rightness and wrongness, virtue and vice, and obligation in human behavior" (Johannesen, 1996, p. 1). By discussing how female physicians often are faced with either behaving so as to reinforce gender stereotypes or violating stereotypes at the risk of being judged incompetent, whereas their male counterparts can either follow or violate language expectancies and still be seen as competent, we hope to encourage scrutiny of gendered expectations. Our impulse here is motivated by ethical concerns about fairness and impartiality (Jaggar, 1989). When discussing how child physical abuse arises, in part, from incompetent parental discipline attempts, we do not feel it strong enough to say that acts of violence toward children are "inappropriate" disciplinary responses (in the sense of being rude or impolite). Intimate violence raises concerns about justice in what Western societies often regard as the "private" sphere of personal relationships (Wood, 1998).

The question of how ethics might enter into conceptions of competence raises a number of more specific issues, such as (a) on what grounds should behavior be judged as ethical, and how do these grounds relate to criteria for evaluating communicative competence; (b) what role does communication play in adjudicating ethical arguments, and can such processes themselves be evaluated in terms of competence; and (c) does integrating ethics into conceptions of communicative competence blur the distinction between "is" and "ought" in problematic ways? Again, explicating communicative competence as a theoretical term frees us from expecting to find one "correct" answer to these questions, and offers useful avenues for theorizing such issues.

Treating communicative competence as a theoretical term can inform discussions of ethics in several ways. Theories of competence, even if not offering ethical analyses themselves, can highlight circumstances that call for ethical scrutiny. EVT, as a traditional social-scientific theory, does not explicitly address whether gendered expectations regarding physician-patient communication are ethically problematic. One

might turn to feminist theories of ethics to build such an argument (Jaggar, 1989). Yet EVT does clarify how gender stereotypes get reinforced through everyday interaction. EVT also suggests strategies that activists might employ to challenge gender stereotypes (e.g., raising awareness of how members of our society often, without much thought, make inferences about communicator reward valence based on biological sex).

Descriptive and normative questions about communicative competence, in other cases, might be addressed within a single theoretical framework. Baxter and Montgomery (1996) frame their understanding of communicative competence around Bakhtin's writings. Although they do not address ethics explicitly in their framework, the concepts of multivocality and dialogue suggest that participants do have ethical responsibilities, as becomes clear in a comment by Baxter during a conversation between the two authors in the book's final chapter:

Recognition of difference is not to say that anything goes, that is, relativism. With difference comes responsibility, whether we are talking about a researcher in a dialogue with research participants or relational partners in conversation with each other. All participants in a dialogue have responsibility to be true to the conventions of their own perspective while keeping the conversation going with proponents of other perspectives. (Baxter & Montgomery, 1996, p. 237)

Others (e.g., Murray, 2000) have drawn on Bakhtin's writings in building a dialogical view of communication ethics. Exactly how ethical questions might be addressed within Baxter and Montgomery's framework remains to be worked out. Given that competence is treated as a judgment about interaction rather than individuals within relational dialectics, to what degree is the same true of ethics? Our larger point here is that treating communicative competence as a theoretical term could encourage scholars to "consider the relationship between communication competence and standards of ethical communication" (Jablin & Sias, 2001, p. 832) and create opportunities for linking social-scientific and ethical analyses.

Implications for Teaching Communicative Competence

As teachers, we see two implications to viewing communication competence as a theoretical term rather than a construct. Taking this approach requires that we teach students to apply theoretical frameworks in detail, as well as to compare different families of theory.

When viewed as a theoretical term, one cannot teach "communicative competence" as an isolated topic because its meaning arises as part of larger theoretical frameworks. Consider GPA theories. From this view, teaching communication competence means helping students develop an anticipatory mind-set (see Table 1.1). Students can be asked to analyze the instrumental, interpersonal, and identity goals (Clark & Delia, 1979; Wilson & Putnam, 1990) or primary and secondary goals (Dillard et al., 1989) that they might choose to pursue within concrete situations from their own lives. Students can analyze how pursuing specific goals (e.g., giving advice), within the context of social roles (e.g., parent-adult child) and cultural values, makes additional goals more or less "relevant" to pursue (Goldsmith & Fitch, 1997; Wilson, Aleman, & Leatham, 1998; Wilson & Kunkel, 2000). They also can identify obstacles, in the participants and the larger situation, that must be overcome or redefined for participants to achieve their goals (Clark & Delia, 1979; Ifert &

Roloff, 1998; Marshall & Levy, 1998). Students can assess how they make inferences about the likely goals of other participants (Berger, 2000), and how their own goals change as situations unfold (Waldron, 1997). Students can begin to appreciate that situations

generally are problematic because there are, or should be, multiple goals that come into play. . . . [C]ommunicators are faced with dilemmas; it often is impossible to accomplish everything; communicators frequently must make tough choices. Effective communicators, then, are people who address the dilemmas in ways that minimize the negative consequences of the choices they make. (Tracy, 1989, pp. 419–420)

Teaching competence from the GPA framework also means helping students develop their plans and planning abilities. Students can analyze whether they lack satisfactory plans for specific goals (e.g., saying “no” to unwanted requests from friends) and rehearse a broader range of techniques for such occasions. They can learn to focus their attention forward (e.g., anticipating possible obstacles) as opposed to only backward (e.g., making frequent negative assessments of themselves) during conversation. Videotaping role plays and having students provide stimulated recall might prove useful in this latter regard (Cegala & Waldron, 1992).

Aside from applying specific theories, treating competence as a theoretical term also necessitates teaching students to compare families of communication theory. Case analyses may be especially useful in this regard (Braithwaite & Wood, 2000; Sypher, 1997). For example, students might be placed into groups, with each group analyzing the same case from the perspective of one of the families of communication theory described in Table 1.1. From the perspective of their chosen theory, each group can address questions such as the following:

1. Have participants in this case communicated competently to date? What criteria should be used to make this judgment? Is it a judgment about individual or group performance (or both)? About effectiveness, appropriateness, ethics, or a combination of these? From whose perspective should this judgment be made?
2. What factors create challenges to communicating competently in this case? What are likely sources of (in)competent communication in the case? Why?
3. What interventions might increase the chances that participants will be able to enact competent interactions in the future? Exactly how would those interventions be implemented in this case? Why would they increase the likelihood of competent interactions? What unintended consequences might they have? Do they focus on knowledge, motivation, skills, or a combination of these needed to communicate competently?
4. How can we assess whether participants in this case are engaging in more competent interactions over time? Which psychological, physiological, and behavioral indicators should be assessed to make this judgment? Why?

Groups can address these questions from the perspective of their larger theory of communicative competence. Discussion can center on how each family of theory offers a unique perspective on what constitutes communicative competence in the case, whether different theories suggest (in)compatible interventions for helping participants improve their competence, and so forth.

As these examples make clear, teaching communicative competence as a theoretical term is not something to be attempted during a single course meeting using a

single instructional technique. Rather, students are likely to appreciate the implications of conceptualizing communicative competence as a theoretical term only after participating in a variety of instructional activities over multiple meetings.

Although teaching communicative competence as a theoretical term is daunting, the outcomes seem more fruitful than teaching competence as a construct. Teaching students that competence means “communicating so as to be perceived as effective and appropriate” is far too general to be useful. If students already understood why their own behaviors were perceived by others as inappropriate or ineffective, how such behaviors contribute to dissatisfactory interaction patterns, and how changing their behaviors might lead to perceptions and feelings of competence, then they would not need our advice. Teaching lists of abstract qualities such as empathy or flexibility also is far too general. Students need to know exactly what it means to demonstrate empathy or flexibility in concrete situations. Equally important, they need to understand when and why these qualities, as opposed to others, are particularly important in communicating competently. Finally, teaching students to enact concrete behaviors (e.g., establish eye contact, match your partner’s speech rate), in and of itself, is likely to fall short. Students need to understand why these behaviors contribute to perceptions of competence, why the same behaviors might be perceived as incompetent in different situations, and so forth. Each of these alternatives seems inadequate precisely because it lacks grounding in a larger theory of communication.

CONCLUSION

Explicating communicative competence as a theoretical term, rather than as a construct, requires major rethinking about how we approach the competence literature. Doing so means that we, as a scholarly community, must live with systemic meaning. Communicative competence will not have one set meaning; rather, its precise meaning and measurement will vary somewhat across families of communication theory, or even as a single theory evolves over time.

Systemic meaning is always open, for the set of propositions making up a theory is never complete. The value of a theory lies not only in the explanation it was constructed to provide but also in its unforeseen consequences, and these in turn enrich meanings in unforeseen ways. No single specification of meaning suffices for a theoretical term, precisely because no single context of application exhausts its significance for the scientist using it. . . . As evidence accumulates in support of a theory, we simultaneously come to a better understanding both of the world and of our own ideas about the world. (Kaplan, 1964, p. 65)

The approach advocated in this chapter will not lead to a single, final, and consensually agreed on understanding of competence. Treating communicative competence as a theoretical term, however, reframes long-standing stumbling blocks to defining competence, frees us to theorize competence in multiple ways, and offers rich avenues for helping students develop competence.

AUTHOR NOTE

Steven R. Wilson (PhD, Purdue University) is Professor and Director of Graduate Studies in the Department of Communication, Purdue University. Christina

M. Sabee (PhD, Northwestern University) is Assistant Professor in the Department of Communication, Fresno State University. Correspondence regarding this chapter may be addressed to the first author: Department of Communication, Purdue University, 1366 Beering Hall 2114, West Lafayette, IN, 47907-1366. Send email to swilson@sla.purdue.edu.

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MODELS OF ADULT COMMUNICATION SKILL ACQUISITION: PRACTICE AND THE COURSE OF PERFORMANCE IMPROVEMENT

John O. Greene
Purdue University

There may be no observation about communication skills that is more fundamental, and more far-reaching in its implications, than that they are developed and refined over time through implementation. Communication skills do not appear instantaneously, fully developed, and ready to be applied in persuading, comforting, or understanding others. The novice public speaker, interviewer, therapist, or negotiator is unlikely to be as polished or as successful as one who has a wealth of experience in such activities.

The general idea that communication skills develop gradually through use is widely recognized and accepted, so much so that it can be seen to constitute the basic warrant for much of what transpires in college courses on communication skills, professional training seminars, and relationship counseling sessions. Doubtless, most communication teachers and trainers would conclude with Michael Argyle and his associates (Trower, Bryant, & Argyle, 1978, p. 71), that “practice is essential” in the acquisition of social skills.

Although the practice–skill acquisition relationship is readily seen to be embedded in the very fabric of what, and how, we teach, our understanding of the nature of this relationship remains somewhat vague. As teachers, trainers, and practitioners, we acknowledge—even if only implicitly—that practice leads to improved performance, but behind this general principle lurks a number of essential questions: What is the nature of the cognitive mechanisms that give rise to changes in performance quality as a result of practice (i.e., *why* does practice cause improvement)? If performance improves as a function of practice, then what is the nature of the function relating changes in performance quality to amount of practice? What individual-difference variables or person factors impact the course of skill acquisition and in what ways? What types of practice are more or less effective in bringing about performance improvements?

Despite the significance of these and related issues for the design of instruction and training programs, these sorts of questions have not typically been a point of

emphasis for communication researchers. In part this may be because skill acquisition is a slow process that does not easily lend itself to the constraints of laboratory studies, or even to the temporal limitations of a semester-long course. Researchers in other skill domains have observed that acquiring even a reasonable degree of proficiency in relatively complex activities such as computer programming and air-traffic control requires a minimum of 100 hours of training and practice (e.g., Anderson, 1982; Schneider, 1985). Even more remarkable, there is a general consensus that truly exceptional performance in a wide variety of activities requires a minimum of 10 years of intensive preparation (see Ericsson, Krampe, & Tesch-Romer, 1993; Ericsson & Lehmann, 1996; Simon & Chase, 1973).

The aim of this chapter is to examine the course of adult communication skill acquisition, with emphasis on message production (i.e., output) and processing (input) skills. Particular attention is given to addressing the questions outlined above concerning the impact of practice on skill development. In pursuit of these points, two distinct, but potentially complementary, lines of inquiry come to the fore, each reflecting a different sense of the term *model* (see Hawes, 1975).¹ On one hand, models may serve as explicative devices, elucidating the mechanisms that underlie and give rise to the phenomena of interest. On the other, models can serve a primarily descriptive function in seeking to express or capture the dynamics of the process(es) under scrutiny. Although concern with the course of communication skill acquisition by adults (particularly on a timescale such as that shown to characterize the development of proficiency in other behavioral domains) has been rather sparse, by drawing on work from a variety of research traditions, including some that are only indirectly related to communication and social interaction, it is possible to make some headway on both the explicative and descriptive fronts.

BEHAVIORAL AND COGNITIVE MARKERS OF SKILL DEVELOPMENT

Intrinsic to the concept of skill *acquisition* is the notion that performance quality improves over time, that is, people “get better” as they persist in the activity under examination. The deeper question, of course, is what does it mean to “get better”—how, exactly, does behavior change as a skill develops, or alternatively, how is performance quality (and by extension, *change* in performance quality) to be assessed?

There is a tradition in the study of social skill and competence that can be traced at least as far back as the seminal work of Wiemann (1977) and Brown and Levinson (1978) centering on the notion that performance quality in the social sphere involves the *effectiveness* and *appropriateness* of one’s actions (see also Spitzberg, this volume; Wilson, this volume), that is, people exhibit skillful behavior to the extent that they are effective in accomplishing their interaction goals while adhering to the norms and rules operating in that social context.

Obviously, operationalizing performance quality by recourse to effectiveness and appropriateness has considerable intuitive appeal. At the same time, given the concern with describing and explaining the course of adult communication skill acquisition, such an approach is severely limiting because most of the relevant research and theory has been developed in the context of traditions of inquiry that emphasize other indices of performance quality. To gain some purchase on the issues central to this

¹In point of fact, Hawes (1975) would not apply the term *model* to the sort of explicative frameworks reviewed here because they do not involve analogues. Rather, in Hawes’s terminology, these conceptual frameworks would be more properly identified as *theories*.

review, then, it is necessary to look beyond changes in effectiveness and appropriateness to other sorts of changes—both behavioral and cognitive—that accompany the development of communication skills.

Behavioral Indices of Skill Development

Speed. Perhaps most readily apparent of the behavioral changes that occur as a person becomes more skilled at a given activity is an increase in speed of task execution—quite simply, experts are faster than novices. The relationship between practice and speed of task execution is quite robust and has been shown to hold for a wide variety of perceptual, cognitive, and motor behaviors (for reviews, see Lane, 1987; Mazur & Hastie, 1978; Newell & Rosenbloom, 1981). In fact, so central is rapidity of task performance that some definitions of *skill* include speed as an essential characteristic (e.g., Glass, Holyoak, & Santa, 1979; Welford, 1968).

Of particular importance in the context of a focus on acquisition of communication skills is the fact that speedup in task performance appears to extend to the realm of message-production behavior. A delightful illustration of just such an effect is found in Kuiper's (1996) analysis of the verbal fluency of announcers of horse races who may serve many years in an apprentice capacity while developing the ability to deliver rapid-fire descriptions of fast-changing events. It is important to note, however, that although fluency, or speech rate, tends to increase with experience, a caveat is in order concerning this relationship. Under certain conditions, people with the greatest experience may actually have lower rates of speech because they make effective use of pauses to assist their listeners in comprehending the message. An example of this effect is found in a study by Clemmer and Carrocci (1984) contrasting the speech fluency of professional broadcasters, student broadcasters, and people with no broadcasting experience while they were reading news stories and editorials. The results indicated that when reading news stories, the professional broadcasters had higher speech rates and fewer and shorter silent pauses than the other two groups. When delivering an editorial, however, it was the student broadcasters (i.e., those with moderate levels of experience) who exhibited the highest rates of delivery, again presumably because the more experienced broadcasters were using pauses to their advantage.² Thus, it appears that while people with more experience at a particular type of message-encoding task have the *ability* to speak with greater rapidity, they may choose not to do so in the interest of maximizing listener comprehension.

Accuracy. A second defining characteristic of the behavior of highly skilled individuals is greater accuracy (or its converse, lower error rates). Put simply, experts don't make as many mistakes; their responses are more likely to be correct as defined by some criterion of accuracy or appropriateness (see Newell & Rosenbloom, 1981; Proctor & Dutta, 1995). The growth of accuracy with practice is observed to occur for both input processing tasks, such as reading X rays (see Lesgold et al., 1988), and output tasks such as typing (see Grudin, 1983). Moreover, the impact of practice on error rate extends to the realm of message production where experts are shown to exhibit far fewer speech errors and disfluencies (e.g., Clemmer & Carrocci, 1984). As with speed, however, some caveats are in order concerning the practice-accuracy

²A similar effect can be seen to emerge over the span of years from childhood to middle age in that the highest oral reading rates are exhibited by those in the early teen years (Sabin, Clemmer, O'Connell, & Kowal, 1979).

relationship. First, although it is the case that greater expertise is associated with both greater speed and accuracy, for any given level of skill, there is commonly observed a speed–accuracy trade-off (see Proctor & Dutta, 1995). That is, increases in performance speed are typically made at the cost of more frequent errors, as when attempting to type faster results in more erroneous keystrokes. Again, a similar effect occurs in the case of verbal message production where faster rates of speaking are associated with more frequent speech errors (see Dell & Reich, 1980; MacKay, 1982). A second caveat concerns the fact that under some circumstances frequent use of particular behavioral routines may cause those behaviors to manifest themselves in situations in which they are not appropriate (see Norman, 1981; Reason, 1979), as when habitual responses disrupt or override one's intended course of action. Finally, it is important to note that there are situations in which considerable time spent on some task does not necessarily result in more accurate performance. An interesting example of such a phenomenon concerns the ability to detect deception. It is commonly observed that people with years of experience in occupations such as law enforcement who place great emphasis on ability to detect deception are, in fact, no better at such tasks than their lay counterparts (e.g., Burgoon, Buller, Ebesu, & Rockwell, 1994; DePaulo & Pfeifer, 1986). At the same time, however, it is clear that training people to look for the correct behavioral cues does result in significantly better detection of deception (e.g., de Turck & Miller, 1990; Fiedler & Walka, 1993). Thus, practice employing nonoptimal techniques or practice that is not accompanied by corrective feedback may not necessarily lead to more accurate performance.

Flexibility. A third behavioral change that characterizes the development of skill is an increase in flexibility and adaptation to situational exigencies. The ability to make behavioral adjustments is commonly identified as a central component of communication competence (e.g., Parks, 1994; Phillips, 1985; Spitzberg & Cupach, 1989; Wiemann, 1977), and again, evidence suggests that both input processing performance (e.g., Lesgold et al., 1988) and behavioral production (e.g., Clemmer & Carrocci, 1984; Kuiper, 1996; Shaffer, 1980) come to be characterized by greater flexibility as experience increases. At the same time, Hatano and Inagaki (1984) suggested that practice alone is not sufficient to ensure behavioral flexibility. These authors distinguish “routine” and “adaptive” expertise, where the former entails the increased speed and accuracy arising from practice, but with little flexibility, while the latter involves development of a more abstract conceptual understanding of the skill domain and for this reason is associated with more creative, adaptive performance. From this perspective, then, practice is likely to lead to adaptive expertise only under those conditions that foster development of a conceptual grasp of the performance domain.

Multiple-Task Performance. The study of people's ability to carry out multiple, simultaneous tasks has a long history in the behavioral sciences (see Barber, 1989; Damos, 1991; Meyer & Kieras, 1997), and as intuition suggests, it is not unusual to find that the speed and accuracy with which some task can be carried out is diminished when a second task is introduced. It is also the case, however, that such interference effects are reduced, or even eliminated, with practice. For example, after several weeks of practice subjects have been shown to develop the ability to read and comprehend written material while simultaneously transcribing unrelated, aurally presented words (e.g., Hirst, Spelke, Reaves, Caharack, & Neisser, 1980; Spelke, Hirst, & Neisser, 1976). Similarly, skilled typists are able to type written material while carrying out a variety of other tasks (see Gentner, 1988; Shaffer, 1975).

Cognitive Indices of Skill Development

Cognitive Effort. Just as skill acquisition is marked by a variety of overt, behavioral indices, there are also certain cognitive changes that accompany skill development. Foremost among these is *cognitive effort* (which can be viewed as the mental foundation of the multiple-task phenomena discussed above).³ Central to the concept of cognitive effort is the notion of some sort of capacity limitation in processing ability, whether this be identified with a single resource or quantity (e.g., Kahneman, 1973; Norman & Bobrow, 1975) or with multiple resources (e.g., Navon & Gopher, 1979; Wickens, 1991). Activities are effortful, then, to the extent that they make demands on this limited capacity for carrying out cognitive tasks. The key claim of resource theories is that when the cognitive demands of ongoing activities exceed the available resources, performance will suffer (thus giving rise to multiple-task limitations). At the same time, the effect of practice is to reduce the effort, or capacity-demands, associated with a given task, thereby freeing resources for other activities (see Schneider & Shiffrin, 1977; Shiffrin & Schneider, 1977). One result is that frequently accessed constructs may be invoked in social-perception and judgment tasks even when the cognitive demands of other activities are relatively high (see Bargh, 1989).

Phenomenal Experience of Behavior. Among the more intriguing cognitive changes accompanying the development of a skill is a shift in the actor's own conception or apprehension of what he or she is doing. Psychologists have long observed (e.g., James, 1890/1950) that although people are initially cognizant of task-directed activities, with extensive practice those behaviors tend to be lost from conscious awareness. Thus, experts may have difficulty reporting just how they do what they do. This loss of the phenomenal experience of one's own actions is commonly ascribed (see Anderson, 1982, 1983) to the waning use of declarative-knowledge structures in behavioral production in favor of procedural encodings that are not available to conscious inspection and verbal report (an issue discussed below).

A related line of thought on the qualitative shift in phenomenal experience that accompanies skill acquisition is found in Vallacher and Wegner's (1985, 1987) "action identification theory." According to Vallacher and Wegner, any activity can be represented at a number of levels of abstraction, ranging from high-level conceptions such as "eating a healthier diet" to low-level act identities such as "raising the fork to my mouth." The particular level of abstraction that will be employed in monitoring and regulating ongoing activity is, at least in part, a function of one's level of expertise. Early in the course of skill acquisition it is necessary to employ relatively low-level conceptions of what one is doing to successfully execute the activity. With increasing practice, however, such low-level control is no longer needed, and people move toward more abstract identifications or understandings of their own actions.

Other Cognitive and Behavioral Indices of Skill Development

Beyond the various cognitive and behavioral changes discussed to this point, the literature on skill acquisition and expert–novice differences does suggest some additional features that might be expected to change as a function of practice (see Ericsson &

³The emphasis here is on the notion of *cognitive effort* rather than the related construct *automaticity* because of the multiple meanings and resultant ambiguities involving the use of the latter term (see Bargh, 1992).

Lehman, 1996; Glaser & Bassok, 1989; Glaser & Chi, 1988; Proctor & Dutta, 1995; VanLehn, 1996). Although we have little direct evidence that these changes extend to the domain of social and communicative skill, their emergence in other skill domains makes it reasonable to expect that acquisition of message production and processing skills would be characterized by similar effects. Among these additional indices is the tendency for experts to perceive tasks or problems in deeper, more sophisticated ways (see, for example, Chase & Simon, 1973; Chi, Feltovich, & Glaser, 1981).⁴ A second example suggested by research in other behavioral domains concerns the development of metacognitive processes that allow the expert to more accurately monitor, assess, and regulate his or her own thoughts and actions (see Larkin, 1983; McGuiness, 1990). Whether these sorts of performance shifts do, indeed, accompany the development of communication skills, under what conditions, and with what effects, are issues that should be the focus of future research efforts.

MODELS OF SKILL ACQUISITION

Adult Communication Skill Acquisition

Despite the great emphasis placed on skills and skill training in the field of communication and allied disciplines, there have been relatively few attempts to develop theoretical accounts of the processes that underlie adult acquisition of communication skills.⁵ To be sure, there is a tradition of research on *communication instruction* (see Darling, 1992), focusing in large part on the relative effectiveness of various pedagogical techniques, behaviors, and materials (e.g., Lederman, 1992; Vangelisti, Daly, & Friedrich, 1999; see also Daly & Vangelisti, this volume). Similarly, there is a body of work on *social-skill training*, concerned with development and implementation of adult skill training programs (e.g., Bochner & Kelly, 1974; Glaser, 1983; Kelly, 1989; Trower, Bryant, & Argyle, 1978; see also, Segrin, this volume). There is also a large literature on the nature of skilled communication *behavior* itself (i.e., efforts to identify those behaviors that are more or less skillful, effective, appropriate, and so on; as discussed in many of the chapters in this volume). Finally, and perhaps most relevant to this chapter, there are even a number of attempts to develop models of the processes underlying skilled communication *performance* (i.e., how do people produce, or fail to produce, skilled actions; e.g., Greene, 1984; Levelt, 1989; see also Berger, this volume). Each of these literatures can be seen to offer certain insights about the processes involved in becoming more socially skilled, but at the same time, scholars working in these areas have not typically had as their primary concern the development of models of skill *acquisition* (i.e., describing the course of *changes* in performance quality over time or explicating the nature of the mechanisms underlying and giving rise to such changes).

Where models that *do* touch, even if only indirectly, on mechanisms of communication skill acquisition have been developed, they can be seen to rely on

⁴The tendency for experts to perceive tasks in more principled or sophisticated ways has a notable parallel in O'Keefe's (1988) conjecture concerning a developmental progression of increasingly sophisticated message design logics.

⁵In contrast to the relatively limited number of efforts to develop models of adult communication skill acquisition, there is an enormous literature on the development of language and other communication skills in infancy and childhood (see Bates, 1979; Kuczag & Barrett, 1986; MacWhinney, 1998). Moreover, there have been a number of noteworthy attempts to articulate general models of adult acquisition of cognitive and motor skills (for reviews, see Adams, 1987; Proctor & Dutta, 1995; VanLehn, 1996).

some combination of three sorts of general explanatory mechanisms: (a) establishment of new knowledge structures, (b) refining or tuning of those structures, and (c) strengthening of such memory structures through use.⁶

Of the various mechanisms introduced to account for changes in performance quality, the most straightforward involves ascribing improvement to the acquisition of new knowledge structures, as when people develop new understandings of social processes, knowledge of rule prescriptions, means–end relationships, and so on. Expressed in the language of the underlying cognitive architecture, such structural changes may involve establishing new cognitive *units* of some sort (e.g., nodes, productions) or the development of new structural *links* between units, as when an associative link is established between two symbolic nodes.

As examples of models that address improvement in performance quality primarily in terms of acquisition of new knowledge structures or cognitive content, one could point to O’Keefe’s (1988) original formulation of “message design logics,” which holds that people may progress through increasingly sophisticated modes of reasoning about social interaction and message encoding. A second example, one which reflects a very different conceptual foundation, is found in Parks’s (1994; see also Hargie, 1997) application of Powers’s (1973; see also Carver & Scheier, 1982) cybernetic–perceptual–control model to the realm of interpersonal interaction. According to Parks, interpersonal competence can be apprehended in terms of the development and operation of a hierarchical system of control mechanisms. These control mechanisms, as conceived by Powers (1973), consist of a system of simple “comparators” that serve to match an input, or perceptual, signal with some reference signal and that generate an efferent, or output, signal in the event of a mismatch between the two. The reference signals themselves arise as a result of the person’s past experiences in controlling “intrinsic errors,” or deviations from optimal physiological states. Skill development, then, is essentially a process of acquiring new, and in some sense, more appropriate, reference standards and of establishing lower level operators that can efficiently bring about desired changes in the perceptual environment.

The second general type of explanatory mechanism invoked to account for the growth of skills involves some sort of adjustment or tuning of existing knowledge structures. In production-system models such as that developed by Anderson (1982), such structural refinements include “generalization,” where previously acquired response representations are extended to new situations, and “discrimination,” whereby actions come to be restricted to those situations in which they are likely to be effective. Alternatively, in parallel distributed processing (PDP) approaches (e.g., McClelland & Rumelhart, 1985), refinement involves modifying connection weights to capture patterns of association in input configurations. An example of PDP approaches to communication behavior is found in O’Keefe and Lambert’s (1995) model of the cognitive system that gives rise to the ideational content of verbal messages. On their view, message-production, or at least the specification of the thought content of messages, is accomplished by selecting from among a set of elemental clauses

⁶This distinction between acquisition of new cognitive structures, refinement of those structures, and strengthening is useful as a general expository device but shouldn’t be pushed too far. Applied in the case of any particular model of the cognitive mechanisms underlying skill development, the boundaries between these categories of mechanisms may be blurred. For example, in Anderson’s (1982) production system model, “generalization,” presented here as an example of refinement or tuning, can actually be viewed as a case of establishing new structural representations, and “strengthening,” presented here as a separate class of mechanisms, is treated as one of the tuning mechanisms.

those that, when uttered, are likely to lead to desired effects. O'Keefe and Lambert, then, viewed acquisition of message production skill as involving the development of structural associations between distributed representations of (a) goals, (b) utterances, and (c) the expected effects of those utterances and adjustment in the weights of those associations based on experience.

The final mechanism commonly invoked to address issues of skill acquisition is "strengthening" of memory structures as a result of frequent use such that performance becomes more accurate and rapid. Examples of such strengthening mechanisms are found in MacKay's (1982, 1983, 1987) and Greene and Geddes's (1993) models of message production processes. MacKay's model, in contrast to that of O'Keefe and Lambert (1995), is not limited to analysis of the processes underlying the specification of the thought content of messages, but instead explicitly addresses the question of how those thoughts could actually come to be expressed overtly (i.e., as strings of words). MacKay proposes a hierarchical system of nodes and associative links comprised of three major levels, each of which is further organized into sublevels. At the *conceptual level*, single nodes correspond to entire thought units (e.g., "fast pedaling builds lung power"), conceptual compounds (e.g., "fast pedaling"), and individual lexical concepts (e.g., "fast," "pedaling"). At the second major hierarchical level, the *phonological level*, nodes correspond to individual syllables, phonological compounds, and phonemes. Finally, at the *muscle-movement level*, nodes code motor-system commands. Central to MacKay's conception of skill development is the notion that links between nodes are strengthened with use. More specifically, the function relating strength to frequency of use is curvilinear, with increments in strength becoming increasingly smaller as amount of prior use grows (a principle MacKay invokes to account for the power law of learning discussed later). With increasing strength of associative links comes faster priming of related nodes, with a concomitant increase in speech fluency.

A second example of an approach involving a strengthening mechanism is found in Greene and Geddes's (1993) model of skilled performance. This model, based on Greene's (1984, 1989) action assembly theory, is intended to apply to both the verbal and nonverbal components of message behavior. Furthermore, unlike other models which assume that complete thoughts are typically represented as memory elements, or nodes, action assembly theory views thoughts as emergent constructions, created "online" through the integration of simpler cognitive content. From the perspective of action assembly theory, a person's behavior at any moment comprises a very large number of elemental behavioral features, some abstract and conceptual, others related to verbal aspects of behavior (e.g., lexical items, syntax, phoneme specification, etc.), and still others, at very low levels of abstraction, pertinent to motor control. Any particular behavioral feature, then, represents just a fragment of the entire configuration of features that constitute an individual's behavior at some instant in time. These elemental behavioral features reside in long-term memory as components of "procedural records," structures that preserve relationships between features of action, outcomes, and situations. According to action assembly theory, behavioral production involves two processes, an activation process that serves to retrieve relevant behavioral features and an assembly process by which activated features are organized and integrated to produce the complex of features that constitute a person's ongoing action. The assembly of behavioral features is held to proceed serially and to make demands on a limited pool of processing resources. Within this framework, skill acquisition is seen to involve at least three distinct subprocesses: the acquisition or establishment of new procedural records, the formation of

“unitized assemblies” of behavioral features that circumvent the need for the time and capacity-demanding assembly process, and the strengthening of procedural records such that they are activated more rapidly.

It is noteworthy that communication skills training programs typically make use of techniques and activities that allow them to capitalize on each of the three sorts of mechanisms (i.e., acquisition, refinement, and strengthening) identified here. Skills training programs, of which there are many (see Ladd & Mize, 1983; Segrin, this volume; Spence & Shepherd, 1983), routinely involve *instruction or presentation of behavioral ideals* (perhaps with additional materials designed to provide an overarching conceptual rationale for those behaviors or illustrations of how those behavioral objectives might actually be manifested in ongoing interaction), *opportunity for practice* of one sort or another, and *feedback* about the extent to which those performance trials approached the behavioral standard. Thus, via instruction, implementation, and feedback, learners are able to acquire new knowledge structures, to refine those structures, and to strengthen them with the aim of insuring production of the desired responses outside the training context.

Cognitive and Motor Skill Acquisition

Although there have been relatively few attempts to develop models of adult communication skill acquisition, there are a number of more general models of cognitive and motor skill development (see footnote 5). Of these, two merit special mention here because they have proven to be particularly important in guiding research on the course of performance improvement in message-production and processing tasks.

Research on cognitive and motor skills has lead to widespread convergence on the notion that the development of such skills proceeds through three stages, a conception that can be traced most directly to the work of Paul Fitts (1964; Fitts & Posner, 1967). According to Fitts, in the initial, or “cognitive,” stage of skill acquisition, the person gains a rudimentary factual understanding of the requisite behavior through instruction, observation, and so forth and is able to use this information to produce a rough approximation of the skill. Where the skill involves separate subcomponents, these tend to be tackled in isolation, and overt verbalization of task-relevant information is common. In the “associative” stage, there is progressively less reliance on the initial factual representation of task requirements, and in their place, motor programs for task execution begin to develop. Initial errors in understanding the task and appropriate methods for proceeding are detected and eliminated. Individual subcomponents of the task that were originally treated in isolation begin to be integrated into larger wholes. Finally, in the “autonomous” stage, which can extend over a period of many years, performance is gradually refined as the skill becomes increasingly integrated, rapid, and automatic.

A similar three-stage model, developed by John Anderson (e.g., 1982, 1983; Neves & Anderson, 1981), has proven to be the most influential approach to skill acquisition to date. Cast in the language of Anderson’s ACT* theory, the model makes a fundamental distinction between two types of knowledge relevant to skilled performance, declarative knowledge, or knowledge *that*, on one hand, and procedural knowledge, or knowledge *how*, on the other. Thus, people are held to possess both factual information and information about how to carry out various tasks and activities. Criteria for distinguishing declarative and procedural knowledge have been advanced at various times (see, for example, Anderson, 1993; Ryle, 1949; Saint-Cyr & Taylor, 1992; Singley & Anderson, 1989), and these include the fact that people

tend to be able to give a verbal report of declarative information, whereas the ability to report procedural information is extremely limited; declarative knowledge can be acquired suddenly, as when we learn a new fact, whereas procedural knowledge is acquired over time through practice; and procedural knowledge appears to be more resistant to decay. One particularly striking source of evidence in support of the procedural–declarative distinction is the fact that in some cases people are able to acquire a new skill without also acquiring new declarative information relevant to that skill (e.g., Cohen & Squire, 1980; Nissen, 1992).

Central to ACT* is the assumption that procedural knowledge is held in the form of production rules, amenable to characterization as IF–THEN statements, that link actions with a set of conditions under which those actions should be applied. For example, in the realm of interpersonal greetings, one hypothetical production rule might look something like the following:

IF one wishes to address another
 and the other is of higher status
 THEN use his/her title plus last name

According to Anderson, productions are activated when the conditions specified in their IF components correspond to conditions currently represented in working memory.

Working within this conceptual framework, Anderson specified three stages of skill acquisition that are highly reminiscent of those identified by Fitts. In the “declarative” stage, task-relevant information is held in declarative form (i.e., a set of facts about how to perform the skill). Such declarative encodings cannot be used directly to produce actions, which can only come about via the operation of the procedural knowledge system, and so it is necessary to make use of general production rules capable of applying the declarative information to the task at hand. Implementing declarative information by use of general productions has the advantage of affording flexibility and adaptability in responding to novel task situations, but it comes at the cost of being relatively slow and cognitively demanding. In the second stage of skill acquisition, termed *knowledge compilation*, the original declarative encodings are transformed into procedural form. That is, new, task-specific production rules are formed so that it is no longer necessary to make use of general interpretive productions or to retrieve relevant factual information from memory to execute the skill. Also at this stage, a sequence of successive production rules may be combined to form a single production that accomplishes the same end in just one step. Finally, the “procedural” stage of skill acquisition is marked by continuing gradual improvement in task execution as the productions involved in the skill are refined and strengthened through repeated use.

Anderson’s model of skill acquisition is just one of several that has been offered as an account of the processes underlying changes in behavior that accompany practice (see, for example, Fischer, 1980; Gluck & Thompson, 1987; Logan, 1988; Norman & Shallice, 1985; Schmidt, 1975), but it is one that has proven to be particularly fruitful in generating a number of empirical investigations of skill and learning (e.g., Anderson & Fincham, 1994; Pirolli & Anderson, 1985; Singley & Anderson, 1989), and it has served as a conceptual foundation for other theorists concerned with phenomena not considered by Anderson (e.g., Ackerman, 1988; Smith, 1989a, 1989b; Woltz, 1988). Moreover, in its formulation of knowledge compilation and strengthening processes, ACT* can be seen to provide an explanatory account for the characteristic shape of

empirically derived skill acquisition curves (see Neves & Anderson, 1981), the topic of the next section.

MODELING THE COURSE OF SKILL ACQUISITION

The fact that communication skills develop over time raises an obvious question about the course of skill acquisition. That is, if performance improves with time and practice, then what is the nature of the function describing the course of that improvement? With some measure of performance quality represented on the ordinate, or y axis, and time or amount of practice given on the abscissa, one can imagine a host of alternative trajectories that might conceivably capture the course of skill development. In fact, research from a variety of behavioral domains indicates that from among the vast number of conceivable skill-acquisition curves, only a few general functions emerge as plausible candidates for representing the development of skilled behavior.

As discussed later, to date there is only a small body of research examining acquisition functions for *communication* skills, but there are a number of studies of cognitive and motor skill acquisition, many of these conducted in military and industrial-training contexts (see Lane, 1987; Mazur & Hastie, 1978; Newell & Rosenbloom, 1981; Nanda & Adler, 1977). To a remarkable degree, this research converges on a general principle of skill acquisition that appears to apply across virtually all behavioral domains: *The course of improvement with time and practice follows a decelerating trajectory in which the increments in performance quality diminish as practice continues* (a pattern exemplified in series 1 of Fig. 2.1).⁷ In essence, practice results in continual improvement, but there is also a “diminishing returns” effect in that initial practice trials are characterized by large gains, but with each successive practice trial, the size of the increment in performance quality gets smaller and smaller.

Overview of Empirically Derived Skill Acquisition Functions

Skill acquisition curves trace changes in performance quality as a function of time or practice. Their derivation, which is reasonably straightforward, involves making a series of assessments of performance quality and fitting this time-series data with a mathematical function expressing the course of improvement in the skill under examination.

In principle, virtually any measure of performance quality can be used to establish a skill-acquisition function. Performance assessments might involve a variety of objective (e.g., time, error rate) or subjective (e.g., quality ratings) measures, but, in point of fact, studies of the course of skill acquisition have typically focused on objective measures of speed and accuracy (see Lane, 1987; Newell & Rosenbloom, 1981). In contrast to the learning curve illustrated in series 1 of Fig. 2.1, where values of the performance measure *increase* with practice, performance assessed as time to task completion or error rate will naturally produce values which become progressively *smaller* as practice continues, as in series 2 of Fig. 2.1.

⁷Although the vast majority of investigations have concluded that the course of skill acquisition is captured by power, hyperbolic, or exponential functions, scattered studies have indicated support for other sorts of functions (see Lane, 1987; Mazur & Hastie, 1978). It is particularly noteworthy that skill-acquisition curves based on *rating* data appear to conform to the family of logistic functions (see Spears, 1985), a fact that may arise as a result of the particular characteristics of performance ratings (see Lane, 1987; Schneider, 1984).

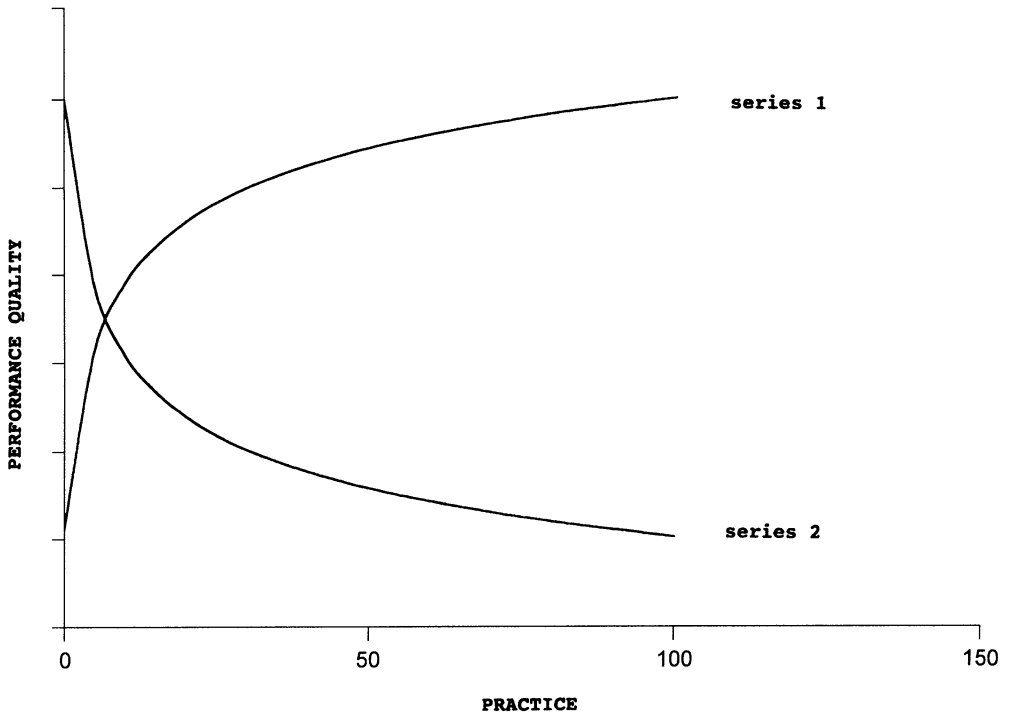


FIG. 2.1. Typical skill acquisition curves representing decelerating performance improvements over the course of practice.

With valid and reliable time-series data in hand, it remains to fit the data with some function that captures the course of performance improvement. The large body of research on acquisition of cognitive and motor skills has centered on two distinct families of curves, the exponential and power functions, both of which are consistent with the general pattern of decelerating performance increments mentioned above.

The Exponential Function. The general exponential function describing a learning curve like that in series 2 of Fig. 2.1 (i.e., where values of P decrease with practice)⁸ is given by the equation:

$$P = Be^{-\alpha N}, \quad (1)$$

⁸The general equations for exponential and power functions describing learning curves, where values of P decrease with practice, are used as a starting point for this discussion because those equations are slightly simpler for expository purposes than the corresponding equations for functions that increase with practice. In practice, however, it is easy to derive equations for measures of performance that increase with practice simply by treating the optimal level of performance as an asymptote (e.g., a "10" in figure skating or 100% on a performance evaluation) and then applying equations 3 and 4, but with the provision that the second term is now subtracted from the asymptotic value rather than added to it. Thus, the exponential equation for learning curves that increase toward some asymptotic value is

$$P = A - Be^{-\alpha N},$$

and the corresponding power equation, with a prior-learning parameter, is

$$P = A - B(N + E)^{-\alpha}.$$

where P is a measure of performance quality, B represents performance level on the first practice trial, e is the base of the natural logarithm (or approximately 2.718), α is the learning-rate parameter (indicating the steepness of the curve), and N is the trial number.

The significance of the exponential function for understanding the relationship between practice and performance can be expressed verbally in a straightforward way: If performance improves by some factor (say, 2, or twice as good) in n trials, then from that point it will take another n trials to improve by that same factor again (i.e., to improve by a factor of 2 yet again). So, for example, if the time required to execute some task drops by a factor of 2, from 4 seconds to 2 seconds in 100 trials, it will take another 100 trials for it to drop by a factor of 2 again, that is, from 2 seconds to 1 second.

The Power Function. With measures of performance that decrease with practice (see footnote 8), the general power function is given by the following equation:

$$P = BN^{-\alpha}, \tag{2}$$

where P , N , and α are defined as stated earlier, and B represents the y intercept (i.e., performance on a hypothetical zeroth trial). Again, as in the case of the exponential function, larger values of α indicate a steeper learning curve or faster rate of improvement.

By way of comparison, with equal α values, the rate of improvement with practice is much slower under a power function than under an exponential function, a relationship illustrated by the hypothetical skill acquisition curves given in Fig. 2.2. In contrast to the exponential function, under a power function, if performance

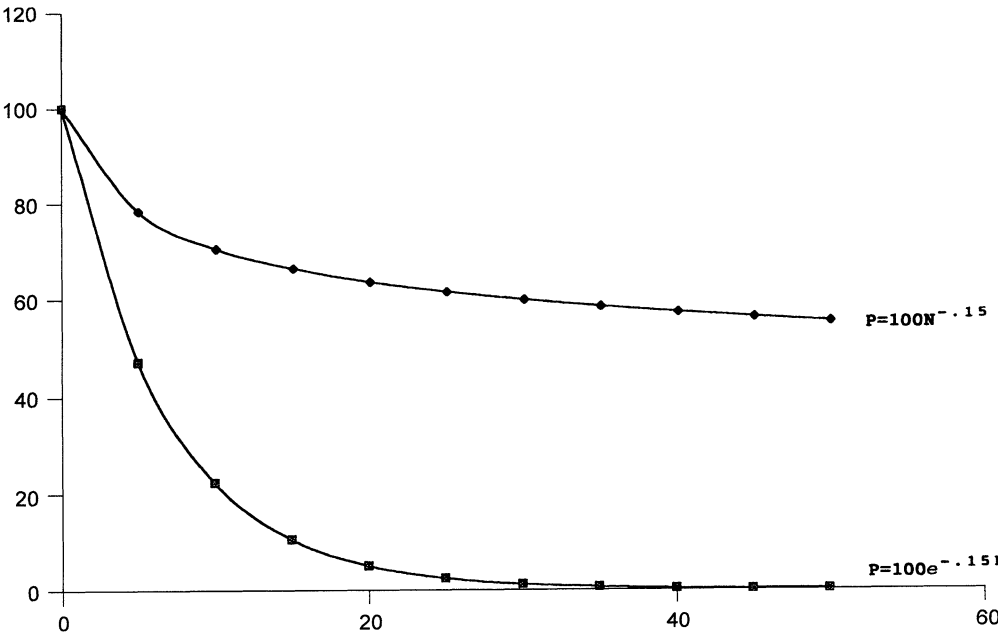


FIG. 2.2. Contrastive illustration of the course of performance improvement under exponential and power functions with equal values of B and α .

improves by some factor in n trials, it will take $n(n - 1)$ additional trials for performance to improve by that same factor again.

Prior Learning and Asymptote Effects. The equations for the exponential and power functions given to this point reflect a pair of simplifying assumptions. On one hand, it is assumed that there is no prior experience and that skill acquisition begins with the first learning trial. Furthermore, it is assumed that the eventual asymptote of performance is perfection (e.g., a task performed in zero time, or with perfect accuracy). In practice, of course, neither of these assumptions may hold; people may have previous training or experience that transfers to the new skill-learning environment; the realities of acting in the world may preclude the possibility of “perfect” performance. In light of these considerations, arriving at a skill-acquisition curve that provides a good fit to the performance data may require incorporating additional parameters into the basic equations given earlier—an asymptote parameter representing performance level after an infinite amount of practice and an experience parameter that represents amount of prior learning (expressed in the same units as the N , or number of trials, parameter). For the exponential function there is no specifiable effect for prior experience, but the effect of a performance asymptote, A , can be represented in the following extension of Equation 1:

$$P = A + Be^{-\alpha N}. \quad (3)$$

For the power function, both prior experience, E , and asymptote effects, A , can be represented, as in this extension of Equation 2:

$$P = A + B(N + E)^{-\alpha}. \quad (4)$$

Linear Transformations. Both the exponential and power functions can be expressed in linear terms via log transformations, a fact that makes it possible to derive empirically based skill acquisition curves using standard least squares regression techniques. The linear form of the exponential function given in Equation 1 is as follows:

$$\log P = \log B - \alpha N, \quad (5)$$

and the exponential function with an asymptote term (Equation 3) is given by

$$\log(P - A) = \log B - \alpha N. \quad (6)$$

The linear form of the simple power function given in Equation 2 is

$$\log P = \log B - \alpha \log N, \quad (7)$$

and the power function with asymptote and prior-learning parameters (Equation 4) is given by

$$\log(P - A) = \log B - \alpha \log(N + E). \quad (8)$$

The Course of Perceptual, Motor, and Cognitive Skill Acquisition

At the outset of a discussion of empirically derived skill-acquisition curves a pair of caveats are in order. The first of these concerns the possibility that the course of skill acquisition, at least for some types of tasks, may reflect plateaus, or periods of no

improvement. The existence of plateaus is a matter of some controversy (see Lane, 1987), but to the extent that such periods do arise in the course of practice, they present a challenge for both the senses of “model” mentioned above. That is, on one hand they suggest the need for more elaborate explicative frameworks capable of accounting for such “flat spots,” and on the other they implicate more complex learning functions than are captured by the families of power and exponential curves reviewed earlier.

The second, related, caveat concerns the derivation and interpretation of skill-acquisition curves based on group versus individual data. By aggregating time-series performance data over people, it is possible to arrive at a single estimate of average learning performance (i.e., a single skill acquisition curve), just as when a single measure of central tendency, such as the mean, is used to represent an entire group’s exam score. At the same time, however, such composite measures may obscure individual variations in the course of skill development and, even more important, may also obscure significant deviations from power and exponential trajectories (see Lane, 1987). Again, the families of power and exponential functions discussed earlier do not capture plateaus in the course of practice, but even if such plateaus do arise, either for certain individuals or for everyone, a skill-acquisition curve based on aggregate data may still be closely modeled by power or exponential functions, as long as the location of the plateaus varies with people (i.e., if some people reach a plateau earlier in the course of practice than others).

Because both the exponential and power functions can take a decelerating trajectory like that known to approximate the course of skill development, it should not be surprising to learn that each has received some measure of empirical support in investigations of perceptual, motor, and cognitive skill acquisition. However, despite the fact that the exponential curve has sometimes been shown to provide a very good fit to the performance data (e.g., Digman, 1959; Noble, Salazar, Skelley, & Wilkerson, 1979), contrastive reviews suggest the relative superiority of the power function.

Although they do not consider the power function *per se*, Mazur and Hastie (1978) do contrast the fit provided by the exponential function with that of the hyperbolic function. In its simplest form the hyperbolic function is given by

$$P = B/N \quad (9)$$

or equivalently

$$P = BN^{-1}. \quad (10)$$

Contrasting Equation 10 with Equation 2 reveals that the hyperbolic function can be viewed as a special case of the power function in which α is equal to 1.⁹

Mazur and Hastie (1978) reported the analysis of data from seven free-recall studies involving various stimulus-presentation conditions in which they contrasted the fit to the performance data provided by the exponential and hyperbolic functions. Of 23 comparisons, the hyperbolic function fared better in 21 cases, accounting for an

⁹With asymptote and prior learning parameters, the hyperbolic function is given by the following equation:

$$P = A + B/(N + E).$$

Cast in the more general form of a power function, the hyperbolic function is given by

$$P = A + B(N + E)^{-1}.$$

average of approximately 98.4% of the variance versus 94.2% for the exponential function.

More relevant to the focus of this chapter, the same authors reported contrastive tests involving data from studies of acquisition of a variety of motor and cognitive skills including typing, addition, mirror tracing, and printing inverted letters. Of 56 comparisons, the hyperbolic model accounted for a greater portion of the variance in 47 cases, although the overall difference in mean variance explained was negligible (hyperbolic function $M = 95.7$; exponential function $M = 95.6$).

In what has become the most widely cited and influential treatment of this issue, Newell and Rosenbloom (1981) contrasted the relative adequacy of exponential, hyperbolic, and power functions for fitting the data from 11 studies of manual and cognitive skill acquisition, some of them the same as those examined by Mazur and Hastie (1978). Once again, all three models performed reasonably well, but of 15 comparisons, the power law accounted for the largest proportion of the variance in the performance data in all 15 cases (in three instances, the hyperbolic function performed equally well). Approximate mean R^2 values for the power, hyperbolic, and exponential functions were .863, .810, and .731, respectively. On the basis of their analysis, Newell and Rosenbloom (1981) concluded that the course of skill development does not follow an exponential trajectory. Instead, the course of performance improvements with practice is given by a power function (with the hyperbolic as a special case), and this "power law of practice" holds "over all types of mental behavior" (p. 34).

A third published examination of the relative adequacy of the exponential, hyperbolic, and power functions, this by Lane (1987), suggests a similar conclusion. Using data drawn from eight studies, none of which were included in the earlier reviews by Mazur and Hastie (1978) or Newell and Rosenbloom (1981), Lane (1987) conducted 15 contrastive tests. Of these, in not a single case did the exponential function yield the best fit to the performance data. The power function produced the largest R^2 value in three cases, and the hyperbolic function accounted for the greatest portion of the variance in another seven cases. Interestingly, a fourth function examined by Lane (this constructed by taking the log of N , or trial number, and leaving P , the measure of performance quality, untransformed), performed as well or better than any of the other models in seven instances. Approximate mean R^2 values for the exponential, power, hyperbolic, and log- N functions in Lane's study were .837, .930, .930, and .935, respectively. Given these results, Lane (1987) concluded the following:

The power law and its underlying assumptions continue as the most interpretable candidate for description of performance changes with practice. The hyperbolic represents, for at least some types of data, a powerful and mathematically economical alternative to the basic power function. For the few cases we examined, the exponential is less appropriate than its broad base of support from the literature suggests. (p. 45)

In many cases, the behaviors under examination in studies of the course of skill acquisition have involved relatively simple perceptual and motor tasks. Of somewhat greater interest to those concerned with communication skills are those studies indicating that the course of improvement in fundamental, but symbolically based, skills such as typing (e.g., Gentner, 1983) and reading (under various experimenter-constructed conditions) (e.g., Kolars, 1976) is described by a power law. Perhaps most significant, however, is the fact that the power function has been shown to capture the course of performance improvements for considerably more complex cognitive

and behavioral skills as well. Thus, relatively abstract skills such as learning a new programming language (e.g., Anderson, Conrad, & Corbett, 1989) and application of complex hierarchical rule sets (e.g., Woltz, 1988) also appear to conform to a power function (but see Carlson & Lundy, 1992).

Modeling the Course of Communication Skill Development

In contrast to the rich literature on acquisition of perceptual, motor, and cognitive skills, there have been relatively few attempts to examine the course of *communication* skill acquisition. When such investigations have been undertaken, however, they do tend to support the applicability of the power function in the realm of communication behaviors. As an example, MacKay (1982; see also MacKay, 1981) presented subjects with preformulated sentences that they simply were to repeat a dozen times. With time to produce each repetition as the measure of performance quality, the course of improvement was found to reflect a power function, although no measure of the extent to which the data conformed to the power law was given, nor did MacKay indicate whether his data might have been fit equally well, or better, by other functions. As part of this study, MacKay also contrasted time to produce aloud the 12 repetitions of each stimulus sentence with the time required to mentally traverse similar sentences. Interestingly, covert traversal of the sentences was significantly faster than overt production, but the time required to execute 12 covert repetitions of the stimulus sentences also reflected a power-function speedup. MacKay (1982) interpreted these results in the terms of his model of strengthening of associative links in a hierarchical node system outlined above.

Like the results reported by MacKay (1982), a series of studies undertaken by Greene and his associates (Caplan & Greene, 1999; Greene, Rucker, Zauss, & Harris, 1998; Greene, Sassi, Malek-Madani, & Edwards, 1997; Sassi & Greene, 1998) suggests that the course of message production skill acquisition does conform to a power function. In an effort to lay the groundwork for systematic investigation of adult communication-skill acquisition, these researchers sought to identify a communication skill that was novel to the subject (to ensure that the process of skill development could be observed from its earliest stages), permitted large numbers of performance trials, and avoided rote repetition of the same linguistic content from trial to trial. Toward this end, they adopted as their target skill a simple, six-step organizing scheme for describing geometric arrays (see Greene et al., 1997). Training in use of message-organizing schemes has a long history in communication education in which students are taught to employ organizational sequences in public speaking, interviewing, group discussion, and so on.

In their first investigation of the course of acquiring this message-organizing skill, Greene and his colleagues (Greene et al., 1997, Study 1) had five subjects employ the organizing sequence in describing a series of 150 geometric arrays. Quality of performance was assessed as the time required to complete each description and as the number of errors (i.e., omissions, transpositions) in applying the steps of the organizational scheme. Comparison of the fit to the message-duration data provided by the exponential and power models (Equations 1 and 2) revealed that the power function accounted for a greater portion of the variance in the case of all five subjects (mean R^2 values of .714 vs. .562 for acquisition curves based on the raw data, and means of .874 vs. .706 for curves based on data smoothed by taking running averages over sets of five data points). Aggregating over the five subjects, the power function accounted for 91.1% of the variance in the message-duration data.

The analysis of the error data in this study similarly indicated the superiority of the power model over the exponential function, but, beyond this, also served to illustrate an important point concerning the appropriateness of certain types of performance measures for deriving skill-acquisition curves. As with the message-duration data, the power model proved superior to the exponential function in the case of every individual subject, both for the raw data (mean R^2 values of .221 vs. .096) and for the data smoothed by taking a running average (mean R^2 values of .336 vs. .160). Aggregating over the five subjects, the power function accounted for 38.8% of the variance in the error data.

The fact that the R^2 values for the error data in this study are markedly lower than those for the message duration data is not atypical (see Anderson, 1992). In part, this phenomenon may be seen to arise from the fact that performance errors tend to occur intermittently, thus producing a “noisier” time series. Beyond this, error-rate data are characterized by a floor-effect in the sense that, unlike duration measures, once a person reaches the point of error-free performance, it is no longer possible to continue to improve.

Like this first study, two additional studies reported by Greene et al. (1997) support the applicability of the power law to the acquisition of message production skills. In their second study, employing the same six-step organizing sequence and 150 message trials but with slightly different instructions, the power model was again found to provide a better fit to the message duration data than the exponential model in the case of all five subjects, accounting for an average of 53.3% of the variance in the raw data and 74.8% of the variance in data smoothed by taking a running average.

The final study reported in Greene et al. (1997) produced some particularly noteworthy results. In this case, a single subject employed the six-step organizing sequence in producing a series of 300 messages over the course of a 5-day period. Two weeks later, with no prior warning, the subject was asked to produce an additional 30 descriptions using the organizational scheme she had learned before. The data from this study are given in Fig. 2.3. Once again, the power function provided a better fit to the message duration data ($R^2 = .759$) than did the exponential model ($R^2 = .544$). It is particularly remarkable that on the fifth day, after 250 previous message trials, the subject was still improving. Finally, as might be expected, after a 2-week interval she was quite slow in producing the first of the final 30 descriptions, but she quickly returned to her prior level of performance.

Although the results reported by MacKay (1982) and by Greene and his collaborators (e.g., Greene et al., 1997) indicate that the acquisition of certain message production, or output, skills follows a power function, there is also evidence that execution of various input-processing tasks such as are involved in person perception and attribution may likewise be characterized by the power law of practice. Drawing on Anderson’s ACT* theory discussed earlier, Eliot Smith and his associates (e.g., Smith, 1989b; Smith, Branscombe, & Borman, 1988; Smith & Lerner, 1986) examined changes as a function of practice in the speed with which subjects were able to execute a variety of social judgment tasks. As should be expected, their results indicate that performance improves only under certain conditions,¹⁰ but where significant speedup in task execution does occur, the course of improvement appears to be captured by a power function. In a representative study from this program of

¹⁰Most notably, there must be some element of repetition or consistency in responding for practice effects to emerge (see Smith et al., 1988; Smith & Lerner, 1986), a common observation in studies of the course of skill acquisition (see Carlson & Lundy, 1992; Duncan, 1986; Schneider & Shiffrin, 1977).

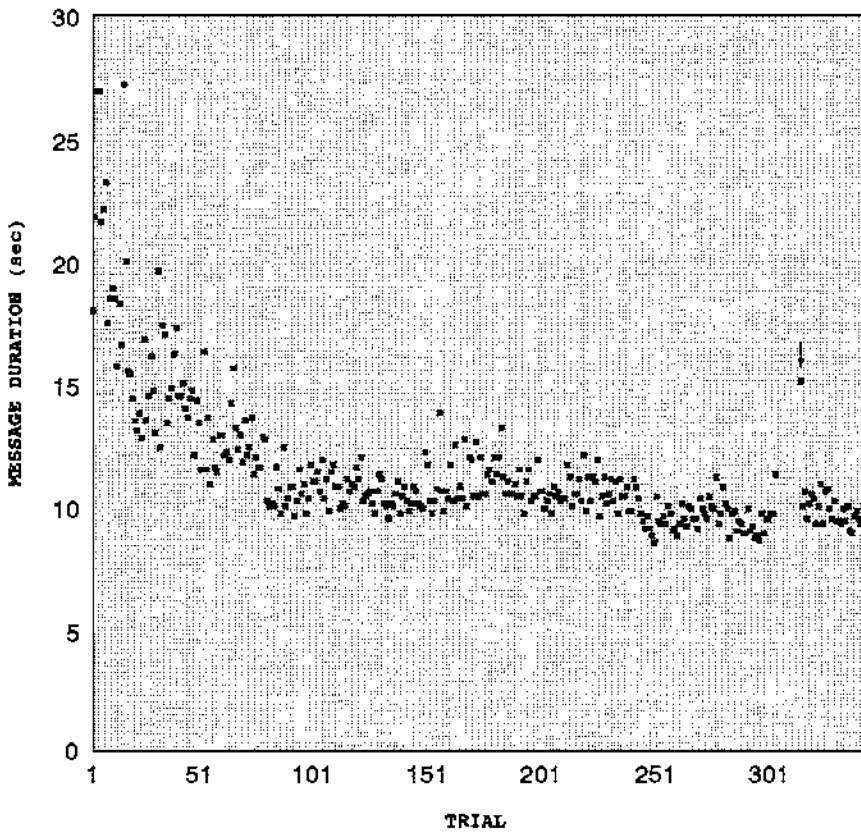


FIG. 2.3. Course of acquisition of a simple message production skill. From Greene, Sassi, Malek-Madani, and Edwards (1997), Study 3.

research, Smith (1989b) had subjects make a series of 200 judgments about whether specific behaviors were indicative of a target trait. Thus, on a particular trial subjects might be asked whether the action of *seducing* (behavior) another person would be characteristic of the trait *friendly*. Smith's (1989b) results indicated that, with data aggregated over 32 subjects, response times were fit by a power curve, although the R^2 value for the power function was somewhat low for aggregated data (.42), and the fit of other functions was not examined.

At one level, the sort of judgment task under examination in this and related studies can be seen to be important because such behavior-to-trait judgments are central to everyday processes of person perception and inference making (Smith, 1989a; Smith et al., 1988). Beyond this, Smith (1989a) traced some noteworthy implications of speedup in social-judgment and other input-processing tasks. Specifically, he suggests that the increased processing efficiency resulting from practice should lead to greater availability, and application, of relevant trait categories, systematic biases in favor of particular interpretations and stereotypes (see also Sedikides & Skowronski, 1991), and heightened salience of frequently accessed attitudes, with a concomitant increase in attitude-behavior consistency (see also Fazio, 1986).

To summarize this section, there have been relatively few empirical investigations of the course of communication skill acquisition that extend over more than a handful of performance trials. Where such studies have been undertaken, however,

they do tend to indicate that the acquisition of communication skills conforms to the same power law of practice that has been shown to characterize the development of cognitive and motor skills, and this appears to be true for both message production and social judgment tasks. At the same time, it is important to recognize that the research conducted to date is somewhat limited in that it has focused on relatively simple, noninteractive tasks. There is a need, then, to extend the analysis of skill acquisition functions to more complex communication processes, involving both verbal and nonverbal dimensions of behavior, in more fully interactive social contexts. Furthermore, it should be noted that in the studies of message production skill acquisition reviewed in this section, subjects were provided immediate corrective feedback when they made errors in applying the organizing sequence they had learned. Such feedback may be a component of many skills training programs but is much less likely to occur in everyday social interactions where inappropriate actions may not be noted or sanctioned.¹¹ At this point, the course of message production skill acquisition in the absence of performance feedback remains unexplored.

PERSON FACTORS AND THE COURSE OF SKILL ACQUISITION

Although it appears that the course of skill acquisition is typically described by the general family of power functions, it should be clear that the specific shape of a skill-acquisition curve may be influenced by a host of individual-difference, task, and training variables. People might reasonably be expected to differ in their initial levels of performance quality, to acquire skills at different rates, to achieve varying levels of asymptotic performance, and so on. Similarly, both intuition and experience tell us that the requirements of specific tasks, and the structure and content of various training programs, will influence the course of skill acquisition.

The fact that skills—communication and otherwise—appear to develop according to a power law suggests the possibility of systematic and rigorous examination of the impact of person, task, and training variables on the course of skill development. Returning to Equation 2, with measures of performance quality, P , and number of performance trials, N , available for each subject, it is relatively easy to arrive at estimates of the learning-rate parameter, α , and the y-intercept of the learning curve, B , for each person. These data can then be treated as any other dependent variable in analyses of the impact of individual-difference and situational factors. Similarly, by applying Equation 4, one can arrive at estimates of degree of prior learning, E , and asymptotic performance level, A . Finally, although the R^2 value for empirically derived skill acquisition curves was treated above as a means of adjudicating between alternative families of functions (i.e., power and exponential), it should also be apparent that R^2 values for individual learning curves are themselves of considerable conceptual importance because they can be taken to reflect the level of “noise” in the time-series data (i.e., variations in performance quality from trial to trial). Derivation of parameter values for individual learning curves, then, affords the potential for identifying, in a relatively precise way, the manner in which person, task, and training variables impact the course of changes in performance quality.

Although it is certainly possible to distinguish a number of different types of person variables, two broad categories are particularly relevant for understanding skill acquisition processes. On one hand, there are what we might generally label as “traits,” that is, relatively enduring dispositions and capacities including such things as

¹¹I am indebted to Walt Zakahi for this observation.

personality factors, intelligence, and cognitive style. On the other, there are “states,” or transient intrapersonal conditions such as level of arousal, stress, and anxiety. In the following sections, the impact of these two classes of person variables is considered in turn.

Trait Variables and the Course of Skill Acquisition

It has been observed that the number of traitlike terms in the English language runs into the thousands (e.g., Allport, 1937), and perusal of the journals of social science reveals that scores, or, more likely, hundreds, of these traits have been the object of efforts at operationalization and empirical investigation. Indeed, in all the study of human behavior there may be no more common research design than that involving assessment of some traitlike variable followed by observation of the impact of that variable, either in isolation or in conjunction with situational factors, on some target response. In the vein of the humorous (and the incisive), the proliferation of trait constructs, inadequate research designs, and the absence of integrative theoretical frameworks has led Block (1977, p. 39) to refer to the body of work in the area as the trait “litter-ature.”

The sheer number of trait constructs suggests that the list of individual-difference variables that might, in some way, under some conditions, impact the course of skill acquisition could be a long one indeed. Of course, the best source of clues for identifying those trait variables that are likely to play a particularly important role in skill acquisition is the skill acquisition process itself, that is, our understanding of the mechanisms underlying skill development can be seen to provide a principled basis for identifying relevant individual-difference variables.

It is just this sort of approach that is exemplified in Ackerman's (1988, 1990; Kanfer & Ackerman, 1989) model of the role of individual differences in skill acquisition. With the assumption that the course of skill acquisition reflects the sort of three-stage process described by Fitts (1964; Fitts & Posner, 1967) and Anderson (1982, 1983; Neves & Anderson, 1981) as his starting point, Ackerman identified three general classes of individual-difference variables that should be expected to play a role in acquiring a skill. Of particular significance is the fact that each of these groups of variables is held to exert its primary influence during a different stage of the skill acquisition process.

In the initial (i.e., declarative) stage of skill acquisition, when skill-relevant information is held in declarative form, performance is seen to be determined by general intellectual abilities, or intelligence. In other words, when the person is executing a task by relying on verbal or written instructions and other declaratively based information, the ability to reason and manipulate that information is of paramount importance in determining his or her level of performance. Thus, tests of intelligence, reasoning ability, and so on should be expected to be associated with performance quality early in the course of skill acquisition. Furthermore, because intellectual ability appears to be related to individual differences in working-memory capacity (see Kyllonen & Christal, 1990), measures of the extent to which people are able to keep material activated for use in ongoing activities should be an important predictor of performance early on. Cast in a slightly different way, when task-relevant information is held in declarative form, the ability to keep those facts and instructions active in working memory will be a key limiting factor in determining the level of one's performance (see Kanfer & Ackerman, 1989; Kyllonen & Woltz, 1989; Woltz, 1988).

As skill acquisition progresses beyond the declarative stage, general intellectual ability and working-memory capacity should exert diminishing influence on performance. According to Ackerman, in the second phase of skill acquisition (i.e., “knowledge compilation”), where task-specific knowledge structures are developed, rate of performance improvements should be determined by the speed with which people are able to form new procedural encodings. He further suggested that such individual differences can be tapped by measures of speed of information processing like the digit–symbol substitution test (see Wechsler, 1981). Thus, once skill acquisition moves beyond its earliest, declarative stage, tests of the speed with which people are able to form new productions, as tapped by various measures of speed of information processing, should become increasingly important in determining rate of performance improvement.

As practice continues, the individual enters the final, or “procedural” stage of skill acquisition. At this point, relevant productions have been compiled, and as a result, speed of information processing becomes less important in determining performance quality. According to Ackerman, in the final stage of skill acquisition, when knowledge structures are strengthened through use, the primary limiting factor on performance arises from the ability to execute motor responses with speed and accuracy. Individual differences in psychomotor ability, then, should become increasingly important late in the course of skill acquisition when the cognitive demands of the task have been reduced to a minimum.

Ackerman’s model of the role of individual differences in skill acquisition has found a considerable measure of support in studies of cognitive and motor tasks such as identification of items from a memory set and air traffic control simulations (e.g., Ackerman, 1988, 1990; Eyring, Johnson, & Francis, 1993; Kanfer & Ackerman, 1989; Woltz, 1988; but see Matthews, Jones, & Chamberlain, 1992; Mumford, Baughman, Uhlman, Costanza, & Threlfall, 1993). There is less evidence, however, bearing on the issue of whether these same sorts of patterns might extend to cases of communication skill acquisition. To date, only a pair of studies conducted by Sassi and Greene (1998) have attempted to ascertain whether the three classes of individual-difference variables identified by Ackerman do, indeed, impact the course of message production skill acquisition in a manner consistent with his model.

As their target skill, Sassi and Greene (1998) employed the same organizational sequence for describing geometric arrays used in the Greene et al. (1997) studies discussed earlier. Following Ackerman, they sought to examine the impact of working-memory capacity, speed of information processing, and psychomotor ability (i.e., the speed with which people could read aloud a short sample description) on the course of performance improvements. More specifically, Sassi and Greene hypothesized that working-memory capacity would have its greatest impact at the beginning of the practice trials, that speed of information processing would be positively related to overall learning rate, or α , and that psychomotor ability would become an important predictor of performance only very late in the series of performance trials. The results of Sassi and Greene’s first study indicated only limited support for these hypotheses. Contrary to their expectations, working-memory capacity was not related to initial performance quality, and speed of information processing was negatively, rather than positively, related to the learning-rate parameter, α . Only psychomotor ability proved to be related to asymptotic performance in the way that the experimenters had expected. In the face of these results, Sassi and Greene reasoned that their task may not have been difficult enough to produce the sorts of effects they had hypothesized; that is, the relatively simple six-step organizing sequence may not

have been complex enough to place a heavy demand on working-memory capacity (so that no effects for this individual-difference variable were observed), and those subjects who were highest in speed of information processing may have already mastered the sequence before the first performance trial, so that they actually had lower, rather than higher, α values. In their second study, Sassi and Greene sought to examine this possibility by having their subjects learn two distinct six-step organizing sequences, either of which might be designated for use on any given trial. With this added degree of difficulty, their results were in line with the original hypotheses: Working-memory capacity was a significant predictor of initial performance quality, speed of information processing was positively associated with learning rate, and, once again, psychomotor ability was related to asymptotic performance.

Thus, although the body of relevant research is small, there is some evidence suggesting that the course of message-production skill is influenced by individual-difference variables in a manner consistent with Ackerman's model. At the same time, it is important to sound a note of caution in attempting to generalize beyond the relatively constrained experimental paradigm employed by Sassi and Greene, in which the skill under examination is explicitly delineated and time to produce each message is taken as the measure of performance quality, to the broader domain of message-production skills. Ackerman's model has the advantage of providing a theoretically grounded approach to the study of the role of individual differences in skill acquisition, but at this point it is probably best taken as suggestive when applied to the domain of social behavior.

In addition to the sorts of individual-difference variables implicated in Ackerman's model, a noteworthy extension of that model developed by Eyring et al. (1993) incorporates self-efficacy as a factor held to influence learning rate. These authors suggested that self-efficacy is associated with greater effort and task-directed attention and, as a result, should lead to more rapid acquisition of new skills. Test of this prediction in an air traffic control simulation indicated that perceptions of self-efficacy were, indeed, related to an exponential learning-rate parameter reflecting the time required to reach asymptotic levels of performance.

In an approach that shares much in common with that of Ackerman, Mumford and his associates (e.g., Mumford, Baughman, Uhlman, et al., 1993; see also Mumford, Baughman, Threlfall, Uhlman, & Costanza, 1993), sought to relate a variety of personality traits, including achievement motivation, temperament, rigidity, and locus of control, among many others, to the course of cognitive-skill acquisition. They suggested that in the initial stage of skill development, personality factors related to adaptation and flexibility, desire for mastery, and self-observation and regulation will be particularly important. With the onset of the second stage of skill development, Mumford argued that personality variables associated with accurate information encoding and attentional focus on the task at hand will exert greatest influence on performance. Finally, in the third stage of skill development in which the task becomes increasingly routinized, self-discipline and preference for the predictable and routine might be expected to be key determinants of performance quality. In a study of skill acquisition involving a relatively complex industrial simulation, Mumford (Mumford, Baughman, Uhlman, et al., 1993), was able to demonstrate that, in a manner generally consistent with expectations, the configuration of personality variables influencing performance did shift as subjects became increasingly familiar with the task. To date, however, this model has not been extended to the domain of interpersonal behavior, and its applicability and implications for understanding the influence of personality factors on the development communication skill must await future research.

State Variables and the Course of Skill Acquisition

In contrast to the sorts of enduring dispositions and capacities considered in the previous section, the focus here is on intrapersonal conditions that change over relatively short time spans. Such "state" variables, then, would include a host of factors relevant to the quality of one's social performance, including arousal level, stress, and fatigue.

Of all state variables, none has been more extensively investigated by communication researchers than that of communication anxiety or apprehension (see Booth-Butterfield, 1991; Daly & McCroskey, 1984; Leary, 1983; Patterson & Ritts, 1997). High levels of communication anxiety are often associated with performance deficits, and skills training programs are seen as one means of alleviating anxiety and its attendant behavioral manifestations (see Allen, Hunter, & Donohue, 1989; Glaser, 1981; Hopf & Ayres, 1992). At the same time, the very nature of the cognitive mechanisms that give rise to communication anxiety may serve to impede the skill acquisition process. It has been observed by a number of researchers (e.g., Greene & Sparks, 1983; Leary, 1983; Patterson & Ritts, 1997; Sarason, Sarason, & Pierce, 1991) that heightened levels of communication anxiety tend to be elicited by rumination about evaluation, personal ability, and self-presentation. These distracting, off-task thoughts, then, might be expected to negatively impact the course of skill acquisition.

The effect of anxiety on message-production skill acquisition has been examined in a study by Greene et al. (1998) involving the same training in use of an organizational sequence for describing geometric arrays that was discussed previously. As in the case of other studies employing this experimental paradigm, a skill-acquisition curve was derived for each subject using Equation 2. Estimates of B , the intercept of the skill-acquisition curve, α , the learning-rate parameter, and R^2 , a measure of the noise, or variability in performance quality, were then correlated with the subjects' level of self-reported anxiety. Consistent with the idea that a state of communication anxiety is accompanied by distracting ruminations and concerns with evaluation, highly anxious subjects were shown to have higher B values, indicating slower, more hesitant performance at the outset of learning, lower values of α , indicating slower rates of improvement, and lower R^2 values, indicating greater variability in performance quality from trial to trial.

In addition to anxiety level, there are a number of other state variables that are known to affect performance quality and that might reasonably be expected to influence the course of skill acquisition. Unfortunately, despite the obvious need for research in this area, there have been virtually no studies examining the impact of these state variables on social skill acquisition functions. A particularly obvious candidate for investigation along these lines is arousal level. Although the very nature and status of the arousal construct is the subject of some controversy (see Anderson, 1990; Näätänen, 1973; Neiss, 1988, 1990; Sparks & Greene, 1992), there is at least some evidence indicating that various physiological measures that could be considered to be indicants of arousal are related to performance and that these effects extend to the domain of message processing (e.g., Cacioppo, 1979; Sanbonmatsu & Kardes, 1988). Of particular relevance is the idea that the function relating performance to arousal level takes the form of an inverted U such that moderate levels of arousal are associated with optimal responses (see Easterbrook, 1959; Humphreys & Revelle, 1984; Koob, 1991; Yerkes & Dodson, 1908; see also Näätänen, 1973; Neiss, 1988). Humphreys and Revelle (1984) suggested that the shape of this function is the result of two distinct information-processing components, one supporting sustained information transfer,

which increases with arousal, and the other, related to short-term memory, which diminishes as arousal level increases. To the extent, then, that acquisition of particular communication skills involves either or both of these components, we might expect that arousal will impact the course of performance improvement. However, because the degree to which information transfer and short-term memory are involved in task performance will likely change as practice continues, such effects may occur only during specific stages of skill development.

Just as it is possible to construct a plausible case for the impact of arousal on skill acquisition, the same might be done for other state variables such as those related to circadian rhythms, stress, fatigue, and the influence of various drugs (see Hartley, Morrison, & Arnold, 1989; Hockey, 1979; Pennebaker, 1989; Proctor & Dutta, 1995). Systematic examination of the impact of these and other state variables on communication skill acquisition clearly would have considerable theoretical and practical significance and should be made a point of focus for future investigations.

Aging and the Course of Skill Acquisition

To this point our review of the role of person factors in communication skill acquisition has focused on traits, or enduring capacities and dispositions, and states, or transient intrapersonal conditions. A consideration of person factors would not be complete, however, without mention of the impact of aging on the course of skill acquisition. In light of the graying of the populace and growing efforts to integrate the elderly into social and work settings, it is not surprising that issues of social and communication skill among older adults have garnered increasing attention (see Giles, Coupland, & Wiemann, 1990; Hummert, Wiemann, & Nussbaum, 1994; Nussbaum & Coupland, 1995). To be sure, most of this research has focused on contrasting the performance levels and characteristics of younger and older adults, but there are a small number of studies that have examined *acquisition* of various message-production and processing skills by the elderly (e.g., Hoyer, Lopez, & Goldstein, 1982; Lopez, 1980). Unfortunately, of this latter group, few studies have attempted to address the course of performance improvements by recourse to analysis of skill-acquisition curves (but see the discussion of Caplan & Greene, 1999, later).

Moving beyond the realm of social and communication skills, one encounters an enormous literature on performance of various motor and information-processing tasks by the elderly (see Birren & Schaie, 1990; Craik & Salthouse, 1992; Hess, 1990). From this research, three pertinent generalizations emerge. First, performance by older adults on a variety of tasks tends to be slower and less proficient than that of their younger counterparts, an effect that appears to be particularly strong in the case of tasks that place a premium on time,¹² (and which extends to at least certain aspects of message production and processing as well, see Kemper & Hummert, 1997; Light, 1988; Stine & Wingfield, 1990). Second, the performance deficit exhibited by the elderly tends to be especially pronounced with novel and more difficult tasks, a phenomenon known as the “complexity effect” (see Cerella, Poon, & Williams,

¹²Performance on information-processing tasks such as those employed in the study of adult skill acquisition are characterized by speed-accuracy trade-offs, and evidence suggests that, relative to their younger counterparts, older adults tend to adopt a more conservative response strategy that emphasizes accuracy over speed (e.g., Charness & Campbell, 1988; Strayer & Kramer, 1994). Nevertheless, with differences in accuracy controlled, older adults tend to perform more slowly than young adults.

1980; Cornelius, 1984). Finally, as with younger adults, performance by the elderly improves with practice.

On the issue of whether the course of skill acquisition (particularly learning rate) differs for younger and older adults, the evidence to date is mixed. Some studies have indicated similar, or even greater, skill acquisition rates for elderly adults (e.g., Fisk & Rogers, 1991; Noble, Baker, & Jones, 1964; Parasuraman & Giambra, 1991; see also Charness, 1989). For example, Salthouse and Somberg (1982) examined the effects of practice on performance of very simple tasks such as signal detection, memory scanning, and visual discrimination. Their results indicated that although older adults were consistently slower in carrying out these tasks, there were also age-by-practice interactions indicating that the older subjects evidenced greater absolute improvement over the course of practice (i.e., steeper learning curves) than did the younger adults. More recently, however, a memory-scanning study by Strayer and Kramer (1994) indicated that not only did younger adults achieve more rapid asymptotic reaction times than the older subjects, they also exhibited higher rates of skill acquisition. A study of more complex mental operations conducted by Charness and Campbell (1988) indicated that practice in multiplication and squaring one- and two-digit numbers reflected the familiar power function speedup. Moreover, analysis of the performance of young ($M = 24$ years), middle-aged ($M = 41$ years), and older adults ($M = 67$ years), indicated that although for some classes of problems there were no differences in the values of the learning-rate parameter, α , for other types of problems, the middle-aged group tended to exhibit greater skill-acquisition rates than either their young or old counterparts.

Turning to acquisition of communication skills, Caplan and Greene (1999) employed the description of geometric figures paradigm used in other studies reviewed here to investigate the effects of age and task complexity on the course of message production skill acquisition. Their design involved having young ($M = 24.6$ years) and old ($M = 80.9$ years) adults learn either a three- or six-step organizing sequence for describing geometric arrays. The results of this study indicated that the older group exhibited slower overall responses than their younger counterparts and that, consistent with the complexity effect, this difference was more pronounced for those subjects learning the more complex, six-step sequence. Even more relevant to our present concerns, the older group was found to have lower skill acquisition rates, particularly when learning the more complex skill.

CONDITIONS AND TYPES OF PRACTICE

As noted at the outset, a fundamental characteristic of communication skills is that they develop over time through use. For this reason, this review has emphasized the role of implementation, or practice, in skill acquisition. The focus has been on modeling performance quality as a function of amount of practice, a function that, as we have seen, typically conforms to the family of power curves. Practice, then, has assumed a central conceptual and empirical role in our treatment of skill acquisition. Thus far, however, little space has been devoted to discussion of varieties and conditions of practice and their effects on skilled performance. In essence, practice has been treated as if it is all interchangeable—as if any practice trial is equivalent to any other in its impact on performance. Intuition and experience, on the other hand, tell us otherwise; we understand that all practice is not created equal, that some practice is more, or less, effective in bringing about performance enhancements. Indeed,

it should be apparent that under certain conditions, practice may lead to no performance enhancements at all. Doubtless the most obvious case in this regard is that in which the performance trials involve repeated application of the same suboptimal or inappropriate techniques, particularly in the absence of knowledge of results or other performance feedback (see below).

The preceding treatment of the course of adult communication skill acquisition, then, needs to be accompanied by a caveat reflecting the fact that the parameters that define skill acquisition functions may well be influenced by a number of factors involving conditions and types of practice. The magnitude of the learning-rate parameter, α , for example, is almost certainly greater under certain practice conditions and regimens than others. Unfortunately, to date, there simply are no studies reporting systematic examination of the effects of variations in conditions of practice on communication skill acquisition curve parameters. Nevertheless, the body of research on communication and social skill training and that on cognitive and motor skill acquisition does suggest what certain of the key practice variables might be.

As a prelude to this discussion, it is essential to note that much of the research relevant to the issues at hand has been conducted in the context of paradigms that involve a training, or *acquisition phase*, followed at some interval by assessment of *retention* or *transfer* of the new skill. The distinction between the performance gains observed during the training phase and those observed in tests of retention and transfer is crucially important because *practice conditions that facilitate the short-term, acquisition of new skills may actually result in a decrement in long-term retention and transfer.* Conversely, those practice conditions that tend to be associated with lower rates of acquisition often produce superior retention and transfer (see Schmidt & Bjork, 1992). This phenomenon is reflected in the familiar trade-off between “cramming” and spaced study for exams. Intensive study may, indeed, result in more rapid acquisition of the material, but at the cost of limited long-term retention. As a general principle it appears that training conditions that encourage alternative information-processing activities, such as are induced by the introduction of variations in stimulus configurations or response requirements over practice trials, have the effect of retarding the course of skill acquisition but with the benefit of improved retention and transfer to novel situations (see Lane, 1987, Proctor & Dutta, 1995; Schmidt & Bjork, 1992).

Deliberate Practice

Evidence from a variety of skill domains suggests that perhaps the most important factor in the development of proficient performance is not so much time spent in the activity as time spent on deliberate, focused efforts at improving one's performance (see Ericsson et al., 1993). According to Ericsson and his colleagues, simple repetition or use of a skill, even over an extended time period, is not sufficient to bring about maximal performance. Rather, what is required to achieve the highest levels of skill is highly structured activity in which people focus attention on the details of their behavior with an eye toward modifying and reorganizing their actions. Such deliberate practice, which Ericsson distinguished from “work” and “play,” is highly demanding, not intrinsically rewarding, and probably cannot be sustained for more than a short period each day. Although Ericsson and his colleagues did not address communication behaviors per se, the parallels with social-interaction skills are readily apparent. Through daily use people may acquire a behavioral repertoire that,

while adequate, remains in some sense suboptimal. Improved performance, then, may require deliberate practice in altering and refining one's actions.

Presentation and Grasp of Behavioral Ideals

A second key component of more effective practice regimens is inclusion of conditions that help to ensure the individual has a clear understanding of what he or she is to do or accomplish. Furthermore, when behavioral specifications are relatively abstract, it may be necessary to present examples of how those abstract behavioral objectives might be manifested in concrete response to. Of course, it is quite possible that performance may improve as a person continues carry out behaviors in a given task domain even in the absence of articulated behavioral ideals. That is a person may become faster, less error prone, and so on, without explicit presentation of optimal performance techniques and standards. Nevertheless, the slope of the skill acquisition curve, as well as the quality of asymptotic performance, is likely to be greater when practice is carried out with a clear understanding of what is to be done. It is not surprising, then, that social skill training programs routinely call for the presentation of behavioral models and instruction designed to ensure that the person has a grasp of behavioral ideals (e.g., Glaser, 1983; Kelly, 1989; Ladd & Mize, 1983; Trower, Bryant, & Argyle, 1978).

Provision of Timely Performance Feedback

A long tradition of research on cognitive and motor behavior suggests that a particularly important factor in the development of skill is that performance trials are accompanied by feedback, both information about the behavior itself, or *knowledge of performance*, and information about the outcomes and effects of that behavior, or *knowledge of results* (for reviews, see Adams, 1987; Bilodeau, 1969; Salmoni, Schmidt, & Walter, 1984). In other words, skill acquisition is facilitated when people are provided with information about what they did and whether that action was correct, effective, and so on. In the absence of such feedback, there is little basis for adjusting one's actions on subsequent trials. Evidence from research in these skill domains indicates that performance feedback is particularly important in the early stages of skill acquisition when the individual has little basis for critiquing his or her own performance. Furthermore, feedback tends to be more effective when it is delivered in a timely fashion, rather than after an extended delay. It is particularly noteworthy, however, that although more frequent feedback leads to better performance during the *acquisition* of motor skills, better long-term *retention* has been shown to be associated with less frequent or intermittent feedback (e.g., Schmidt, Young, Swinnen, & Shapiro, 1989; Winstein & Schmidt, 1990).

The principle that skill acquisition is facilitated when performance trials are followed by feedback is, of course, fundamental to instructional practices in virtually all communication skills courses and training programs, and although performance feedback in such settings can certainly vary in its quality, specificity, degree to which it is comprehensible and adapted to the needs of the recipient, and so on, it does appear that feedback in a variety of forms can have a beneficial effect on performance (see Book, 1985; Bourhis & Allen, 1998; Rubin, 1999), but, as might be expected in light of tremendous variations in content, style, and timing of feedback, such salutary effects do not always emerge (see Book, 1985; Hillocks, 1986).

Task Simplification

It should come as no surprise to discover that task difficulty is an important determinant of learning rate. Indeed, in the extreme case, a task may be so difficult as to virtually preclude performance improvement, even over the course of hundreds of practice trials (see Lane, 1987, pp. 49–51). For this reason, it is often desirable to simplify a complex task in some way to facilitate the process of skill acquisition. Such task simplification techniques include *segmentation*, in which sequential subcomponents of a task are practiced individually, *fractionation*, in which components that would normally be carried out simultaneously are isolated for practice, and *simplification*, in which the task is restricted to a subset of the entire range of activities that would be involved in expert performance (see Wightman & Lintern, 1985). Evidence suggests that the various part-task techniques are more effective than practicing an entire skill when the task is complex and can be broken down into independent subskills that can then be integrated relatively easily (see Lane, 1987; Proctor & Dutta, 1995; Wightman & Lintern, 1985).

Mental Practice

Our typical conception of practice is that it involves actual execution of the behavioral skills one is seeking to master. Those who want to become better hitters, spend time in the batting cage; those whose goal is to improve their ability as public speakers, negotiators, or interviewers, need to spend time actually engaged in the activities that contribute to expert performance in those domains. As the evidence reviewed thus far indicates, the value of overt performance in achieving greater proficiency can be enormous. At the same time, there is some reason to believe that simply engaging in mental rehearsal of the target behaviors may also result in improved performance. Analysis of the impact of mental practice on performance of motor skills indicates that, relative to conditions of no practice, mental practice does contribute to performance gains and that this effect is particularly pronounced for skills that incorporate cognitive components (Feltz & Landers, 1983). There is similar evidence that mental rehearsal of word strings leads to increasingly rapid overt production (MacKay, 1981, 1982). More directly relevant to development of social interaction skills, work on imagined interactions (e.g., Honeycutt, 1995; Honeycutt, Zagacki, & Edwards, 1992), suggests the potential for mental rehearsal in facilitating social interchanges. The key point is not that mental practice is equivalent to overt activity in its potential for bringing about enhanced performance or that mental practice can be employed as an alternative to actual task execution, but rather that the relative ease of establishing conditions for mental practice may allow many more repetitions of a skill than could be reasonably accomplished solely by recourse to overt action.

Spaced Practice

A final practice factor, that of “spaced” versus “massed” practice, merits mention here given its long history as the subject of investigation in the field of psychology (see Adams, 1987; Lee & Genovese, 1988), even though it may be less relevant to acquisition of social and communication skills where performance trials typically tend to be separated by significant time intervals. As might be expected, the effects of spaced practice depend heavily on the length of the interval between performance

trials, and long intervals are a detriment to skill acquisition. Nevertheless, it appears that opportunity to reflect on and consolidate information gleaned from a practice trial or trials before proceeding with additional trials has a beneficial effect.

SUMMARY AND IMPLICATIONS

This review of models of adult communication skill acquisition is guided by the observation that such skills develop over time through use. This principle is widely accepted and constitutes a fundamental warrant for much pedagogical practice, but it suggests a set of essential questions that have attracted only scant attention from those who study and teach communication skills. Among these questions are four that have been the focus of this chapter: (a) What is the nature of the cognitive mechanisms that give rise to changes in performance quality as a result of practice? (b) If performance improves as a function of practice, then what is the nature of the function relating changes in performance quality to amount of practice? (c) What individual-difference variables impact the course of skill acquisition and in what ways? and (d) What types of practice are more or less effective in bringing about performance improvements?

The first of these questions involves understanding *why* implementation, or practice, leads to enhanced performance. This issue has not been a major focus of theoretical efforts in communication, but, here and there, one can find models that shed some light on the problem. In the main, these models can be seen to appeal to three sorts of cognitive changes. Most obviously, performance improvements may arise from the acquisition of new knowledge structures, as when people learn more effective strategies for accomplishing their social goals. A second group of mechanisms invoked to account for improved performance are those by which existing knowledge structures are refined or adjusted in light of additional experience. Finally, a number of models invoke conceptions of “strengthening” of memory structures such that retrieval and utilization of those structures becomes more rapid and less effortful.

Beyond those theoretical frameworks focused primarily on social interaction and communication skills, a number of more general models of cognitive and motor skill acquisition have been developed. The most influential of these models, those developed by Fitts (e.g., Fitts & Posner, 1967) and Anderson (e.g., 1983), posit that skill development progresses through three stages: (a) an initial stage in which information about how to perform the skill is held in declarative form (i.e., a set of facts about how to carry out the task); (b) an intermediate stage in which the individual develops task-specific procedural structures that obviate the need for the original declarative encodings; and (c) a final stage that may extend over many years in which the relevant knowledge structures continue to be refined and strengthened through use. The result of this shift from declarative to procedural knowledge structures, and the subsequent strengthening of those structures, is seen to result in behavior that is increasingly more rapid, accurate, and effortless.

The notion of a qualitative shift in the nature of the memory representations involved in skilled performance suggests some important considerations for the design of skills training programs. For example, because the factors that contribute to effective establishment of a factual understanding of the skill may not be the same as those that lead to refining and strengthening of appropriate procedural structures, the training techniques that work best at one point in the course of skill development may not be particularly effective at another. Similarly, because people's conception of what they are required to do is likely to change as the skill develops, the nature of the feedback that is most effective and useful is likely to change as well. Finally,

it may well be that possession of an adequate conceptual grasp of the skill is not enough to provide a basis for acceptable performance. That is, a person may have a good declarative command of what is required but still lack an understanding of how that knowledge could be implemented in actual behavior (see Greene, 2000). As a result, training in the factual foundations of the skill may need to be accompanied by materials and exercises designed to ensure that the learner is able to translate his or her factual understanding into actual performance.

The tendency for performance to improve over time gives rise to the second key question examined here: If performance quality is a function of time or practice, then what is the nature of that function? A wealth of data drawn from a variety of skill domains indicates that the course of improvement follows a decelerating trajectory such as is captured by the families of exponential and power curves. Both of these groups of curves have been shown to provide very good fits for observed changes in performance quality, but of the two, the preponderance of evidence supports the superiority of the power function as a characterization of the course of skill acquisition.

With respect to teaching communication skills, the chief implication of the fact that the course of skill acquisition tends to reflect a power function is to suggest the need for large numbers of performance trials. Under a power function, performance improves rapidly over the first few trials, but it is also the case that performance quality continues to improve over extended periods of implementation. It is not unreasonable to suggest that the "10-year rule" for developing expert levels of performance mentioned at the outset of this chapter (see Ericsson et al., 1993; Ericsson & Lehmann, 1996; Simon & Chase, 1973) may apply just as much to social interaction skills as to other behavioral domains. Now, to be sure, the realities of most occupational, pedagogical, and therapeutic skills training programs preclude the possibility of thousands, or even hundreds, of practice trials; however, to the extent that larger numbers of performances can be built into the training curriculum, perhaps as part of out-of-class exercises, available evidence indicates that the individual will stand to benefit.

The third major area of concern in this review is prompted by the observation that just as people differ in the level or quality of their social performance, so too, might we expect individual variations in the course of skill acquisition. Thus, the skill-acquisition-rate parameter, α , as just one example, may vary over people (that is, some people may improve more rapidly than others). Following common practice, the realm of potentially relevant person factors can be divided into traits, or enduring dispositions and capacities, and states, or more transient intrapersonal conditions. With respect to the first of these, a variety of traits have been identified as being among those that may exert influence on skill development (see Ackerman, 1988, 1990; Mumford, Baughman, Uhlman, et al., 1993), but what is particularly noteworthy is that the impact of certain trait variables appears to shift over the course of practice. That is, some person variables appear to be important early in the course of skill acquisition, whereas others exert their greatest influence on performance much later on. For example, Ackerman's model suggests that factors such as intellectual ability and working-memory capacity are particularly important in the initial stages of skill acquisition, when skill-relevant information is represented in declarative form. As practice continues, these factors become less important, and speed of information processing assumes a more prominent role in determining performance quality. Finally, in the latter stages of skill-acquisition, performance is limited primarily by motor ability.

One implication of this line of reasoning is not simply that we should expect individual variations in rate of skill development, but that those people who appear most adept early in the course of practice may begin to lag behind their peers as practice continues. Beyond this, to the extent that person variables such as intellectual ability and working-memory capacity impact skill development, and there is at least some evidence that they do (see Sassi & Greene, 1998), those charged with implementing skills training programs need to be sensitive to the sorts of intellectual demands imposed by training exercises and materials and to the fact that training tasks that are appropriate for much of the population may severely tax the abilities of those in greatest need of such training. In much the same way, because individual-difference variables such as temperament, achievement motivation, competitiveness, and self-discipline appear not only to exert influence on performance, but also to shift in the magnitude of their influence over the course of time, teachers and trainers may need to be aware of the potential impact of such factors and to tailor skill acquisition curricula accordingly (see Mumford, Baughman, Uhlman, et al., 1993). As a final point, in many cases, even when dealing with individuals of relatively high intellectual ability and motivation, it may be necessary to reduce the rate of task-relevant inputs or to decompose complex social skills into simpler components so as not to overload the learner.

Turning to state variables, an obvious candidate for influencing the course of skill acquisition is anxiety level—this in light of the distracting and off-task ruminations commonly held to be associated with heightened levels of anxiety; indeed, there is evidence that anxiety is related to lower communication skill acquisition rates and more erratic performance (Greene et al., 1998). The fact that anxiety may interfere with the acquisition of communication skills suggests a practical problem for approaches to dealing with social anxiety that emphasize skills training; that is, heightened anxiety may impede acquisition of the very skills intended to relieve that anxiety. It may well be that skills training alone is not an optimal ameliorative approach and, furthermore, that it may be necessary to invoke means of alleviating anxiety before focusing on skills training (see Allen et al., 1989; Hopf & Ayers, 1992).

Beyond the impact of anxiety level, other state variables might plausibly be expected to influence the course of communication skill acquisition, but, to date, evidence on the impact of these variables on the parameters that define skill acquisition curves has yet to be reported. There is a need for investigating the possible effects of stress, arousal, fatigue, and other states, but while we await the accrual of findings regarding these influences, teachers, trainers, and therapists should be aware of their potential impact.

A discussion of person factors and skill acquisition would not be complete without mention of the role of aging. It is well established that, relative to younger adults, the elderly tend to perform more slowly and less proficiently, and that these effects are particularly pronounced on tasks that place a premium on speed of responding and on tasks that are novel or complex. Distinct from these findings concerning aging and performance quality is the issue of the impact of aging on the course of skill acquisition. On this point, the evidence is mixed, but, on balance, it does appear that the elderly may acquire communication skills less readily than their younger counterparts. This effect may arise from lower rates of information processing or reduced working-memory capacity in older adults (see Kyllonen & Christal, 1990; Myerson, Hale, Wagstaff, Poon, & Smith, 1990; Salthouse, 1985). These cognitive differences, along with a tendency for older people to exhibit a conservative response bias and a preference for “real-world” tasks (see Denney, 1982; Strayer & Kramer, 1994), have

numerous implications for the design of skills-training programs that might better serve the elderly. Among these are (a) development of techniques that emphasize application and extension of skills the individual already possesses so as to reduce the need for development of a completely new repertoire, (b) moderation in amount and speed of presentation of training materials so as not to overload processing abilities, (c) opportunity for more performance trials than might be deemed necessary for a younger group, (d) provision of support and encouragement of experimentation and risk taking, (e) measures to ensure an operational grasp of what is required and of how more abstract specifications of the skill can actually be implemented in interaction, and (f) emphasis on the practical implications of the skill (see Fozard, 1980; Glendenning, 1995; Lopez, 1980; Perlmutter, 1988).

A final issue of concern here stems from the observation that under certain conditions large numbers of performance trials may not lead to any improvement at all in performance quality. It is reasonable to inquire, then, about the nature of the conditions that are more likely to be associated with enhanced performance. Unfortunately, there is virtually no research to date examining the impact of conditions and types of practice on the parameters that define learning curves for communication and social interaction skills. At the same time, however, it is possible to speculate about what some of the key features of more productive practice might include.

To begin, it is reasonable to expect that skill acquisition will proceed more quickly when the learner has a clear grasp of what is to be done—that is, when either through use of description or examples, he or she comes to grasp the relevant behavioral ideals. Furthermore, when those ideals are expressed in relatively abstract terms, it may be necessary to introduce concrete illustrations of ways in which they can be translated into actual interaction behaviors.

Performance trials themselves will be most effective in promoting skill development when they are characterized by deliberate, focused efforts at monitoring and reorganizing the behaviors of interest. Because such deliberate practice is effortful and may not be intrinsically rewarding, it may be necessary to limit practice to relatively brief periods and to incorporate motivational incentives as part of the training regimen (see Ericsson et al., 1993; Schneider, 1985). Along these same lines, it may be beneficial to space performance trials so as to permit opportunity for reflection and consolidation of information gleaned in previous sessions. It is important, too, that performance be followed by feedback that is both specific and adapted to learners' current grasp of the task and their own behavior.

Because long-term retention and transfer of skills is facilitated by variation in task conditions and response requirements (not to mention the detrimental motivational impact associated with boredom), it is desirable that training incorporate an element of novelty in the performance trials (see Schmidt & Bjork, 1992). At the same time, in light of the fact that the benefits of practice accrue from repeated responses to particular configurations of relevant conditions (see Carlson & Lundy, 1992), it may be important to assist the learner in discerning similarities in a series of performance trials. In other words, if every situation is perceived as novel and unique, improvement with practice may be impeded relative to learning environments that encourage people to apprehend new situations in terms of their similarities and relationships with earlier performance trials. Beyond this, development of complex skills may be facilitated by various task-simplification techniques that not only reduce the cognitive demands placed on the learner but that also may serve to reduce frustration and other negative affective responses that arise when a person feels that he or she is confronted with an overwhelming task. Finally, it is possible that the course of performance gains

may be accelerated when actual practice trials are augmented with structured mental practice in which the individual rehearses executing the target behaviors in realistic interaction contexts.

CONCLUSION

References to “learning curves” appear so frequently in lay discourse that it may be no exaggeration to suggest we encounter the term almost daily. Perhaps it is because the notion is so common that we tend to overlook the fundamental significance of the relationship it expresses—it is as if the point that performance improves as a function of time and trials has passed into the realm of the taken-for-granted and, as a result, simply isn’t an object of scrutiny. This seems to be particularly true in the case of communication and social interaction skills in which training curricula routinely, if not universally, invoke the principle that practice leads to improved performance and yet very few studies have sought to examine skill acquisition functions. It would appear, however, that there is considerable insight to be gleaned from analysis of communication skill acquisition functions, and particularly the α , B , A , and E parameters that define the power curve (see Equation 2), along with the R^2 measure of goodness of fit, as they relate to a variety of task, person, and training variables. If, in the conduct of our teaching, training, and therapy, we are to continue relying on the principle that practice leads to improved performance, then we need to seek a better understanding of that fundamental regularity.

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