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An Analysis of Patient-Physician Discourse: Comparing Physician Diagnostic Scripts to Patient Social Script Expectations

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**AN ANALYSIS OF PATIENT-PHYSICIAN DISCOURSE:
COMPARING PHYSICIAN DIAGNOSTIC SCRIPTS TO
PATIENT SOCIAL SCRIPT EXPECTATIONS**

by

Denis Grimes

A Dissertation Submitted in

Partial Fulfillment of the

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Abstract
**AN ANALYSIS OF PATIENT-PHYSICIAN DISCOURSE: COMPARING PHYSICIAN
DIAGNOSTIC SCRIPTS TO PATIENT SOCIAL SCRIPT EXPECTATIONS**

by

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**The University of Wisconsin-Milwaukee
Under the Supervision of Professor Mike Allen**

This study examines how participants interpret physicians' diagnostic discourse and physician interruptions during the patient's disclosure of problems and concerns. Using medical diagnostic scripts written for upper respiratory infections, participants' reactions to physician attentiveness and physician interruptions were measured. When physicians interrupt patients during the patient's disclosure of problems and concerns, interruptions violate patient's social script expectations and negatively affect patient satisfaction. Physicians' demonstrations of attentiveness and explanations of the purposes for the interruptions do not compensate for interruption's effects, and satisfaction with physician behavior is reduced.

Key Words: Concordance Theory; Diagnostic Discourse; Hypothetico-Deductive Reasoning; Script Theory.

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Dedication

I dedicate this dissertation to my family, who helped shape me into the person who I am today. I especially want to thank my parents Patrick and Inez Grimes, who never lived long enough to see me graduate from college, much less finish a doctorate. I would like to thank my wife Mary Baldwin-Grimes who has stood by my side for the last 30 years, and my five sons, Christopher, David, Patrick, Jonathan, and Michael Grimes, who remind me that life is worth living. I also would like to thank my advisors Mike Allen and Nancy Burrell, who never gave up on me and pushed me to become something more.

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More than one-third of Americans identify themselves as members of a racial or ethnic community (Yen, 2010). Members of racial or ethnic communities experience a greater reduction of opportunities (success, education, wealth, access to healthcare, etc.) compared to majority members of society. Observations of race and ethnicity are noteworthy considering that the minority population of the United States is expected to increase to over fifty percent of the total population of the United States by 2042 (U.S Census Bureau, 2008). Consequently, addressing any unique health care needs of members of racial and ethnic communities represents an important public policy goal in the United States (Agency for Health Care Policy and Research, 1999; U. S. Department of Health and Human Services Office for Civil Rights, 1998; U. S. Department of Health and Human Services Office of Minority Health, 2009).

Research findings continue to document racial and ethnic disparities in health care showing that members of minority groups suffer disproportionately higher rates of cardiovascular disease, diabetes, asthma, and cancer (Williams, 1999). Racial and ethnic disparities include the observation that not all Americans have equal access to health care or experience equivalent health care outcomes. Compared to white majority patients, racial and ethnic minority patients experience greater difficulties when communicating with health care providers and report disrespectful treatment by care providers more frequently than members of the majority population (Collins, 2002). Economic factors and social inequality serve as important causes of poor health because poverty results in poor nutrition, overcrowded living conditions, inadequate clothing, lower educational achievement, substandard housing and employment located in areas with greater environmental dangers, exposure to higher levels of physical and psychological violence, and alcohol, smoking, and drug abuse (Helman, 2007). Consequently, low income Americans, particularly members of racial and ethnic minorities

become an underserved health care population experiencing higher rates of disease, fewer available medical treatment options, and reduced access to affordable health care (Nelson, 2002).

The Affordable Care Act, passed by Congress and signed into law by the President of the United States in 2010, seeks to reduce health care disparities by expanding ongoing social initiatives to increase racial and ethnic diversity in the health care professions, strengthen cultural competency training for all health care providers, and require language services and community outreach programs for underserved communities. As the United States becomes a more multicultural society, the need for competent communication practices between health care providers and members of minority populations becomes progressively important. Communicative misunderstandings between minority patients and health care providers lead to greater patient dissatisfaction, substandard medical care practices, and misdiagnoses caused by poor patient-provider communication, thus increasing minority mortality rates.

1.1 Study Objective

Culture and ethnicity constitute barriers to effective communication preventing the establishment of successful and satisfying doctor-patient relationships. Observations of physicians indicate less affective behaviors when interacting with ethnic and minority clients compared to White patients (Cooper-Patrick et al., 1999). Frequently, studies of communication behavior fail to consider the effects of cultural variations in doctor-patient communication (Shouten & Meeuwesen, 2005). Other studies report significant differences in physicians' affective and instrumental verbal behaviors and consultation length when communicating with ethnic minority patients (Lillie-Blanton et al., 2000; Naish, Brown, & Denton, 1994; Patel, 1995). This study examines how differences in doctor-patient communication are perceived differently based on both ethnicity and income.

1.2 An Overview of Health Care Practices

The United States demonstrates the highest level of health care spending per-person in the world, but American medical patients report the lowest level of satisfaction with health care (Blendon, 1990). Furthermore, members of racial and ethnic minorities frequently report worse medical care than Whites (Weech-Maldonado, 2001). Between 1997-1998 and 2002-2003, amenable mortality fell by an average of 16 percent in all of the countries examined, with the exception of the United States, where the mortality decline was only 4 percent (Noltey, 2008). Among the 19 countries examined by the study, the United States exhibits the highest rate of mortality from conditions usually considered preventable or curable. Underserved minority groups (Blacks, Hispanics, and others) are disproportionately found in lower-income categories (Levy, 1998), and lower-income minority groups generally suffer higher mortality rates. In the United States, minority concentration interacts with income inequality. Socioeconomic status and health status are interrelated (Kondo et al., 2009), and in combination represent strong independent predictors of mortality (Sundquist & Johansson, 1996). The interaction between socioeconomic status and health status results in higher mortality levels for counties (such as the United States) with low inequality and a high percentage of Blacks than in counties with high inequality and a high percentage of Blacks (McLaughlin, 2002). American mortality rates reflect increased health care disparities, where the burden of illness and death falls more frequently on African Americans, Hispanic Americans, Asian Americans/Pacific Islanders, and American Indians/Alaska Natives, than the United States population as a whole. The Office of Minority Health conducted statistical reviews documenting the disproportionate toll of certain diseases on racial and ethnic populations, highlighting the need for prevention, treatment and resources toward reducing the loss of life (U. S. Department of Health and Human Services, 2007).

Racial and/or ethnic minority patients use fewer healthcare services and are less satisfied with health care treatment than patients from the majority population (Sara, 1999). African-Americans and Hispanics report less satisfaction with physician-patient relationships, report discontinuity of care, and perceive poorer quality of health care (Institute of Medicine, 2002). In multivariate models, a patient's perceived personal similarity to his/her practicing physician was predicted by the patient's age, education, and the level of the physician's patient-centered communication, but perceived similarity was not predicted by racial nor sexual concordance (Street, 2008). Physicians' behaviors that demonstrate cultural awareness, sensitivity, and communicative competence are important because concepts such as health, illness, suffering, and care mean different things to different people. Consequently, physicians need to obtain knowledge of patients' cultural customs and beliefs in order to obtain the patients' psychometric information that provides physicians with an increased understanding of the patients' needs and expectations. Increased knowledge of the patient's worldview and cultural expectations often reduces miscommunication between the physician and the patient.

For example, Latinos are the largest ethnic group in the United States, where Mexicans make up approximately 66% of the Latino population (Zoucha & Purnell, 2003). Often, traditional Latin Americans interpret common medical symptoms as hot or cold illnesses where a disease such as hypertension may be interpreted as a hot condition managed with a cold therapy such as passion tea. Any doctor should recognize the patient's knowledge and practice for chronic disease when recommending a treatment to improve success. Chinese medicine seeks a harmonious balance between the body's hot (Yang) and cold (Ying) energies through diet, lifestyle, acupuncture, and herbal regimens. Frequently, traditional Chinese patients perceive cold air and cold water as unhealthy; therefore, Chinese patients prefer hot tea or hot water to ice

or refrigerated drinks (Orr, 1996). In other instances, Asian therapies may cause bruising or scarification possibly misinterpreted by a doctor as a sign of physical abuse (Oates, 1984). Without adequate knowledge of a patient's cultural traditions and understandings prior to obtaining medical histories, conducting physical examinations, or treating culturally dissimilar patients, cultural miscommunications are more likely to occur.

Accurate medical diagnoses primarily depend upon three things: (a) medical histories obtained from patients, (b) signs of illness noticed during the physical examination, and (c) results of laboratory investigations (Hampton, et al, 1975). However, during routine medical visits, doctor-patient communication still constitutes a core component of clinical work significantly affecting medical outcomes associated with the diagnosis and treatment of illness (Ong, de Haes, Hoos, & Lammes, 1995). Verbal and non-verbal cues, observed during the patient's presentation of concerns, are indirect signals used by the patient to alert the physician of a problem, question, or concern (Lussier & Richard, 2009). When physicians speculate about the meanings of the patients' cues, speculations must be identified to verify physicians' interpretations of patient messages. Typically, physicians allocate insufficient time to explore every cue observed during consultation, so doctors identify one or more pertinent clues to use as information about the patient's illness or concerns (Lussier & Richard, 2009). When physicians ignore or misinterpret patients' cues, illnesses may be misdiagnosed and the patients' concerns ignored. Consequently, effective communication practices are central to the practice of medicine.

Communication operates as an essential component of the medical encounter (Rhoades, 2001). Unfortunately, physicians and patients often rate the physician's communication skills as one of the least developed of clinical caregiving skills (Di Matteo, 1998). Primary care visits provide physicians with opportunities for determining patients' major reasons for seeking

medical care. When patients are treated as partners in the medical dialogue, patients ask more questions and express more concerns, and patients become more likely to receive useful information about the treatment regimen. Consequently, during the medical diagnostic interview, the establishment of patient rapport, understanding, and trust are critical.

Many physicians consider medical diagnosis a categorization task that allows them to gather information necessary for making predictions about features of clinical situations and determining appropriate courses of action. A standard phase of an acute, primary care visit is the problem presentation, where patients describe their illness and concerns using their own terms and pursue agendas (Robinson, 2001). Unfortunately, only 23% of patients are allowed to complete an opening statement before the diagnostician interrupts (Beckman & Frankel, 1984). The linguistic format of the physician's opening questions in the diagnostic interview strongly determines the nature, breadth, and depth of the patient's problem presentation (Heritage & Robinson, 2001).

Script theory, based in cognitive psychology, provides a theoretical framework to explain how the physician's medical diagnostic knowledge is structured for diagnostic problem solving. For clinicians, scripts provide networks of knowledge adapted to the goals of clinical tasks; whereas, the main characteristics of diagnostic scripts consider how physicians apply pre-stored knowledge to place the patients' illnesses into a given class of diseases. Once an illness is classified, physicians determine which values are either acceptable or unacceptable for each illness attribute. Once this determination has been made, physicians use the related knowledge for suggesting appropriate actions such as: performing a behavior, providing a prognosis, or instituting a medical treatment.

However, interactions between the patient and physician define the context of the diagnostic situation. Physicians and patients presented with identical stimuli, react differently to the diagnostic situation because physicians and patients define the context of a particular situation dissimilarly (Thomas, 1923). A medical situation, perceived as real for one, may not be considered real for the other. Through the prism of the mind, the individuals' personal experiences are ordered. Once the individual's experiences are defined and categorized by the individual's mind, then the individual's consequent behaviors are shaped by those ascribed meanings. Social scripts provide scenarios to explain social interaction through language in action. During actual social situations, individuals develop and use social scripts to interpret particular events and actions. During an episodic event, a person does not simply enter a restaurant. People follow interpretive scripts, which pre-exist an event, which explains and provides structure for the interactants' behavior within the restaurant.

For most social situations, each individual relies upon a script that he/she has experienced and participated in many times since childhood. Social scripts refer to social functions, and scripts dictate what a person should do at a particular time, in a particular place, and in a particular manner, to play the role characteristically associated with that script.

Physicians learn social scripts by participating in social life, by attending medical school, and through experiences acquired during medical practice. Physicians learn diagnostic scripts in medical school and through medical practice. For experienced physicians and patients, both are familiar with their roles and behavioral scripts and act accordingly. Minority patients frequently lack medical insurance and fewer opportunities to experience medical diagnostic scripts. Consequently, minority patients often may not possess sufficient procedural knowledge

necessary for interpreting the diagnostic scenario (gained through clinical experience); therefore, minority patients often lack ascribed meanings from which to interpret the diagnostic interview.

Improving communication practices between health care providers and minority patients could reduce health care disparities experienced by the Hispanic community currently with the highest numbers of uninsured people (Healthcare.gov, Oct. 15, 2011). This study examines doctor-patient communication practices, specifically focusing on physician interruptions and physician verbal attentiveness, within the medical diagnostic interview in order to improve the accuracy of medical diagnosis, quality of patient outcomes, and patient satisfaction; thus reducing health care disparities.

1.3 The Social Context and the Delivery of Health Care

Between 1986 and 1993, approximately 8.2 million immigrants attained legal permanent residence in the United States, bringing the total number of denizens to 31,108,000 legal foreign born residents (U.S. Census Bureau, 2012). By adding an estimated 3 to 4 million illegal foreign-born inhabitants already residing in the United States (Gavagan & Brodyaga, 1998), to another 20 million legal nonimmigrant visitors and students living in the United States (U.S. Census Bureau, 2012), it quickly becomes evident that the population of the United States grows increasingly more racially and ethnically diverse.

Race, ethnicity, and socioeconomic status (SES) mark indicators associated with the use of medical services and health outcomes (Gornick, 2000). An early examination of national health data reports that minority populations in the United States suffer a greater disease and mortality burden than Whites experience (NCHS, 1983). Twenty-two years after an initial study of health care disparities, the Department of Health and Human Services (2005) released the Report of the Secretary's Task Force on Black and Minority Health that documented disparities

in health data, finding that disparities related to race, ethnicity, and socioeconomic status were pervasive throughout the American healthcare system. African Americans, Hispanic Americans, American Indians, and Alaskan Natives receive poorer quality health care than Whites in about 40% of core report measures.

The causes of minority health care disparities remain multi-factorial, and the largest contributors to disparate medical treatment of minority patients reflect social determinants of health external to the health care delivery system (Heckler, 1985, p.11). Members of minority communities generate a tendency to be more socioeconomically disadvantaged (Williams, 1999), have lower levels of education, work in jobs that present higher rates of occupational hazards (Hinkle, 1968; Antonovsky, 1968), and reside in areas with greater environmental jeopardies (Pincus, 1995). Minority populations are more likely to be uninsured than Whites. For example, although Latinos represent only 13% of the U.S. population, people of Latin descent make up 25% of Americans without health insurance (U. S. Census Bureau, 2003).

Observed causes of health care disparities are associated with differences in patients' health beliefs (Gornick, 1996), patients' individual and cultural values (Institute of Medicine, 2002), as well as the patients' personal treatment preferences, attitudes, and contributory risk behaviors (Gornick, 2000). Other causes of healthcare disparity relate to the variety of ways in which patients recognize and respond to medical symptoms (Schraufnagel, 2008), patients' individual thresholds for seeking medical care, irregularities in patients' abilities when communicating symptoms to medical specialists who understand the meaning (Betancourt, 2011), differences in patients' ability to comprehend and follow prescribed health management strategies (Lewis, 2006; Waite, 2007), patients' nonconforming expectations of care (including preferences for or against diagnostic and therapeutic procedures) (Kinmouth, 1998; McKinley,

2002), and patients' inability to adhere to preventive measures and medical treatment (Einbinder, 2000).

A long, documented history of racial discrimination towards African Americans in medical research and in clinical settings exists (with the most notable example resulting from the 1932 U.S. Public Health Service Tuskegee Syphilis Study), which contributes to African Americans' perceptions of disparities in health care treatment (Gamble, 1997). African American patients are more reluctant than members of other ethnic groups to participate in clinical trials and are less trustful of medical researchers and clinicians because of preconceived assumptions of medical mistreatment (Petersen, 2002; Shavers et al., 2002). A pervasive distrust of the health care system by African Americans, and a trenchant recognition of historically disparate health care treatments among minority populations lead to lower rates of patient-satisfaction with physician visits comparing African Americans' attitudes to most other population groups (Doescher et al., 2000).

Furthermore, patients, in general, report that the main area of dissatisfaction during medical consultations results from the clinicians' poor interviewing skills (Ley, 1977). Newell (1994) suggests that patient dissatisfaction reflects differences between the worldviews of the physician and patient. From the clinician's perspective, the client's obligation involves answering a series of questions enabling the physician to isolate particular areas of difficulty in order to prescribe appropriate remedies. Contrary to the physician's perspective, the patient prefers an interaction where the physician takes into account the patient's concerns about the patient's particular difficulties outside of the clinical setting (Newell, 1994, p. 2). To complicate these divergent perspectives, physicians and patients frequently come from incomparable worlds because of differences in the communicants' education, income, social class, ethnicity, and race,

as well as, specific levels of the participants' professional and applied knowledge, and their use of language and vocabulary. The barriers represent a challenge to improving patient satisfaction with received health care, one very important health outcome (Maxwell, 1984).

Clinicians have little to lose from the mismatch expectations and performance; however, patients and families feel that health information is not always communicated to professionals, who are charged with advising and assisting caregivers with patient care. Patients and families believe that they experience delays, redundancies, and duplications in care, and many feel that their needs as patients and caregivers are neither acknowledged nor addressed (Spragins & Lorenzetti, 2008). Mounting evidence suggests that health care inequalities perceived by ethnic and racial subgroups contribute to observed health disparities applied across various racial, ethnic, and linguistic groups (Fiscella, 2000).

1.4 Physician - Patient Communication Practices

Health care providers are a part of a complex socio-technical system in which physicians, nurses, and medical technicians form component subsystems characterized by distinct cultures and belief systems (Van Cott, 1994). Miscommunication between health care providers and patients influence the delivery of patient care which contribute to medical errors and negatively affect patient outcomes (Leonard, Graham, & Bonocum, 2004). Physicians and patients enter clinical encounters with an initial orientation towards a more interpersonal or more intergroup interaction (Gallois, Ogay, & Giles, 2005). From this perspective, physicians' and patients' orientations are influenced by the larger socio-historical context (relative social status, power relations, ethnic and cultural determinants, economic pressures, etc.) and the interactants' interpersonal history. The patients' and doctors' goals and communicative behaviors are also shaped by the immediate context including social norms, physical parameters, and

communicative restraints. Compliance provides one outcome of considerable concern to health care providers (Thompson, 1994), and most physicians focus on communicative acts which gather information for diagnosis or compliance with the doctor's recommendations.

The practice of medicine continues to shift away from the biomedical model of health communication to an emphasis on the patient as the central component of health care (Sharf & Street, 1997). Consequently, effective or competent communication is described as nurturing communication, or at least as communication which is perceived by patients as satisfying and interpersonal. Unfortunately, patient satisfaction fails to increase patient compliance with the doctor's instructions; in the case of male doctors, in fact, more aggressive communication appears to produce greater compliance (Burgoon, Birk, & Hall, 1991).

1.4.1 Physician Communication and Patient Satisfaction

Patient Satisfaction comprises an important component of healthcare, influenced by the patient-physician relationship. Patients satisfied with the relationship with the physician report better health care outcomes and adherence to medical treatment (Williams, Weinman, & Dale, 1998; Beck, Daughtridge, & Sloane, 2002). Specific physician behaviors linked to increased patient satisfaction, include the patients' physical examinations, physician-patient dialogues about treatment effects, and physicians' questions and conversations about patients' psychosocial issues (Bertakis, Roter, & Putnum, 1991). Besides physician behaviors, patient satisfaction is influenced by various patients' and physicians' perceptions of certain characteristics of gender, age, ethnicity and social class (Cooper-Patrick et al., 1999), with patient-satisfaction surveys reporting racial and ethnic minority populations typically less-satisfied than majority White Americans (Murray-Garcia et al, 2000).

Clinical encounters between patients and health care providers represent salient, primary activities of health care. The Affordable Care Act's emphasis on patient-centered care in the reduction of health care disparities has increased health care providers' interest in patients' views of medical care and the consultation process (Stewart et al, 1995). Although patient-centered care has been defined and described in many different ways, most definitions and descriptions share a common set of dimensions (Mead & Bower, 2000). McWhinney (1989) described the patient-centered process as a perspective of medical practice, where, "the physician tries to enter the patient's world, to see the illness through the patient's eyes" (page. 35). McWhinney (1985) constructed this description of patient-centered medicine in opposition to a description of the traditional practice of medicine where:

The traditional method is strictly objective. Its aim is to diagnose a disease rather than to understand the patient. It does not aim, in any systematic way, to understand the meaning of illness or place it in the context of the patient's biology of culture. Subjective matters, such as feelings and relationships, are excluded from consideration; the physician is encouraged to be objective and detached (p. 874).

The traditional method of practicing medicine uses a strictly biomedical approach limited to identifying physical signs and symptoms of disease, making a diagnosis, and treating the disease with an appropriate therapy). In the biomedical model, patients' reports of illness become indicators of disease processes. When treating patients, the biomedical approach falls short in fulfilling the requirements of patient-centered care (Mead & Bower, 2000). Patients' reports of illness within the biomedical approach provide only a set of signs and symptoms that physicians

investigate and interpret within a pathology used for selecting an appropriate therapy to restore the patients' diseased processes to a normal, or near normal state of health (Neighbor, 1987).

The patient-centered practice of medicine operates as a bio-psychosocial approach to patient care, recognizing that the patient's perspective of illness is nuanced by various social and psychological factors as well as the biological factors that affect the physician's treatment of a disease (Engel, 1977). During problem presentations, patients disclose medical symptoms as well as their fears, psychosocial and lifestyle concerns, lay diagnoses, and uncertainties. Considerable evidence indicates that patients are often dissatisfied with the perceptions of the quality of physician-patient communication (Cvengros et al., 2007; Hulka, 1979; Rowland-Morin, 1990) and the physicians' responses to the presentation of problems. Patient satisfaction surveys are constructed in order to provide physicians and health care providers with a means of identifying patient-provider communication problems and determining ways of improving medical practices. Health care advocates assume that improved patient-provider communication increases patient satisfaction. This assumption is based on the premise that improved patient satisfaction translated into better care and happier patients. However, patient satisfaction surveys are generally ineffective if physicians attend to patients' biomedical needs to the detriment of patients' bio-psychosocial needs.

A crucial challenge to patient satisfaction depends on physicians' abilities to grasp and respond to the patients' emotional expressions, personal and social concerns, and psychological needs during the patient's problem-presentation. Physicians may discourage patients from disclosing social and psychological concerns because physicians focus on biomedical aspects of patient complaints (Byrne & Long, 1976; Goldberg et al., 1982), or because patients address emotional and psychological concerns, only, if physicians initiate their discussion (Detmer et al.,

2000). On other occasions, physicians miss opportunities for addressing patients' concerns because physicians postpone available chances to address patients' concerns, interrupt patients' problem presentations (Butow et al., 2002), avoid discussions of specific topics, discourage patients from expressing concerns, fail to acknowledge patients' interests and/or emotional needs, deny patients' concerns, or terminate discussions prematurely (Levinson et al., 2000).

1.4.2 Communication Competence

In an ideal world, patients would be best served by practitioners ethnically, racially, and linguistically concordant with patients. Given a non-perfect world, there exist many viable strategies to improve communication with non-English speaking patients. These strategies included employing professional interpreters (such as bi-lingual employees, who work as clerks, custodians, or technicians), or by using interpretation services, friends, family, or ad hoc interpreters (provided that patient confidentiality can be guaranteed and preserved). However, first and foremost, the health care industry should promote cultural competency training of the existing workforce to reduce to reduce disparities in healthcare. Evidence suggests that interventions developed for improving the quality of physicians' communication with minority patients (including cultural competence training) are effective in the reduction of health care disparities (Beach, 2004).

Research in cultural competence training, the use of rigorous study designs in physician-patient communication, the design of well-described interventions techniques, and the implementation of measurable objectives have been linked to the improvement of health care processes, yet the continued re-examination of health care outcome variables remain important (Beach, 2004) because valid, reliable, and objective measurements of communication and cultural competencies in medical practice are critical for the reduction of health care disparities

(Brach, 2000), and research design and the implementation of healthcare interventions have been shown to reduce healthcare disparities (Campbell, 2007). Effective communication is an essential component of clinical medicine because effective communication is necessary for developing and maintaining good physician-patient and physician-colleague relationships. By developing better physician communication competency skills, health care providers become better at helping themselves and patients when physicians and patients understand and learn from each other.

Competence encompasses knowledge, skills, abilities, and traits. Competence is gained in the health care professions through pre-service education, in-service training, and through on-the-job experience. Although competence constitutes a precursor for performing a job periodic evaluations of health care provider's performance determine whether or not a specific health care provider is correctly utilizing competencies on the job. Clinicians may possess the necessary skills and knowledge necessary for medical treatment, but may apply them improperly because of individual factors (abilities, traits, goals, values, etc.).

Competence, primarily, refers to a person's underlying characteristics that are causally related to job performance (Boyatzis, 1982). Competence may also be defined as possessing an ability to perform a specific task in a manner that leads to preferred outcomes (Lane & Ross, 1998). General competency encompasses possessing the knowledge, skills, abilities, and traits necessary for accomplishing a specified task. The Accreditation Council for Graduate Medical Education (ACGME) requires that residency programs for medical training provide the development and training of future medical practitioners to acquire professional medical competencies in six areas: (a) Patient Care, (b) Medical Knowledge, (c) Practice-Based Learning

and Improvement, (d) Interpersonal and Communication Skills, (e) Professionalism, and (f) System-Based Practice (1999, p. 1).

Competence is gained in the health care professions through pre-service education, in-service training, and through on-the-job experience. Although competence constitutes a precursor to performing a job correctly, it is necessary to periodically re-evaluate a health care provider's performance to verify whether or not the health care provider utilizes key competencies on the job. There exist situations where clinicians possess the necessary skills and knowledge to do the job, but are unable to apply them properly because of the clinicians' internal factors (abilities, traits, goals, values, inertia, etc.), or because of factors external to the clinicians (unavailability of drugs, equipment, organizational support, etc.). During routine medical diagnostic interviews, physician's interpersonal and communicative skills represent key competencies requiring development. Clinicians must develop and demonstrate strong interpersonal and communicative skills, so that they can effectively exchange information with patients, patients' families, professional associates, and other key contacts throughout the health care system.

Chomsky (1965) differentiated between linguistic competence (the ability to construct grammatically correct sentences) and performance (though Chomsky did not define what he meant by performance). Hymes (1972) adopted Chomsky's definition of linguistic competence (being grammatically correct) and introduced the term *communicative competence* (the ability to use language appropriately) into the lexicon. Canale and Swain (1980) elaborated upon Chomsky's definition of communicative competence expanding it into four distinct components: (a) grammatical competence (the ability to correctly use words and rule), (b) sociolinguistic competence (using language appropriately), (c) discourse competence (communicating

cohesively and coherently), and (d) strategic competence (the appropriate use of communication strategies).

Canale and Swain's theoretical model primarily used Chomsky's terms of linguistic competence to explain grammatical competence because they argued that grammatical competence is concerned with mastery in linguistic code (which includes vocabulary knowledge and knowledge of morphological, syntactic, semantic, phonetic, and orthographic rules). Grammatical competency provides communicators with the knowledge and skills necessary to understand and express the literal meanings of utterances. Physicians attending medical school learn a new vocabulary necessary for identifying, diagnosing, and treating disease, but they must retain the vernacular and develop social skills necessary for communicating with ordinary patients. Consequently, while the rules of grammatical competence may remain the same, applications of sociolinguistic competence, discourse competence, and strategic competence may vary according to with whom physicians communicate.

Communication competence has been defined and discussed in inconsistent ways by different researchers. Chen and Starosta (1996) described communication competence by focusing on the concepts of effectiveness and appropriateness. Chen and Starosta's discussion of appropriateness concentrates on an "individual's ability to produce intended effects through interaction with the environment" (p. 356). According to Chen and Starosta's reasoning, an individual's communication is effective because the communicator is perceived as being effective when he/she is observed by others with whom he/she interacts, rather than relying upon the communicator's "feelings of competence." Physicians are effective when they are perceived by their patients to be expressing appropriate communicative behavior. Chen and Starosta maintain that exhibiting appropriate behavior entails three performative abilities: (a) an ability to

recognize the ways in which the context constrains communication; (b) an ability to avoid inappropriate responses; and (c) an ability to fulfill communication behaviors such as controlling, sharing, feeling, informing, ritualizing, etc. (Chen & Starosta, 1996).

Within a physician's practice, professional codes of conduct formalize the physician's behavior, but the patient's expectations of the physician's role behavior affects the way in which the patient interprets the physician's behavior. Therefore, the patient's expectations of the physician's behavior and the physician's actual behavior must match in order for the development of patient trust, for increased patient satisfaction with the healthcare provider, for encouraging the patient to better utilize health services, and for enhancing patient involvement within the decision-making process (unless the patient enters the communicative exchange with preconceived negative expectations or assumptions of physician behavior).

Martin and Hammer (1989) described three specific categories of behaviors which identified communication competence: (a) nonverbal behaviors; (b) verbal (topic/content behaviors; and (c) conversational management behaviors. Martin and Hammer attempted to determine which communicative behaviors were associated with the construction of one's impression of cultural competence. Martin and Hammer used their subject's recalled behaviors (which included: politeness, displays of interest, friendliness, efforts to make the other person feel comfortable, speaking more slowly, making sure the other understands [as well as is understood], and talking about cultural topics) to determine which behaviors were related to communication competence. Martin and Hammer found that the communicatives of empathy, flexibility, and displays of respect were related to perceived intercultural communication competencies for one's self and others. Therefore, competent communicators/physicians appear empathic, are non-dogmatic, and demonstrate respect for their patients.

When discussing communication competence, Widdowson (1983) differentiates between an interactant's communication competence and an interactant's capacity to communicate. In Widdowson's discourse model, communication competence is described as a communicator's knowledge of linguistic and sociolinguistic conventions; where, alternatively, communication capacity is defined "as the ability to exploit linguistic sources so as to create meaning, whether codified or not (Widdowson, 1984, p. 246). From this perspective, a physician's ability to communicate is not considered to be a component of competence. Furthermore, ability to communicate cannot turn into communication competence because ability is "an active force for continuing creativity" (Widdowson, 1983, p. 27). In other words, an interactant's ability is defined as the interactant's *meaning potential*.

1.4.3 Physician Interruptions

When listening to patients' descriptions of symptoms, physicians often interrupt patients when seeking additional information necessary for making accurate diagnoses or to redirect the focus of the interview (Marvel et al. 1999; Beckman & Frankel 1984). Patients, however, may need to interrupt physicians to express concerns, or to ask physicians to provide more details about diagnoses or treatment plans (Beckman & Frankel, 1984; Kaplan et al., 1995; Stewart et al., 1986). Interruptions often involve simultaneous talk between communicants that are either interruptive or non-interruptive to the conversational flow. Interruptive simultaneous speech manifests as a deep intrusion within the internal structure of the speaker's utterances, and the interruption penetrates well within the syntactic boundaries of the speaker's utterance (Feldstein & Welkowitz, 1987). However, interruptions do not require simultaneous speech because simultaneous speech is neither necessary nor sufficient for the interruption to be interpreted by interlocutors (Murray, 1985).

During an ideal conversation, the conversation is organized so that neither participant interrupts the other (Sacks, 1974). Preferably, conversations are coordinated perfectly so that speakers correctly indicate (both verbally and nonverbally) to listeners (who accurately interpret their meanings) that changes in their conversational roles are occurring. When a conversation violates the orderliness of the conversational turn-exchange process, the interruption may be interpreted as an intrusion of the violation of the speaker's rights, and the interruption disrupts the normal flow of the ongoing conversation.

Early research in communication interruptions identified them as a power device imposed on the interruptee by the interrupter (Fergussen, 1977, Mischler & Waxler, 1968). This perspective equates the physician's interruption with a communicative application of power over the patient (Zimmerman & West, 1975). The patient perceives the physician as an actor, acting as a more-powerful party, who interrupts, the patient, the less-powerful interlocutor (Robinson & Reis 1989; Zimmerman & West 1975). This model interprets power interruptions as an intentional act where the physician interrupts the patient to seize control of the process and content of the patient-doctor communication by taking the floor and/or topic from the patient in mid-utterance (Goldberg, 1990).

Doctors operate as authority figures, not only because of their expertise in the diagnosis and treatment of disease (Freidson, 1970; Zola, 1975), but they derive authority due to the medicalization of society. The medicalization of society has increased the medical establishment's scope of power and control; therefore, physicians derive greater social power from the practice of medicine (Haug & Lavin, 1981). The increased patient's dependence on the physician's medical expertise for medical treatment, in combination with the physician's inherent socially-derived authority, results in an imbalance in the physician-patient relationship.

Patient-centered medical care results from an attempt to equalize this imbalance of power and provide patients with more control of various aspects of their health care.

Power is generally defined as compound social characteristic that increases the probability that an individual involved in a social relationship able to carry out or compel the actions or inactions of others against their will or contrary to their interests, needs and/or desires despite resistance (Weber, 1947). Power is often correlated with one's social status. The physician's social status is based on his/her achieved educational attainment, occupational choice, class differences, and other factors which involve the physician's personal effort, as well as his/her ascribed racial and/or gender status.

Individuals with higher social status interrupt conversations more frequently than individuals of lower social status (Ferguson 1977; Hawkins 1991; Kollock et al., 1985), and individuals with higher social status talk more in conversations than individuals of lower social status (Kollock et al., 1985). When conversational interactants are power-balanced, "there is no appreciable difference, . . .but partners in greater in power–male or female–interrupt a great deal more than weaker partners" Kollock et al., 1985. p. 40). From a discourse analysis perspective, interruptions generally reflect higher social status and power. Samel (2000) argues that social status is responsible for the differences in the rate of conversational interruptions.

A contrasting view of conversational interruptions represents that some interruptions provide ways for interrupters to show involvement in the conversation, support for the speaker, or demonstrate solidarity with the speaker (Roger and Nesshoever 1987; Tannen 1981), or the interrupter seeks to establish rapport with the speaker (Goldberg 1990). During other conversational situations, interrupters may want to rescue or promote the speaker. On occasion, interrupters wish to elaborate on the content of the conversation (Ng et al., 1995). Interruptions

may also be categorized: (a) as cooperative interruptions or intrusive interruptions (Murata, 1994; Li, 2001; Tannen, 1994), (b) as power interruptions or non-power interruptions (Goldberg, 1990), (c) as disconfirming interruptions or confirming interruptions, (Kennedy & Camden, 1983), (d) as conflicting interruptions or less conflicting interruptions (Bennett, 1981), and (e) as disruptive interruptions or supportive interruptions (Ng et al., 1995). During cooperative interruptions, interrupters intend to help speakers by coordinating the communication process and/or content of the ongoing conversation (Murata, 1994). Tannen (1994) suggests that cooperative interrupters intend to support the communicants' conversation by expressing involvement and solidarity.

Cooperative interruptions may divide into three subcategories: (a) agreement interruptions, (b) assistance interruptions, and (c) clarification interruptions (Kennedy & Camden, 1983; Li, 2001). Agreement interruptions allow interrupters to show concurrence, compliance, and understanding or support (Kennedy & Camden, 1983). Agreement interruptions often overlap the speakers' words and show that the listener is interested in what the speaker has to say, or the interruptions seek to demonstrate the listener's enthusiasm with and involvement in the conversation. During assistance interruptions, interrupters think that speakers need their help. In order to rescue the speaker (Hayashi 1988; Moerman 1988; Ng et al. 1995; Roger and Nesshoever 1987), the interrupter provides a word, a phrase, or a sentence that cues the speaker of the listener's concern. Clarification interruptions allow the interlocutors to construct a common understanding with the speaker. Clarification interruptions are used for establishing common ground (common meanings) with the conversant for future communication events (Clark and Brennan 1991; Li, 1999). When a listener is unclear about the meaning of the speaker's statement, the listener interrupts the speaker and requests clarification (Kennedy and

Camden 1983). Intrusive interruptions usually pose a threat to the current speaker's territory by disrupting the communicative process and/or the content of the ongoing conversation (Goldberg 1990; Murata 1994; Rogers and Jones 1975).

Intrusive interruptions can be divided into four distinct subcategories: (a) disagreement interruptions, (b) floor-taking interruptions, (c) topic change interruptions (Murata 1994), and (d) tangentialization interruptions (Kennedy and Camden 1983). Disagreement interruptions occur when interlocutors (who act in the role of the listener) disagree with what the speaker is saying. During a disagreement interruption, the listener interrupts the speaker by voicing his/her opposing opinion. During floor-taking interruptions, an interrupter does not intend to change the speaker's topic. Instead, the interrupter takes over the floor (conversational focus) from the current speaker by dominating the topic. However, interrupters can change topics once successful in taking possession of the floor. Tangentialization interruptions occur when listeners act like the information that the speaker is presenting is already known to the listener (Kennedy and Camden 1983). By interrupting the speaker, the listener avoids listening to an unwanted piece of information.

Beckman and Frankel (1984) discovered that physicians interrupted patients in 69% of audiotaped physician-patient interviews. The patients' descriptions of concerns were interrupted shortly after the patients' first expressed concern (with a mean time of 18 seconds). More importantly, the patient's interrupted concerns were rarely addressed later in the medical interview. In only one interview, was a patient allowed to return back to his/her interrupted agenda. Marvel et al. (1999) found similar results where 72% of patients' initial statements of concerns were interrupted (with a mean time of 23.1 seconds).

Research inconsistencies occurred when considering the frequency of interruptions and

implications of who interrupted whom. West (1984) observed that physicians interrupted patients more frequently than patients interrupted physicians. Street and Buller (1988) found no difference between physicians and patients in the amount of interruptions. In a simulated physician-patient study, Li (2001) found no difference in the amount of interruptions performed by physicians and patients. Arntson et al. (1978) reported that patients interrupted more than physicians interrupted patients. Irish and Hall (1995) found that overall, patients engaged in significantly more interruptions than physicians. However, when Irish and Hall (1995) categorized interruptions as questions and statements, they discovered that patients used more statement type of interruptions, where physicians used more question type of interruptions.

Because this study examines minority patient populations (including those patients who are non-English speaking) is necessary to look at how they use of language interpreters affect patient interruptions. Leanza, Boivan, and Rosenberg (2010) compared medical consultations which used both family and trained interpreters. The study found clear similarities and differences in communicative patterns between consultations using trained interpreters and consultations using family members as interpreters. Leanza, Boivan, and Rosenberg argue that the voice of medicine is a goal oriented, subject to scientific and technocratic institutions' interests and aims at successes, while patients' documentation orients toward consensus through negotiation (communicative interaction). Consequently, the patient's voice is rarely heard or acknowledged because the practice of medicine interprets the patient's dialogue as a series of medical events (symptomology) through a set of abstract rules that de-contextualize the events and reinterprets the patient's experiences by removing those experiences from the patient's personal and social contexts. In most instances, the patient's concerns were interpreted, where the physicians, as well as the family members and trained interpreters, interrupt the patient from

expressing concerns. While physicians in interpreters of all types interrupt to keep the interview and track in order to meet biological goals, family members also interrupted patients to control the agenda. In neither case, were patients allowed to express their voice during the patients' presentation of concerns.

1.4.4 Script Theory

Widdowson's Discourse Model, based on Schema Theory, defines schemata as,

...cognitive constructs which allow for the organization of information in long term memory and which provide a basis for prediction. They are types of stereotypic images we map onto actuality in order to make sense of it, and to provide it with coherent pattern (Widdowson, 1983, pp. 34-35).

As such, illness scripts provide physicians with hypothesized general knowledge structures that facilitate a series of enabling conditions (contextual and patient background factors that influence the patient's probability of manifesting a particular disease (e.g. age, sex, medical history, medication, risk behaviors, hereditary and occupational factors, living environment, etc.).

Goffman (1981) introduced the term *footing* as "another way of talking about a change in our frame for events" (p. 128), or as he describes, "a change in the alignment we take up to ourselves and the others present as expressed in the way we manage the production or reception of an utterance" (p. 128). According to Goffman, "Linguistics provides us with cues and markers through which such footings become manifest, helping us to find our way to a structural basis for analyzing them"(p. 157).

Medical interviews constitute a significant part of the day-to-day practice of clinical medicine. Historically, the patient's description of symptoms to the physician has occupied a central place of medical practice, where patients describe symptoms and complaints,

occasionally surprising doctors with particular concerns. During the patient's presentation of *self* and symptoms, both parties assume that the patient can competently and accurately describe his/her symptoms (with or without the help of interpreters), and the physician elicits and interprets details of the medical problem completely and succinctly.

Within the diagnostic interview process, physicians ask a variety of detailed questions, evaluate patients' accounts, comment on patients' general states of health, suggest reasons for problems and concerns, and recommend possible courses of action that deal with the patients' problems and concerns. Whether or not the physician-patient interaction can/will achieve acceptable outcomes for all of the concerned parties involved depends on the levels of competency achieved during the patient-physician interaction. As such, medical diagnosis becomes a planning task, where physicians ask for information and draw inferences from that which is known. The information provided by the patient makes use of packets of procedural information called schemata, which are organized in the physician's memory according to the situations and goals which are useful (Turner, 1988). The acquisition and interpretation of relevant diagnostic information is dependent upon the physician's communicative and diagnostic competencies.

Widdowson (1983) differentiated between linguistic competence, which acts as "a second order abstraction" that fulfills a supportive role in language use, and communicative competence, which he described as linguistic knowledge. Widdowson's theoretical perspective contrasts with Hymes' (1972) notion of communication competence which includes all of the underlying traits the enable speakers to communicate (e.g. ability for use).

Widdowson's model (1983) describes communication competence as procedural capacity in a system where the speaker (physician) and the co-communicator (patient) negotiate or co-

construct meaning according to the schematic worlds of the conversational participants (the patient and the physician), which are not the same. When differences between the participants' worlds are greater (as in the case of a White physician and an African-American, or English-as-a-second-language speaking patient), the communicative interactants are forced do more procedural work in order for both to reach mutual understandings. Widdowson's model (1983) includes three levels of procedural capacity: (a) the systemic level (linguistic competence); (b) the schematic level (ability to use, or communicative capacity); and (c) the procedural level (the actual performance) to interpret the communicative performance occurring between the interactants. Communicants must master all three of these levels to achieve communication competence.

Therefore, communication competence exists at the schematic level (the ability "for use") (Widdowson, 1983). Two types of schemata (*ideational* and *interpersonal*) are related to the physician's and patient's "patterns or participations in social life" (Widdowson, 1983, pp. 55-56), and these schemata constrain and shape their communicative interactions. *Ideational schemata* are associated with "frames," and *interpersonal schemata* are associated with "plans" or "scripts." Ideational schemata pertain to the processing of conventional knowledge. Within the "healthcare frame" reside the physician's and patient's knowledge structures about doctor's offices and hospitals, the purposes of doctors and nurses, and what happens when one is sick or is injured, or goes to the doctor's office, the clinic, or hospital, etc. During patients' visits, interpersonal schemata are idealized, and predictable routines are constructed through the communicants' speech acts.

The physicians' and patients' interpersonal schemata draw from the participants' relationship knowledge structures, which include the beliefs about the importance of various

aspects of the relationship (Fletcher, Rosanowski, & Fitness, 1994), their rules about proper conduct within relationships (Argyle & Henderson, 1985; Jones & Gallois, 1989), and expectations about how interactants should behave toward each another (Kelley & Burgoon, 1991; Metts, 1994). Physicians and patients use schematic processes to define the context of the situation differently, and each participant reacts differently to the situation because each defines the context of what the situation means differently (Thomas, 1923).

Widdowson's (1983, 1984) description of schemata are similar to Schank's (1975) description of scripts. Script theory extends role theory, which describes conversational interactants similar to how actors perform on a stage. During social interactions, conversational interactants use scripts to guide thoughts and behaviors (actions). Script theory focuses on the use of key words and phrases which conversational participants recognize and use to guide them through conversation. A basic distinction between role theory and script theory is that role theory is based on the commonality of behavior across individuals focusing on the interpersonal service encounters while script theory examines individual differences in social and cultural experiences.

Scripts provide structure that can be used to describe an appropriate sequence of events within in a particular context. Scripts are developed and used to handle stylized everyday situations. Scripts are not subject to much change, nor can they provide the means for handling novel situations, as plans do. Schank (1975) described a script "as a predetermined, stereotyped sequence of actions that can be used define a well-known situation" (p. 175). Schank (1975) said,

A script is, in effect, a very boring little story. Scripts allow for new references to objects within them just as if these objects had been previously mentioned;

objects within a script may take “the” without explicit introduction because the script itself has already implicitly introduced them (p.151).

Schank compares conversational interactants to actors performing a story within a play. In the telling of a story, each act is an aftereffect of a sequence of events that arises according to the principle of causal chaining, where each action results in a set of conditions that enables another act to occur. In order for the actors to perform the next act in the sequence, previous acts must be completed. If an act cannot be completed, then the “hitches” must be corrected, so that the performance can continue (Schank, 1975, p. 151). In other words, as people engage in conversation, they are guided by social scripts that they have internalized during day-to-day interactions with others. Physicians develop illness scripts to guide them through a diagnostic sequence or event. Social scripts, on the other hand, are culture specific (Meng, 2008). Members of communities develop scripts to provide guidance during social interactions. Anthropological linguists and ethnographers of communication theorize that different speech communities have different "ways of speaking," and the term, *cultural scripts*, to describe the different conventions of discourse that occur between members of incongruous speech communities.

Social scripts operate as neither instinctive nor innate, becoming learned when an individual participates in daily activities or interacts with other people (Meng, 2008). Cultural scripts do not provide an account of real life social interactions; rather, cultural scripts describe commonly held assumptions about how "people think" about social interactions and how people behave in social interactions. Script theory assumes that people bring with them cognitive presumptions of their behaviors into everyday interactions, and they use social and cultural scripts to make sense of their interactions.

Social scripts vary from one culture to another in one way or another (Meng, 2008, p. 133). In some situations, social scripts differences may appear to be insignificant, but in other situations, social scripts appear to differ dramatically from each other (Meng, 2008). A key concept underlying script theory is the assertion that people use scripts to provide meaning when individuals encounter a new situation in their environment. People use prior knowledge (event schemas) that contains information about the characteristics and features of a particular situation that provides them with clues so they know how to think and behave in the new situation. The incoming information about the event, which is ascertained from the current situation, activates a previously acquired network of relevant knowledge and experience (event scripts), which in turn, directs the selection, interpretation, and memorization of the newly obtained information (Schank, 1975; Schacter, 1989). Scripts provide information regarding how individuals should think and behave. A diagnostic interaction between a patient and physician during a medical consultation represents one category of an event schema; whereby, “An event schema is a hierarchically organized set of units describing decentralized knowledge about an event structure” (Mandler, 1984, p.14).

1.5 Diagnostic Discourse

A study of 302 primary-care visits, 90% were opened with two types of questions: (a) open-ended inquiries (*What can I do for you today?* and *Tell me what's going on?*), and (b) closed-ended requests for confirmation of either general conditions or specific symptoms (*I understand that you are having trouble breathing?* and *Sore Throat, huh?*) (Robinson & Heritage, 2006). These formats communicate different stances towards patients and their problems. Open-ended questions claim limited knowledge of the patient's problems and frame patients as active authorities of health information. Closed-questions claim prior knowledge of

patient's problems, encourage *Yes-No* responses, and frame patients as passive authorities of health information. When patient responses to *Yes-No* questions are compared, open-ended questions produce significantly longer problem presentations that contain significantly more discrete symptoms (Heritage & Robinson, 2006).

Patients evaluate physicians' communicative competency according to task instrumental behavior and affective behavior (Bensing & Dronkers, 1992). These communicative behaviors correspond with the two main purposes of medical consultation: (a) gathering information necessary for solving a medical problem and (b) creating a therapeutic relationship. The therapeutic relationship between the physician and patient is important because it is necessary for managing the psychosocial aspects of the patient's health problems and gaining the patient's confidence (Dimatteo, 1979). Evidence suggests that patients' evaluations of physician competency are heavily influenced by the affective-relational dimension of physician communication (Ben-Sira, 1982). When patients perceive physicians as having a "positive" affective/relational communication style, patients are more likely to adhere to medical recommendations, are less likely to request post-operative narcotics (Egbert, 1964), are less likely to change physicians (Gandhi, 1997) or sue for malpractice (Frankel, 1995).

1.5.1 Medical Diagnostic Decision-Making

Byrne and Long (1976) suggested that six phases of discourse form the logical structure of the routine medical consultation:

1. The doctor establishes a relationship with the patient.
2. The doctor either attempts to discover or actually discovers the reason for the patient's attendance.
3. The doctor conducts a verbal or physical examination, or both.

4. The doctor, or the doctor and the patient, or the patient, (in that order of probability), consider the condition.
5. The doctor, and occasionally the patient, detail treatment or further investigation.
6. The consultation is terminated, usually by the doctor.

During a routine medical exam, when a clinician examines a patient, the physician interprets the patient's medical history and perceives the patient's symptoms, signs, and other details learned from the patient that activates the clinician's networks of knowledge about the patient and his/her illness. The physician's network/schemata of processual-experiential knowledge provide the physician with a diagnostic context from which he/she derives meaning. Throughout the diagnostic process, the physician utilizes a series of diagnostic scripts to evaluate the condition of the patient. The diagnostic script contains attributes about conditions, such as pain, swelling, fever, appetite, lethargy, age, gender, etc., as a series of signs, which lead the physician along a prescribed course of action. The sequence of events raises questions about the structure of clinical knowledge in the physician's memory (Feltovich, 1984). During a medical consultation, physicians quickly and intuitively construct schematic representations of the medical situation (Barrows, 1980). As a set of relevant scripts is activated from cues perceived, a physician processes information in order to determine whether or not the information fits clinical findings. The verification of the physician's diagnosis requires that the findings match the values associated to the different attributes of illness, if there is a mismatch between symptomology and illness, the "hitch" must be corrected (Schank, 1975). From the physician's perspective, the fundamental understanding of a diagnostic interview appears to be a hypothesis-testing activity.

The practice of medicine is the profession of helping people by treating illness, dispensing medical advice, and assuring patients and concerned parties in times of crisis. To

accomplish this goal, physicians turn to evidence-based medical practices, where they engage an ever-growing body of medical research, combining scientific knowledge with personal clinical experience, adapting the summation of the findings to fit each individual patient's particular circumstances and personal preferences (Sackett, 2000). Medical diagnosis is the primary process at the core of medical practice. During medical diagnostic interviews, physicians interview patients to interpret patient's concerns, diagnose disease, determine appropriate medical treatments, and decide whether patients understand prognoses and treatments and are able to follow prescribed treatment regimens.

Cognitive psychologists consider the diagnostic process a categorization task (Elstein, Shulman, & Sprafka, 1978; Gilhooley, 1990). Cognitive psychologists presume that during diagnostic process, physicians categorize and place patients and their illnesses into categories based on *enabling conditions*, or, according to Feltovich & Barrows (1984), certain contextual and patient background factors influence the physician's understanding of the probability of whether or not someone gets a disease and *symptomology* before making medical decisions. When minority patients experience a physician's categorization process, minority patients often question whether or not physicians employ social categories based on stereotypical racial, ethnic, and gender categories rather than treating the disease. However, national physician survey data indicate that physicians in high-minority practices depend more on low-paying Medicaid, receive lower private insurance reimbursements, and have lower income (Reschovsky, 2008). Constrained resources may determine a physician's ability to spend adequate time with patients.

1.5.2 Hypothetico-Deductive Reasoning versus Script Processing

The classic model of medical diagnosis is based on the hypothetico-deductive model (Barrows, Feightner, Neufeld & Norman, 1978; Barrows, Norman, Neufeld, & Feightner;

Feltovich, Johnson, Moller & Swanson, 1984). The hypothetico-deductive model, which represents a description of the mental processes used by physicians, is supported by empirical research (Elstein, Shulman, & Sprafka, 1978; Gilhooley, 1990). The hypothetico-deductive model states that when faced with a problem, a diagnostician starts with a general theory that includes all of the possible factors that might affect the patient's medical outcome and deduces from it specific hypotheses (or predictions) about what might happen under certain circumstances (Groupe d'Imagerie Neurofonctionnelle, n.d.). Solutions for difficult diagnostic problems are discovered by the clinician through the generation of a limited number of hypotheses early in the diagnostic process. Clinicians develop hypotheses to guide subsequent collections of medical data and treatment (Elstein, 1978). Each diagnostic hypothesis is generated to predict which medical findings should present if diagnostic presumptions are accurate. Physicians use the diagnostic process as a structured search for discovery. The level of the physician's expertise, which is exhibited during the problem solving process, varies greatly among individual clinicians, and the clinician's diagnostic competency skills are highly dependent on the practitioner's mastery of his/her particular medical domain (Patel, 1986).

Experienced physicians develop hypotheses and diagnostic plans more rapidly than novice diagnosticians, and the hypotheses generated by experienced physicians are of higher quality than novice practitioners (Elstein, 2002). Novice diagnosticians are more likely to struggle when developing a plan, and they often have difficulties moving beyond data collection when considering alternative courses of action. Novices have the skills necessary for data collection, but often misinterpret, misunderstand, or ignore pertinent information during diagnosis (Elstein, 2002). Comparisons of discrepancies in diagnostic outcomes among physicians with different skill levels challenge the hypothetico-deductive model of clinical

reasoning. Diagnostic accuracy may depend less on application of strategy and depend more on a clinician's mastery of content.

When using clinical reasoning processes in familiar situations, experts, frequently, do not explicitly test hypotheses (Groen, 1985; Schmidt, 1990). Based upon observations of the diagnostic speed, efficiency, and accuracy levels used by experienced clinicians, experienced diagnosticians may not even use the same reasoning processes as novices (Brooks, 1991). Experienced physicians may use a hypothetico-deductive strategy only when presented with a difficult or unusual case, and the clinical reasoning used by experienced diagnosticians may result from pattern recognition, or from some form of direct automatic information retrieval processing. Experienced diagnosticians may develop a more diversified and abstract set of semantic relations, or a network of links between clinical features and diagnostic categories than novices (Lemieux, 1992).

Often, medical diagnostic problems are so complex that a correct solution cannot be contained within an initial set of diagnostic hypotheses. In complex diagnostic situations, physicians must restructure and reformulate existing hypotheses as data are obtained and the diagnostic situation evolves. However, clinicians psychologically committed to a particular hypothesis experience greater difficulties when restructuring diagnostic assumptions of the patient's medical problem.

Physicians rely on contextual clues that occur in everyday life making the application to act in a particular situation. Patients depend on personal observations of illness and the physician's behaviors in order to make conclusions about their illnesses. Clues derived from situational observations are compared to contextual measures, so diagnosticians can adapt according to the situation and/or the environment. By tracing informational clues that are relied

on in specific situations, the physician studies context-present measures. This interrogative process adds to the usability and success of future context-aware communication applications. Behavior and symptoms occur within situational contexts, and situational contexts change according to causal principles, conventions and other constraints that, in turn, affect the sequences of events and actions related to a particular illness.

1.6 A Clinical Application of Script Theory

When people communicate, they mentally possess certain social scripts used to internalize day-to-day interactions. Routine medical interviews are day-to-day interactions for physicians; even though, they may not be for the patients. Minority patients have lower incomes and are less likely to possess health insurance. Because of the lack health insurance and access to health care, minority patients visit the doctor's office less frequently than non-minority patients do. Consequently, routine diagnostic interviews may not be routine occurrences for minority patients, and minority patients may lack the experience and knowledge necessary for interpreting physicians' behaviors. Racial and ethnic disparities in primary health care mirror the aggregate socioeconomic composition of a physician's patient panels as well as differences in patients' characteristics (Reschovsky, 2008). Physicians treating minority patients possess less access to health resources and lower qualifications than physicians primarily treating white patients (Bach, 2004).

Medical diagnosis is primarily a categorization task where clinicians' seek to determine the likely diagnostic class to which a patient's illness belongs in order to guide treatment. Consequently, a physician's early education focuses on learning the skills that are necessary for discerning the features (signs and symptoms) that characterize and differentiate various diseases and medical symptoms. When a physician examines a patient, the physician perceives features

(signs, symptoms, and details); whereby, the new information activates previously acquired networks of relevant knowledge and experience (scripts) that directs the selection, interpretation, and memorization of new information that contain the observed features and their relationships to illness that provide context and meaning to the situation (Schacter, 1989).

The physician acquires medical histories to obtain relevant information for the diagnosis, understanding, and treatment of the patient's problem. Several issues arise during the diagnostic process. The physician must possess the means for representing the procedural knowledge for making a diagnosis. The procedural knowledge must be organized in a manner that allows the physician the ability to easily and quickly retrieve it to permit illuminating the diagnostic problem. Finally, because physician's cannot develop a plan and subsequently execute the plan with a realistic expectation of success, the physician needs to be reactive and opportunistic so that the diagnostician can respond to unexpected changes in the environment and adapt to new information as it is discovered (Turner,1988, p. 84). Because of these procedural demands, the diagnostic process generally involves the use of different types of reasoning by the physician.

The procedure of the medical diagnostic process is complicated by several interrelated factors. Physicians have incomplete knowledge of the patient's medical condition and history. Often, physicians are presented with conflicting information, and must consider other important factors when making a diagnostic decision. Uncertainty arising from the physician's incomplete knowledge about the patient and his/her illness complicates the diagnostic process, for inferences and predictions are decided using incomplete knowledge, which, in turn, leads to a lack certainty and precision in the decision-making process. As conditions in the patient's health change during medical treatment, physicians respond through adaptive reasoning. Schema-based reasoning

processes assists a physician's knowledge structures in capturing the diagnostic or algorithmic patterns existent within the domain of the physician's procedural knowledge of an illness.

During the diagnostic process, the physician's procedural patterns used in diagnosis, not only guide the physician's diagnostic reasoning processes, but the physician's procedural patterns also organize the physician's knowledge of a disease and its treatment. Patterns used in the physician's diagnostic problem solving procedure are developed over time as the physician performs similar actions and cognitive processes when accomplishing similar goals. However, physician's diagnostic schemas are created and modified by the physician through the physician's experience and evolving expertise. This adaptive interpretive process may explain how experienced diagnosticians develop a more diversified and abstract set of schematic connections between clinical features and diagnostic categories than novices (Lemieux, 1992).

Schema-based diagnostic reasoning uses three types of schemas which correspond to the three types of knowledge necessary for adaptive reasoning: (a) procedural schema, (b) contextual schema, and (c) strategic schema (Turner, 1994, p.10). Procedural schema are used when taking action or achieving goals. Contextual schema represents a problem-solving context or portion of a context used to modulate the physician's behavior according to the current situation (including event-handling and attention-focusing behavior. Strategic schema represents a problem-solving strategy having to do with a specific strategic behavior. During a schema-based medical consultation, a physician draws upon contextual-schemas which represent the context of "the medical consultation" because they provide the physician with a context in which a clinician normally encounters the goal of diagnosing a patient's problem. For an inexperienced diagnostician, a physician might employ a hypothetico-deductive reasoning model to reach a diagnosis. If chosen, the hypothetico-deductive reasoning model guides the physician's

diagnostic procedure schema using information from the physician's current contextual schema and schema memory. In this case, the physician's hypothetico-deductive reasoning process schema is applied when deciding which questions to ask, developing hypotheses, and presenting a diagnosis.

Physicians learn how to conduct medical interviews in medical school, during residency, and in clinical practice. Through experience and practice, physicians develop and adapt a set of diagnostic schemas set within a complex matrix of experiential knowledge and professional expertise. In the United States, Canada, and the United Kingdom, when patients with acute problems (injuries, infections, etc.) visit their primary-care practitioners, doctor-patient communication is organized in six phases: opening, problem presentation, information gathering, diagnosis, treatment, and closing (Robinson & Heritage, 2005). The problem presentation phase is generally initiated when a clinician asks a question such as, "What can I do for you today?" or "Tell me what's going on?" The problem presentation phase is important because it is the only phase of the clinical visit where patients are allowed to present their problems, in their own way, and according to their own agendas (Robinson & Heritage, 2005). Allowing patients to present medical problems in their own terms is important in providing physicians with critical information necessary for diagnosis and treatment, while increasing the patient's affective satisfaction (Putnam, Stiles, Jacob, & James; 1985).

Despite evidence that patients frequently have multiple biomedical and psycho-social concerns (Barsky, 1981), more extensive problem presentation would provide physicians with additional opportunities to address patient concerns (Fisher, 1991; McWhinney, 1989). Research indicates that patients are not allowed to present all of the problems and concerns because physicians actively regulate the quantity of information at the beginning of the clinical

encounter, by using closed-ended questioning to control the patient-physician discourse. When physicians use a more controlling diagnostic style, they prematurely interrupt the patient's inquiry (Physicians prevent patients from completing their opening statement 77% of the time.) resulting in a potential loss of relevant information (Beckman & Frankel, 1983). The observation that the patients' presentation of problems and concerns are guided by the physicians' procedural schemata raises questions about the ways in which the physicians' diagnostic behavior affect the interactional "spaces" of "slots" within which patients reveal their problems and concerns.

From the physician's perspective, the central function of all medical systems is to provide meaning for an illness by naming it and by defining the cause (Stoeckle & Barsky, 1980). In order to accomplish diagnostic goals, physicians use procedural schema, contextual schema, and strategic schema during medical consultations, providing physicians with a means of problem solving for diagnosing a patient's medical condition. Patients enter a medical consultation with a different orientation toward the physician-patient interaction than the physician, and the patient's perceptions of the medical consultation and resultant behaviors are guided by a different set of cognitive schemata.

Social scripts provide patients with scenarios used to interpret social interaction through language in action. In ordinary conversation, actions and events are described as more or less routine script formulations. During the orderliness of routine social events, scripts are essentially perception and action schemata. Social scripts are neither innate, nor instinctive, for social scripts are learned during daily routines as people interact with other people (Meng, 2008). Script theory presumes that events which occur in everyday life encounters are more or less ordered and predictable, and an individual's competence when perceiving, recalling, and taking part in events draws upon the individual's capacity for developing generalized abstractions across variations of

his/her experiences, and noticing and learning from the exceptions that occur. Consequently, social scripts become internalized through the individual's actions and interactions with other people, and an individual's social scripts are modified through multiple social interactions which occur over time (Meng, 2008). Although social scripts may differ in complexity, any externalization of one's scripts must follow a social system's standardizing practices of social norms which commonly occur within a particular situation (Meng, 2008). Conversations of any kind, even the least formal, can be investigated through the ways that conversational participants treat the world as a more or less predictable, scripted, and plan able event (Edwards, 1994). Constructing varying sets of diagnostic scripts and evaluating how individuals react makes it possible to evaluate how people react to social interruptions of patient statements.

1.6.1 Using Scripts to Interpret Social Behavior

Kleinman (1980) suggests that medicine can be viewed as a cultural system where symbolic meanings are situated in particular arrangements of social institutions and patterns of interpersonal interactions. Illness, responses to illness, individuals experiencing illness (patients, friends, and family), individuals treating illness (physicians and health care providers), and social institutions that are related to illness, are systematically interconnected with each other.

A health care system is a socially constructed entity which integrates a society's cultural patterns of belief about the causes of illness, norms which govern acceptable options of choice and means of evaluating medical treatment, socially legitimate statuses, social roles, power relationships, interaction settings, and other institutions related to medical treatment and form an interrelated health care system.

Past interpersonal experiences exert a powerful influence on perceived behavior and on the construal of new social information. People develop working models of their relationships

which function as cognitive maps that help them to navigate their social world (Baldwin, 1992). Relational schemata provide people with cognitive structures that represent patterns of interpersonal relatedness (Baldwin, 1990). Individuals develop declarative and procedural memories about different aspects of their experience (Baldwin, 1992). These memories are used to construct interpersonal scripts for guiding interpersonal behavior. Interpersonal scripts act as cognitive generalizations based on repeated experiences with similar interactions, and interpersonal scripts are associated with episodic information from actual past encounters (Shank & Abelson, 1975). Each schema consists of an interpersonal script, which represents a sequence of actions and events that defines a stereotyped relational pattern. Through repeated experiences with similar patterns of interaction, individuals develop relational schemata. Scripts contain declarative knowledge statements about patterns of interaction and procedural aspects that are used to interpret social situations and others' behavior. If a particular interaction pattern is encountered repeatedly, the observed pattern is overlearned to the point where the script functions automatically (Smith & Lerner, 1986).

Social scripts include role slots which guide the processing of social information. Schemata affect that which is noticed, ways in which things are interpreted, rationale that shape how decisions are made, and ways in which people behave (act). Schemata act like perceptual filters which accentuate certain aspects of behavior, while attenuating other aspects. Through the process of observing actual social interactions, people develop social scripts of events and actions. Physicians and patients do not just enter a medical clinic and initiate a medical consultation. The medical consultation is a performance where actors (the physician and patient) follow social scripts, for social scripts refer to and guide social interactions. Scripts dictate what an individual should do at a particular time, and scripts determine what the individual should do

in a particular place. According to Activity Theory (Ratner, 1996), social roles are socially constructed and learned by individuals when they participate in socially constructed events. Scripts are essentially perception and action schemas, where a schema becomes “a spatially and/or temporally organized cognitive structure in which the parts are [inter]connected on the basis of contiguities that have been experienced in time or space” (Mandler, 1979, p. 263).

1.7 Concordance Theory

Census data (U. S. Census Bureau, 2000) identifies that while African Americans represent approximately 13% of the population, less than 3% of practicing physicians are of African American descent. When comparing differences in the representational make-up of African American physicians practicing medicine, to the representation of White physicians practicing medicine, the results mirror other sociological factors that contribute to health care disparities among minority populations in the United States. Furthermore, the underrepresentation of African American clinicians may explain another important factor affecting the patient-physician relationship – a lack of racial concordance among patients and practicing physicians (Cooper & Powe, 2004). Concordance emerges as an important dimension for understanding the patient-physician relationship because racial concordance is linked to minority-patient perceptions of healthcare disparity.

As a theoretical construct, concordance is defined in the United States as an individual’s awareness of a similarity or shared identity that either exists, or fails to exist between a physician and a patient that is based on a particular demographic attribute, such as race, sex, or age (Street, 2008). To the contrary, in the United Kingdom, concordance is defined as the degree of similarity in which doctors and patients agree on therapeutic decisions that incorporate their respective views (NCCSDO, 2005). For the purpose of this research dealing with health care

disparities in the United States, the prior definition will be used, while recognizing that the latter definition is directly related to understanding patient-centered communication.

Factor analysis reveals two dimensions of similarity: (a) personal similarity (in beliefs and values), and (b) ethnic similarity (in race and/or community) (Street, 2008). Patient-physician relationships are strengthened when patients see themselves similar to attending physicians in personal beliefs, values, and communication processes. Furthermore, personal similarity is associated with higher patient ratings of physician trust and satisfaction, as well as patients' intentions of adhering to medical treatment (Street, 2008). While race is a primary predictor of perceived ethnic similarity, other factors, including the physician's use of patient-centered communication, affect perceived personal similarity.

Data gathered by the 1999 Kaiser Family Foundation Survey of Race, Ethnicity, and Medical Care revealed that only 22% of African Americans preferred an African American physician, and 65% had no preference. Thirteen percent of African Americans preferred a non-African American physician. 34% of Latinos preferred a Latino physician, and 47% had no preference, while 19 % of Latinos specifically preferred a non-Latino physician. Only 13% of Whites preferred a White physician, and 75% of Whites had preference of their physician's race (Chen, 2005).

Research, examining racial concordance, is important for understanding patient-physician communication. Patients in racially concordant encounters report more personal similarity with their doctors than minority patients in racially discordant interactions. White patients' attitudes in racially discordant interactions do not differ in their perceived personal similarity relative to the other two groups (Street, 2008). By mean discriminatory belief scale scores, African Americans have stronger beliefs about racial discrimination in health care than Latinos, and African

Americans, who preferred an African American physician, have stronger beliefs about racial discrimination practices in health care than African Americans, who had no preference (Chen, 2005, p. 140).

When comparing the patient's perceptions of personal similarity to his/her physician, the patients' perception of similarity is a strong predictor of the patients' satisfaction with health care, trust in the physician, and intent to adhere to the physician's treatment recommendations (Street, 2005). Street's findings support earlier observations that levels of patient trust, levels of satisfaction, utilization of health services, and involvement in decision making are higher among patients and physicians who are more racially or ethnically similar (La Viest, 2002; La Viest, 2003). Furthermore, Street (2008) ascertained that the degree to which physicians were patient-centered was directly related to patients' perceptions of similarity with their doctor. Furthermore, Street's findings predicted whether or not patients were more likely to actively participate in health care outcomes, were more satisfied with health care, expressed greater levels of trust, developed stronger intentions to adhere to treatment recommendations, or whether physicians were perceived as being informative, supportive, and facilitative.

An issue often associated with ethnic/racial concordance relates to the correlation between the patient's value orientation towards the patient's relationship with the physician and the patient's ethnicity and/or race (Joiner, 2007). Studies suggest that when patients and physicians are racially and/or ethnically-concordant, the relationships between the patients and physicians last longer. Concordant relationships are perceived as being more satisfying than racially and ethnically-discordant patient-physician relationships. Additionally, observed associations between race concordance and higher patient ratings of care appear to be independent of patient-centered communication (Cooper, 2003). However, research also suggests

that other factors associated with the patient-physician relationship, such as the patient-physician interactant-attitudes, mediate the patient-physician relationship. Cooper's finding, which is independent of patient-centered communication, concludes that an interactants' attitudes and biases may contribute to patient-physician relationships. However, when controlling for the variables of age, sex, income, education, insurance status, and type of insurance, Kumar (2009) found that race concordance may only be only associated with the general health of White respondents. Whites with health insurance are more likely to be concordant than Whites without insurance, and African Americans without insurance are more likely to be concordant than African Americans with insurance.

Concordance theory provides a helpful analytic tool useful for developing ways to reduce health care disparities by increasing the representation of minority populations in medical school. Only 6% of doctors, currently practicing medicine are members of minority populations. The application of racial concordance theory to medical school admission standards may help the Association of American Medical Colleges reduce concordance related disparities of health care in the future. However, it is imperative that something needs to be done to reduce health care disparities today.

Other relationship-oriented factors, such as patient trust and physician communication style, are linked to disparities in patient satisfaction (Fiscella, 2004; Thom, 1999), delivery of preventive care services (Cabana, 2004; Williams, 2005), use of medical referrals (Little, 2001), and patient treatment adherence (Safran, 1998). Patient satisfaction with the physician and medical treatment are other important determinants of compliance (Korsch, 1981; Woolley, 1978), and compliance largely the result of physician-patient communication (Daly, 1975; Spiro, 1983).

Patients engaged in racially concordant patient-physician relationships rated the physicians' participator decision-making styles as significantly more participatory than race-discordant relationships (Cooper-Patrick, 1999). However, participatory decision-making was strongly and significantly related to satisfaction across all racial groups. These results suggest that patients of all racial and ethnic groups have a preference for physicians who allow patients to actively participate in medical decision-making.

While there is sufficient evidence to support claims that race concordance may be associated with better patient ratings of care (Cooper, 2003), a study of concordance, as related to other socio-cultural factors (such as language use and proficiency) may provide additional insight into other causes of health care disparity associated with ethnic minority populations. According to the 2000 U.S. Census, almost 18% of the residents of the United States (56 million), who are five years of age or older, speak a language other than English at home, and 8% (21 million) speak English less than "very well" (U. S. Census Bureau, 2000). The American Community Survey: 2005-2009 (U.S. Census Bureau, 2012) reports that 8.6% of the U. S. population (24 million Americans) have limited English proficiency (LEP), and language barriers in health care settings compromise the quality of care for (LEP) patients, or patients who do not read English as their primary language, or if they have a limited ability to read, write, speak, or understand English (Wilson, 2005). Language barriers reduce access to primary and preventive care, impair patient comprehension, decrease patient adherence, and diminish patient satisfaction (Wilson, 2005, p. 801), but there remains a legal obligation for health care providers to provide for proper interpretation of health care communication.

Title VI of the Civil rights Act prohibits any form of discrimination by federally funded entities based on race, color, or national origin. Compliance with federal law makes it mandatory

for all public and private health care entities to provide language assistance when necessary which results in accurate and effective patient-provider communication at no cost to the patient. While many health care settings provide interpreter services for their non-speaking patients, evidence suggests that patients would be better served by interacting with language-concordant physicians, rather than collaborating through an interpreter, in order to receive the best medical care and ensure patient satisfaction with health care experiences (Green, 2005; Lee, 2002).

Chapter 2 Methods

2.1 Hypotheses

H₁ Physician interruptions reduce patient satisfaction with physician communication.

H₂ Physician verbal attentiveness increases patient satisfaction.

2.2 Analyses of Hypotheses

H₁ examines the relationship between physicians' interruptions of the patients' statements of concerns and satisfaction with health communication messages. This study examines the impact of physicians' interruptions of patients during statements of concerns. Participants may view the interruptions as an intrusion or violation of patients' communicative expectations. Physicians, on the other hand, utilize patients' statements of concerns as sources for gathering information to determine the pattern of the patients' symptoms to classify a patient's symptomology and render an accurate diagnosis.

H₂ considers the relationship participants' level of satisfaction with the social and health communication messages when the physician addresses the patients' concerns and explains physician behaviors by framing them within the diagnostic context, to reduce behavioral uncertainty.

2.3 Research Questions

RQ₁ How do demographic features (such as race, ethnicity, gender, and education) affect perceptions of physician interruptions in relation to satisfaction?

RQ₂ Will health care experiences or methods of financing influence satisfaction with physician behavior?

2.4 Subjects and Procedure

The sample consisted primarily of undergraduate students (18 years-of-age or older) attending a large public urban Midwest research university. In return for participating in the study, students received extra credit. Parents and friends of the students were encouraged to participate in the study to increase the diversity of the sample pool. Additionally, several postings on Facebook solicited additional research participants not receiving any form of compensation. Volunteers read and indicated agreement of an informed consent form.

Participants could remove themselves from the study at any time without penalty. The sample (Table 2A) consisted of 343 participants: 153 males (44.6%); 186 females (54.2%); 3 gender other (0.9%). The sample population (Table 2B) was primarily White/Caucasian (57.7%), with Blacks/African Americans (9.3%), Asians (7.0%), and Latinos/Hispanics (7.0%) identified as the primary racial/ethnic minorities. Other than African Americans and Asians, members of the Hmong community (4.6%), specifically, identified themselves as the largest single ethnic group. The majority of the sample (Table 2D) earned less than \$40,000 a year, with 129 (37.6%) earning less than \$19,999, and 62 (18.1%) earning between \$20,000 and \$39,999 per annum. 59 (17.2%) preferred not to disclose their annual income. Only 94 people (27.4%) earned above \$40,000 per year. The majority of the participants (Table 2E), 293 (85.4%), had health insurance, and only 48 (14%) did not have health insurance.

2.5 Instruments

Questions were written using Qualtrics survey software that identified the survey respondents' demographic data: (a) age, (b) gender, (c) marital status, (d) race and ethnicity, (e) national origin, (f) education, (g) employment status, and (h) income (Appendix A). Additional questions evaluated the respondents' availability of health insurance and familiarity with health care (Appendix B).

Snell and Johnson's (1997) Multidimensional Health Questionnaire (MHQ) provides an objective self-report instrument to examine the psychological correlates of the participants' health behaviors. Results indicate that the subscales of the MHQ have high internal consistency (Cronbach alpha coefficients .65 to .90), and several MHQ scales are positively associated with people's tendency to engage in a greater number of health promoting behaviors.

The specific MHQ subscales measured were (a) *Health Assertiveness* (survey questions 15, 19, 22, 26, & 31), The Health Assertiveness scale demonstrated adequate reliability, Cronbach's alpha = .787, (b) *Internal Health Control* (See Appendix B, survey questions 18, 21, 25, 29, & 35). The Internal Health control scale demonstrated adequate reliability, Cronbach's alpha = .777, and (c) *Powerful-Other Health Control*, (survey questions 17, 20, 24, 28, & 34), The Internal Health control scale demonstrated adequate reliability, Cronbach's alpha = .805.

Health Assertiveness refers to a patient's tendency to be assertive in the health-related aspects of one's life. Assertive patients are decisive about health decisions and self-reliant in one's pursuit and fulfillment of health needs. Health assertive individuals operate as self-directed and instrumental in fulfilling health needs and requirements, relying more on themselves than others when making health decisions.

Internal Health Control refers to the belief of personal control over illness. Originally developed within the framework of Rotter's (1954) social learning theory, the locus, Internal Health Control, examines the degree to which health is contingent on behavior. More specifically, people with Internal Health Control believe that they exert a strong influence over conditions that affect their health. In other words, Internal Health Control refers to the perception of positive or negative events associated with health and illness reflect the consequences of actions under one's own personal control.

Powerful-Other Health Control (The extent to which people believe that other more powerful individuals [e.g. friends, family, health professionals] have control over their physical health.). Originally developed within the framework of Rotter's (1954) social learning theory, the locus, Powerful-Other Health Control, examines the degree to which individuals believe that health is contingent on the behavior of more-powerful others. The external locus of control of the Powerful-Other Health Control reflects the patient's perception of positive or negative events, as unrelated to one's own behavior in certain situations. As a general principle, the locus of control variable may be thought of as a more powerful-other who control one's health and affects the patient's behavior as a function of expectancy and reinforcement within a specific situation.

2.5 Stimulus Descriptions

After collecting premeasures, the pool of research participants listened to one of four pre-recorded medical diagnostic scripts for the diagnosis of an upper respiratory infection (Appendix B). The four scripts were constructed by interpreting medical diagnostic protocols, viewing medical diagnostic interview training videos, observing practicing physicians' medical diagnostic interviews, and adapting the content into four varying medical diagnostic protocol scripts for the treatment of upper respiratory infections.

Script A contained a medical diagnostic interview, with physician interruptions and with verbal attentiveness. Script B contained a medical diagnostic interview, with physician interruptions, but without verbal attentiveness. Script C contained a medical diagnostic interview, without physician interruptions, but with verbal attentiveness. Finally, Script D contained a medical diagnostic interview, without physician interruptions, and without verbal attentiveness. Each of the four (audio only) recorded scripts were rehearsed and read by two female doctoral students in order not to introduce gender bias into the results.

Participants were asked to evaluate the frequency of doctor interruptions of patient utterances during the interaction. Consistent with the manipulation, the recording that contained the doctor interrupting the patient was evaluated as significantly higher in doctor interruptions, $t(334) = 1.75, p < .05$. Similarly, participants rated the perception of doctor attentiveness to the patient and the recorded script with high levels of doctor attentiveness, and the doctor was considered to be more attentive by listeners, $t(333) = 1.82, p < .05$. These evaluations demonstrate the success of both manipulations of the script as perceived by participants.

2.7 Post Stimulus Measures

Post-test socio-emotional responses were measured using an adapted socio-emotional behavior subscale of *The Medical Interview Satisfaction Scale - The Care Measure* (Robison & Heritage, 2006), which is listed in the Survey Instrument subsection (Appendix B, questions 44 - 53), measured participant satisfaction with the physician's diagnostic behaviors. The Consultation and Relational Empathy (CARE) Measure is a consultation process measure (Mercer, 2004) based on a broad definition of empathy in context of a therapeutic relationship within the consultation. Empathy is a key aspect of the clinical encounter (Reynolds, 1999), providing patients' definitions of quality care (Rees-Lewis, 1994). The CARE measure was used

to measure empathy and patient satisfaction. The Care measure scale demonstrated adequate reliability, Cronbach's alpha = .960.

Five other scales were developed to measure expectations. The scales were (a) Bedside Manner (See Appendix B, survey questions 38, 40, 41, 42, 64, & 69), (b) Doctor Expectations (See Appendix B, survey questions 37, 39, & 59), (c) Consultation Goals (See Appendix B, survey questions 55, 56, 57, & 62), (d) Patient-Centeredness (See Appendix B, survey questions 57, 61, 63, 66, 67, & 69), and (e) Patient-Physician Interaction (See Appendix B, survey questions 58, 68, & 70).

(a) Bedside Manner – *Bedside Manner* frequently refers to the way doctors interact and communicate with patients. Physicians demonstrating a good bedside manner are good communicators, neither offending, nor overly abrupt with patients. Physicians with good bedside manner demonstrate empathy, show openness when communicating with patients, involve patients in health decisions, and help patients feel more at ease. A poor bedside manner often manifests as arrogance, a failure to listen to the patient's concerns, abruptness, the dismissal of a patient's fears, preoccupation, and rudeness. Often, medical schools offer specific courses in practicing the empathetic approach to patient care. In some hospitals, doctors are tested on bedside manner with mock patients testing the doctor's tolerance. The *Bedside Manner* measure scale demonstrated adequate reliability, Cronbach's alpha = .742.

(b) Doctor Expectations – The variables associated with *Doctor Expectations* reflect the patient's expectations of how doctors normally behave during clinical encounters. The *Doctor Expectations* measure scale demonstrated adequate reliability,

Cronbach's alpha = .572. **Consultation Goals** – Medical consultations occur between individuals in an asymmetrical relationship between an expert with medical expertise and knowledge, and the patient, who has a complaint. Finset and Mjaaland (2009) suggest that during the medical interview, rapport building, disclosure of the patient's cues and concerns, physician empathy, and positive appraisal are the consultation goals. These questions were written to determine whether or not the physician met the consultation goals. The *Consultation Goals* measure scale demonstrated adequate reliability, Cronbach's alpha = .838.

- (c) **Patient-Centeredness** – The Institute of Medicine identifies patient centeredness as a core component of quality health care. Patient-centeredness is defined as Health care that establishes a partnership among practitioners, patients, and their families ensuring that decisions respect patients' wants, needs, and preferences, and patients have the education and support necessary to make decisions and participate in their own care. The variable, *Patient-Centeredness*, encompasses qualities of compassion, empathy, and responsiveness to the needs, values, and preferences expressed by the individual patient. The patient-centered approach to health care views each patient as a unique individual, rather than focusing strictly on the patient's illness. Patient-centered care builds a therapeutic alliance incorporating the patient's and the provider's perspectives. Good provider-patient communication supports patient-centered care, so patients' needs and wants are understood and addressed. During patient-centered encounters, patients understand and participate in their own care. The patient-centered approach to health care improves patients' health and health care.

The *Patient-Centeredness* measure scale demonstrated adequate reliability, Cronbach's alpha = .868.

- (d) **Patient-Physician Interaction** specifically examines the degree to which doctor-patient interactions are viewed in a positive manner. The *Patient-Physician Interaction* measure scale demonstrated adequate reliability, Cronbach's alpha = .540.

Chapter 3 Results

3.1 Analyses of Interruption-Attentiveness Effects on Variables

A. Bedside Manner

Participants found physician interruptions ($M = 13.61, s = 3.47, n = 160$) significantly increased $F(1, 316) = 12.76, p < .05$, unattractive bedside manner than the doctor not interrupting the patient ($M = 12.20, s = 3.52, n = 160$). The impact of attentiveness on the part of the doctor ($M = 12.84, s = 3.49, n = 162$) was not significantly different, $F(1, 316) = 0.01, p > .05$ from unattentive behavior ($M = 12.97, s = 3.64, n = 158$). The interaction effect between Attentiveness and Interruption was not significant, $F(1, 316) = 0.13, p > .05$. (The Table of Results for Bedside Manner appears in Appendix D, Table 3A.)

An analysis of physician's Bedside Manner supported H_1 (Physician interruptions reduce patient satisfaction with physician communication.). When physicians interrupt patients during the patients' statement of concerns, it violated the participants' expectations of the physician's Bedside Manner, and patient satisfaction of the physician's behavior was reduced. However, the variable, Bedside Manner, results failed to support H_2 (Physician verbal attentiveness increases patient satisfaction.). Perceptions of the physician's attentiveness did not mitigate the effects of physician interruptions during the patient's statement of concerns. Even when physician statements framed or explained the reasons for the physician interruptions, the participants' levels of satisfaction with physician's interruptive behaviors were reduced.

B. Consultation Goals

Participants found that physician interruptions ($M = 10.49, s = 4.31, n = 163$) significantly lowered, $F(1, 323) = 16.40, p < .05$, the positive view of the doctor consultation goals compared to the doctor not interrupting the patient ($M = 12.45, s = 4.45, n = 160$). The impact of attentiveness on the part of the doctor ($M = 11.32, s = 4.55, n = 168$) was not significantly

different, $F(1, 323) = 0.54, p > .05$ from inattentive behavior ($M = 11.63, s = 4.42, n = 159$). The interaction effect between attentiveness and interruption was not significant, $F(1, 323) = .54, p > .05$. (The Table of Results for Consultation Goals appears in Appendix D, Table 3B.)

An analysis of Consultation Goals supported **H₁** (Physician interruptions reduce patient satisfaction with physician communication.). When the doctor interrupted the patient during the statement of concerns, the participants viewed the interruption as a violation of the expected goals of a medical consultation. Subsequently, the participants' perceptions of the doctor's communicative behaviors created a more negative level of satisfaction with consultation's outcome. Furthermore, **H₂** (Physician verbal attentiveness increases patient satisfaction.) was not supported.

C. Patient-Physician Interaction

Participants found that physician interruptions ($M = 7.32, s = 2.68, n = 164$) significantly less, $F(1, 327) = 2861.59, p < .05$, attractive than the doctor not interrupting the patient ($M = 8.45, s = 2.68, n = 167$). The impact of attentiveness on the part of the doctor ($M = 7.76, s = 2.65, n = 168$) was not significantly different, $F(1, 327) = 5.52, p > .05$ from inattentive behavior ($M = 8.03, s = 2.82, n = 163$). The interaction effect between attentiveness and interruption was not significant, $F(1, 327) = 1.29, p > .05$. (The Table of Results for Patient-Physician Interaction appears in Appendix D, Table 3C.)

An analysis of Patient-Physician Interaction supported **H₁** (Physician interruptions reduce patient satisfaction with physician communication.). When the doctor interrupted the patient during the patients' statement of concerns, the interaction between the physician and patient was perceived as being less satisfying than when the physician did not interrupt the patient. However, **H₂** (Physician verbal attentiveness increases patient satisfaction.) was not supported.

D. Doctor Expectations

Participants found that physician interruptions ($M = 5.39, s = 1.69, n = 165$) significantly increased, $F(1, 329) = 7.55, p < .05$, the feeling of negative expectations about the doctor compared to not interrupting the patient ($M = 4.86, s = 1.71, n = 168$). The impact of attentiveness on the part of the doctor ($M = 5.03, s = 1.64, n = 170$) was not significantly different, $F(1, 329) = 0.72, p > .05$ from inattentive behavior ($M = 5.22, s = 1.80, n = 163$). The interaction effect between attentiveness and interruption was not significant, $F(1, 329) = 0.014, p > .05$. (The Table of Results for Doctor Expectations appears in Appendix D, Table 3D.)

An analysis of Doctor Expectations supported H_1 (Physician interruptions reduce patient satisfaction with physician communication.). Participants' perceptions of how doctors should not interrupt patients violated the social script. When the doctor interrupted the patient during the statement of concerns, the behavior was perceived as a violation of how a physician is supposed to act towards a patient during a medical consultation. Consequently, the participants' perceived satisfaction with the doctor's behavior was reduced. Therefore, H_2 (Physician verbal attentiveness increases patient satisfaction.) failed to receive support.

E. Patient-Centeredness

Participants evaluated physician interruptions to ($M = 137.14, s = 3.04, n = 164$) significantly increase the sense that the doctor was not patient-centered, $F(1, 325) = 21.74, p < .05$, compared to the doctor not interrupting the patient ($M = 135.57, s = 3.01, n = 165$). The impact of attentiveness on the part of the doctor ($M = 136.30, s = 3.09, n = 169$) was not significantly different, $F(1, 325) = 0.002, p > .05$ from inattentive behavior ($M = 136.41, s = 3.17, n = 160$). The interaction effect between attentiveness and interruption was not significant,

$F(1, 325) = 0.60, p > .05$. (The Table of Results for Patient-Centeredness appears in Appendix D, Table 3E.)

An analysis of Patient-Centeredness supported H_1 (Physician interruptions reduce patient satisfaction with physician communication.). When physicians interrupted the patients' statement of concerns, participants perceived the interruptions as communicative behaviors which were not patient centered, thus reducing the participants' perceived levels of satisfaction with the physician's behavior. Because no significant effect existed for Physician verbal attentiveness on patient satisfaction, H_2 was rejected.

F. Care Measures

Participants found that physician interruptions ($M = 24.33, s = 11.53, n = 162$) significantly less, $F(1, 320) = 13.36, p < .05$, attractive than the doctor not interrupting the patient ($M = 28.93, s = 11.66, n = 162$). The impact of attentiveness on the part of the doctor ($M = 25.89, s = 11.59, n = 166$) was not significantly different, $F(1, 320) = 0.01, p > .05$ from inattentive behavior ($M = 27.41, s = 12.01, n = 158$). The interaction effect between attentiveness and interruption was not significant, $F(1, 320) = 0.80, p > .05$. (The Table of Results for Care Measures appears in Appendix D, Table 3F.)

An analysis of Care Measures supported H_1 (Physician interruptions reduce patient satisfaction with physician communication.). Care measures are specifically written to measure physician empathy and participant satisfaction with the physician's diagnostic behaviors. An analysis of CARE measures found that physician interruptions of the patients' concerns was significantly less attractive than when the doctor did not interrupt the patient; thus, supporting H_1 . However, the impact of the doctor's attentiveness was negligible, so H_2 (Physician verbal attentiveness increases patient satisfaction.) was rejected.

G. Powerful-Other Health Control

Participants found that physician interruptions ($M = 9.58, s = 3.89, n = 162$) were not significantly different, $F(1, 330) = 2.51, p < .05$, than when the doctor did not interrupt the patient ($M = 10.27, s = 4.07, n = 169$). The impact of attentiveness on the part of the doctor ($M = 9.76, s = 4.01, n = 172$) was not significantly different, $F(1, 330) = 0.71, p > .05$ from inattentive behavior ($M = 10.10, s = 3.98, n = 162$). The interaction effect between attentiveness and interruption was not significant, $F(1, 330) = 0.52, p > .05$. (The Table of Results for Powerful-Other Health Control appears in Appendix D, Table 3G.)

An analysis of Powerful-Other Health Control did not support **H₁** (Physician interruptions reduce patient satisfaction with physician communication.). Powerful-Other Health Control refers to the extent to which people believe that other more powerful individuals (e.g. friends, family, or health professionals) have control over the patient's physical health. Regardless of how the participants view Powerful-Other Health Control, the results of interrupting the patient were not significantly different than when the doctor did not interrupt the patients. Similarly, the impact of attentiveness on the doctor's part was not significantly different than when the doctor was not attentive. Therefore, **H₂** (Physician verbal attentiveness increases patient satisfaction.) was equally rejected.

H. Internal Health Control

Participants found that physician interruptions ($M = 19.59, s = 3.95, n = 169$) were not significantly different, $F(1, 332) = 2.13, p < .05$, than when the doctor did not interrupt the patient ($M = 19.00, s = 3.91, n = 167$). The impact of attentiveness on the part of the doctor ($M = 19.46, s = 4.12, n = 174$) was not significantly different, $F(1, 332) = 0.01, p > .05$ from inattentive behavior ($M = 19.12, s = 3.73, n = 162$). The interaction effect between attentiveness

and interruption was not significant, $F(1, 332) = 0.49, p > .05$. (The Table of Results for Internal Health Control appears in Appendix D, Table 3H.)

Internal Health Control refers to the belief of personal control over illness. In regards to Internal Health Control, participants found that physician interruptions of the patient's statement of problems were not significantly different than when the patient was not interrupted.

Consequently, **H₁** (Physician interruptions reduce patient satisfaction with physician communication.) was not supported. **H₂** (Physician verbal attentiveness increases patient satisfaction.) was rejected.

I. Health Assertiveness

Participants found that physician interruptions ($M = 18.06, s = 4.37, n = 156$) were not significantly different, $F(1, 334) = 0.69, p < .05$, than when the doctor did not interrupt the patient ($M = 17.62, s = 4.15, n = 164$). The impact of attentiveness on the part of the doctor ($M = 17.99, s = 4.29, n = 164$) was not significantly different, $F(1, 334) = 1.02, p > .05$ from inattentive behavior ($M = 17.67, s = 4.24, n = 156$). The interaction effect between attentiveness and interruption was not significant, $F(1, 334) = 0.07, p > .05$. (The Table of Results for Health Assertiveness appears in Appendix D, Table 3I.)

Health Assertiveness refers to a patient's tendency to be assertive in the health-related aspects of one's life. Assertive patients are decisive about health decisions and self-reliant in one's pursuit and fulfillment of health needs. Because participants found no significant difference between when physicians interrupted patients and when they did not, **H₁** (Physician interruptions reduce patient satisfaction with physician communication.) was not supported. Furthermore, the interaction effect between attentiveness and interruption were not significant

for Health Assertiveness, **H₂** (Physician verbal attentiveness increases patient satisfaction.) was rejected.

3.2 Analyses of Interruption-Attentiveness Effects on Demographics

The analysis of covariance for Bedside Manner found no significant covariant effect ($p > .05$) for most variables entered into the analysis (Age, Birthplace, Education, Employment Status, Type of Work, Income, Insurance, Consultation Frequency, and Date of Last Consultation). The only significant covariate effect existed for the Biological Gender of the participant in regards to Bedside Manner, $F(1, 13) = 9.07, p < .05$. The impact of the covariate on the results of the ANOVA did not change the results from the original analysis associated with H1 and H2. (The complete details of the analysis appear in Appendix D, Table 3A₂.)

Because of the analysis of the data, only one demographic feature (Biological Gender) of the participants' demographic features affected Bedside Manner for RQ₁ (How do demographic features (such as race, ethnicity, gender, and education) affect perceptions of physician interruptions in relation to satisfaction?).

A. The analysis of covariance for Consultation Goals found no significant covariant effect ($p > .05$) for most variables entered into the analysis (Age, Birthplace, Education, Employment Status, Type of Work, Income, Insurance, and Consultation Frequency). The only significant covariate effects existed for the Biological Gender of the participant in regards to Bedside Manner, $F(1, 13) = 6.91, p < .05$, and the Date of Last Consultation, $F(1, 13) = 93.38, p < .05$. The impact of the covariate on the results of the ANOVA did not change the results from the original analysis associated with H1 and H2. The complete details of the analysis appear in Appendix D, Table 3B₂.

B. The analysis of covariance for Patient-Physician Interaction found no significant covariant effect ($p > .05$) for all of the variables entered into the analysis (Biological Gender,

Age, Birthplace, Education, Employment Status, Type of Work, Income, Insurance, Consultation Frequency, and Date of Last Consultation). The impact of the covariate on the results of the ANOVA did not change the results from the original analysis associated with H1 and H2. The complete details of the analysis appear in Appendix D, Table 3C₂.

C. The analysis of covariance for Doctor Expectations found no significant covariant effect ($p > .05$) for any of the variables entered into the analysis (Biological Gender, Age, Birthplace, Education, Employment Status, Type of Work, Income, Insurance, Consultation Frequency, and Date of Last Consultation). The impact of the covariate on the results of the ANOVA did not change the results from the original analysis associated with H1 and H2. The complete details of the analysis appear in Appendix D, Table 3D₂.

D. The analysis of covariance for Patient-Centeredness found no significant covariant effect ($p > .05$) for any of the variables entered into the analysis (Biological Gender, Age, Birthplace, Education, Employment Status, Type of Work, Income, Insurance, Consultation Frequency, and Date of Last Consultation). The impact of the covariate on the results of the ANOVA left the results unchanged from the original analysis associated with H1 and H2. The complete details of the analysis appear in Appendix D, Table 3E₂.

E. The analysis of covariance for Care Measures found no significant covariant effect ($p > .05$) for most variables entered into the analysis (Age, Birthplace, Education, Employment Status, Type of Work, Income, Insurance, and Consultation Frequency). The only significant covariate effects existed for the Biological Gender of the participant in regards to Bedside Manner, $F(1, 13) = 5.30, p < .05$, and the Date of Last Consultation, $F(1, 13) = 4.38, p < .05$. The impact of the covariate on the results of the ANOVA did not change the results from

the original analysis associated with H1 and H2. The complete details of the analysis appear in Appendix D, Table 3F₂.

F. The analysis of covariance for Powerful-Other Health Control found no significant covariant effect ($p > .05$) for most variables entered into the analysis (Biological Gender, Birthplace, Education, Type of Work, Income, Insurance, and Date of Last Consultation). Significant covariate effects existed for the Age of the participant in regards to Powerful-Other Health Control, $F(1, 13) = 9.67.30, p < .05$, Employment Status, $F(1, 13) = 4.25, p < .05$, and the Date of Last Consultation, $F(1, 13) = 3.97, p < .05$. The impact of the covariate on the results of the ANOVA did not change the results from the original analysis associated with H1 and H2. The complete details of the analysis appear in Appendix D, Table 3G₂.

G. The analysis of covariance for Internal Health Control found no significant covariant effect ($p > .05$) for most variables entered into the analysis (Biological Gender, Age, Education, Employment Status, Type of Work, Income, Insurance, Consultation Frequency, and Date of Last Consultation). The only significant covariate effect existed for the participant's Birthplace, $F(1, 13) = 6.43, p < .05$. The impact of the covariate on the results of the ANOVA did not change the results from the original analysis associated with H1 and H2. The complete details of the analysis appear in Appendix D, Table 3H₂.

H. The analysis of covariance for Health Assertiveness found no significant covariant effect ($p > .05$) for most variables entered into the analysis (Biological Gender, Birthplace, Education, Employment Status, Type of Work, Income, Insurance, and Consultation Frequency). The only significant covariate effects existed for the Age of the participant in regards to Health Assertiveness, $F(1, 13) = 5.40, p < .05$, and the Date of Last Consultation, F

(1, 13) = 5.66, $p < .05$. The impact of the covariate on the results of the ANOVA did not change the results from the original analysis associated with H_1 and H_2 . The complete details of the analysis appear in Appendix D, Table 3I₂.

3.3 Methods of Health Finance Do Not Support RQ₂.

A. RQ₂ asks “Will health care experiences or methods of financing influence satisfaction with physician behavior?” A correlation compared the participants’ source of health financing to the variables on the variables Bedside Manner, Consultation Goals, Patient-Physician Interaction, Doctor Expectations, Patient-Centeredness, Care Measures, Powerful-Other Health Control, Internal Health Control, Health Assertiveness, Attentiveness, and Interruptions (The Table of Results for the Correlations appears in Appendix D, 3J.). The number of significant correlations is not more than would be expected due to random chance, $z = 1.87, p = .09$.

Chapter 4 Discussion

4.1 Summary

RQ₁ examines the participants' perceptions of demographic similarities and differences between the participants, the patient, and the physician and whether or not these perceptions affect doctor-patient interaction. Surprisingly, analyses of covariance found no significant covariant effect for any of the variables (Biological Gender, Age, Birthplace, Education, Employment Status, Type of Work, Income, Insurance, Consultation Frequency, or Date of Last Consultation) in relation to Patient-Physician Interaction, Doctor Expectations, and Patient-Centeredness. These findings are inconsistent with previous studies' findings (Cooper, 2003; Cooper & Powe, 2004; Chen, 2005, Street, 2008) and raise concerns about the assumptions of previous research. Previous research examined under what conditions patient's age, education, and patient centeredness affect patient satisfaction.

Analyses of covariance for Bedside Manner, Consultation Goals, and Care Measures found significant covariate effects for Biological Gender. These results are contrary to expectations based on Street's (2008) conclusion and suggest that gender concordance does affect perception. An analysis of covariance for Health assertiveness finds a significant covariate only for Age, so a relationship seems to exist between the age of the participant and the participants' perceptions of health assertiveness. While most demographic features of identity concordance with the patient and physician have little or no effect on the participants' perceptions, under certain conditions, biological gender and age affect participants' perceptions of physician interruptions. Future research may need to address or specify when these effects are most pronounced.

Communication Accommodation Theory states that doctor-patient communication is shaped by one's socially-constructed personal and professional identities of social, ethnic, and

cultural memberships. Through communication accommodation, patients and physicians create, maintain, or decrease social distance through clinical discourse. This study found that physician interruptions result in unsatisfied patient accommodation expectations. Physician interruptions significantly affect participants' level of satisfaction with the physician's Bedside Manner, Patient-Physician Interaction, Doctor Expectations, Patient-Centeredness, and Care Measures. Therefore, physician interruptions constitute violations of communication expectations and violate social scripts. These script violation findings support H_1 . However, perceptions of physician verbal attentiveness cannot compensate for physician interruptions nor improve patient satisfaction. Although the interruptions affect participants' perceptions of physician behavior, demonstrations of physician attentiveness do not seem to matter; consequently, H_2 was not supported. However, the negative effects of the physician's interruptions may produce such a strong effect on the participants' perceptions that the negative interruption effect overwhelmed any perception of the positive effects of physician's verbal attentiveness.

In response to the two research questions: RQ₁, "How do demographic features (such as race, ethnicity, gender, and education) affect perceptions of physician interruptions in relation to satisfaction?" And RQ₂, "Will health care experiences or methods of financing influence satisfaction with physician behavior?" the results remain mixed. The participants' Biological Gender significantly affected the participants' response to the variables Bedside Manner, Consultation Goals, and Care Measures. A significant effect for gender was unexpected because sexual concordance does not predict similarity and should not affect the participants' response. The participants' Birthplace significantly affected the participants' response to Internal Health control. And, the participants' Age significantly affected the participants' response to Powerful-

Other Health Control and Assertiveness. Logically, these results make sense because Birthplace (ethnicity), Gender, and Age generally affect cultural perceptions and social interactions.

Social roles are internalized and generally associated with an individual's specific situational expectations and social norms of behavior. Patients' and physicians' actions and perceptions become dependent on existing mental scripts and understandings that determine acceptable behaviors for different social settings. Unconsciously, scripts influence the ways that words and observable behaviors are constructed and interpreted. When confronted with new situations, people retrieve, activate, and adapt old scripts to provide knowledge of what they believe as either correct and appropriate or incorrect and inappropriate when acting and interpreting information. Therefore, social scripts provide the layperson with a blueprint for the specific situation when acting within the patient role, and diagnostic scripts shape the doctor's perceptions when acting in a clinical role.

Within the clinical encounter, the physician's diagnostic schemata take precedence over the physician's social schemata. From the physician's perspective, diseases have underlying time-based structures that manifest from the onset of an illness through the subsequent stages of development. When confronted with an illness, doctors make recommendations based on the perception of the illness generated by a sequence of events. As such, diagnostic scripts act as knowledge structures associated with time sequences, developments, events, and/or actions that transpire. For the patient, social scripts reduce relational uncertainty, but uncertainty about the illness and its effect remain. The primary responsibility of the physician is to diagnose, understand, and treat the patient's illness. When the physician's diagnostic scripts exist in congruence with the patient's expectations, patients should be satisfied with the physician's behaviors. However, when the physician's behaviors contradict the patient-physician social

script expectations, the behavior exists in contradiction. Patients expect physicians to be efficient and determining and treating the causes of illness, but physicians should attend patient's socio-emotional needs as well.

When doctors see patients in a diagnostic setting, they perceive features, symptoms, signs, and context from the patient's environment, but not necessarily from the patient's perspective. During the patient's problem presentation, the physician's perceptions activate illness scripts that interpret information about the characteristics and features of the patient's illness which includes prior knowledge and experiences developed from clinical encounters, where physicians focus on situational similarities. However, script activation frequently occurs automatically without conscious awareness because scripts are activated non-analytically. Diagnostic are activated after recognition of an instances or patterns of an illness's symptomology because the elements become so familiar to the diagnostician and leap to mind automatically.

During medical practice, professional codes of conduct formalize behavior, for the physician's education and training construct schematic templates to guide diagnostic and social interaction. The physician's primary medical training focuses on the development and recognition diagnostic scripts. Sometimes clinical training ignores the patient's perspective. Patients' expectations of the physician's situational role behavior affect the interpretation of physician behavior. If doctors interrupt patients during the patients' presentation of problems and concerns, the patients' social expectations are violated. When the doctor interrupts, the interruption may be interpreted an insult.

Traditionally, female patients experience more interruptions during the patient's problem presentation than male patients. This consideration may explain the study's observed gender

effect. Studies suggest higher rates of satisfaction among uninterrupted patients, and this study found lower levels of participant satisfaction when physicians interrupt patients. While interruptions are sometimes defined as a form of redirection towards the patient's problem; in actual clinical situations, interruptions are perceived as disruptions of the patient's problem presentation before the patient's thought can be completed. While diagnostic interruptions tend to free the doctor from distractions caused by unnecessary patient information, interruptions are perceived as being counterproductive when attempting to satisfy patient's needs.

Therapeutic success is dependent on a physician's ability to interpret and respond to the patient's implicit and explicit messages. The American Board of Internal Medicine (1983) reinforces this position by advising that residency certification should be contingent upon the attainment of effective clinical communication skills that include clear, mutually satisfactory communication between doctors and patients. However, doctor-patient relationships are difficult to maintain because they are developed and sustained with the context of medical interviews. Studies show that interruptions are dominance gestures, and when physician interrupt patient, the interruptions are seen as displays of authoritarian power. The participants may have interpreted the physician interruptions as dominance displays. Therefore, it is necessary to increase physicians' perceptions of patients' needs to improve doctor-patient communication because physician interruptions undermine the doctor-patient communication process.

4.2 Implications

Competence encompasses knowledge, skills, abilities, and traits. Health care competence is developed through pre-service education, in-service training, and on-the-job-experience. Communication competence is generally developed through social interaction. In the clinical setting, the diagnostician's competency evaluates the quality of his/her analytic reasoning processes. Many (Barrows et al., 1978; Elstein, 2002; Patel, 1986) believe that clinical reasoning

is a cornerstone of medical practice and represents the core competency for development during medical training. The premise of clinical reasoning assumes that patients come to physicians to be diagnosed and treated. As such, most physicians approach clinical encounters with a problem-solution task orientation. While medical diagnosis and treatment remains an important focal-point of clinical practice, it is important to recognize that each patient enters the clinical encounter with a different set of expectations. Diagnostic interviews are socially situated conversations. Effective conversations proceed through orderly interaction and are products of normative consensus. Conversational competence requires that listeners pay attention to speakers' words and reply appropriately. Turn-taking behavior and interaction patterns play a key role in conversations, for individuals interpret each other's meanings through social interaction. Evidence of attentiveness can be nonverbal (such as an attentive gaze to orient the communicant) or verbal (such as minimal conversational overlap, or the repetition of the speaker's words). Incompetent speakers neither gaze at nor orient conversational interactants, or they may display random gaps and overlaps in conversation, or talk about objects and thoughts at whim without regard to conversational content. Therefore, essential medical competencies should include an understanding of effective communication practices which address the characteristics and consequences of interpersonal expectations and social norms.

Currently medical educators develop script concordance tests based on the hypothetical-deductive model using script theory. Script concordance tests are developed, by assuming the existence of complex memory-structured knowledge networks that are triggered in clinical encounters during the patient's problem presentation. Consequently, physicians use diagnostic scripts to categorize information for decision-making purposes, but patients use social scripts to categorize physician behaviors. As such, bedside manner operates as a major indicator of a

doctor's general communication competence, and this study found that interruptions significantly detracted from the participants' perceptions of the physician's bedside manner. Physician interruptions overshadowed the physician's attentiveness displays. Socially, interruptions are generally interpreted as violations of turn-taking rules. During a normal conversation, the speaker's right to speak is violated when the speaker is interrupted. Infractions of turn-taking rules are violations of social etiquette, and conversational non-interruptions are considered a facet of social politeness. In the study, the participants interpreted the physician's interruptions as violations of social norms and were unsatisfied with the physician's behavior.

The patient's problem presentation provides an opportunity for patients to describe illness, discuss concerns, and pursue personal agendas (Robinson, 2001). However, patients are rarely allowed to complete the problem presentation without physician interruptions (Beckman & Frankel, 1984). During the problem presentation, physicians are expected to listen attentively by placing all attention and awareness at the patient's disposal. The doctor is expected to listen to the patient with undivided interest and appreciate the patient's concerns without interruption. Research indicates that physician interruptions decrease patient satisfaction. Patients expect attentive listening behaviors, where the doctor gives complete and undivided attention to the patients concerns and tells the patient that he/she is interested and concerned with the patient's well-being. Patient-centered physicians assume that if sufficient verbal attentiveness is expressed during a diagnostic interview, patient satisfaction increases. The results of this investigation conclude that this assumption may be either inaccurate or incomplete. Increased physician attentiveness cannot compensate for an abundance of physician interruptions. If physicians truly seek satisfied patients, patient satisfaction levels are better when physicians avoid interrupting patients during the problem presentation.

Script concordance tests are developed to interpret physicians' judgments during the clinical reasoning process. Specifically, script concordance tests identify reasoning tasks where physicians interpret patient provided diagnostic information and infer that a high degree of concordance indicates an optimal use of diagnostic data that reveal the quality of the physician's clinical reasoning. However, script concordance tests are inadequate for determining, or even measuring, whether or not patient needs and expectations are recognized or met during the problem presentation.

Recently, the practice of clinical medicine has shifted away from the biomedical model of health, and it now emphasizes the patient as the central component of health care practice (Sharf & Street, 1991). Studies suggest, in the context of certification assessment, if candidates for medical practice demonstrate acceptable organization of clinical knowledge during training, they will show good organization skills in subsequent diagnostic situations. However, diagnostic scripts are developed by focusing on the physician's diagnostic reasoning processes and ignoring the ways in which diagnostic scripts affect patient satisfaction. The diagnostic scripts in this study were developed using common diagnostic scripts for identifying the illness most frequently seen in clinical settings (upper respiratory illness).

Patient satisfaction is a complex notion with many determinates, but patient satisfaction measures are used as a proxy for rating information about the structure, process and outcomes of medical care. Patients want doctors who can skillfully diagnose and effectively treat illnesses and medical needs. Patients want doctors who will meet social expectations as well. Discourse management devices, such as interruptions and attentiveness, control and direct conversational flow during patient-physician discourse. When physicians' behaviors match the patients'

normative rules, patients leave the clinical interaction satisfied with the physicians' behaviors.

When the patients' normative rules are violated, patient satisfaction levels decrease.

Determining whether physicians' communication behaviors have a direct effect on patient satisfaction is not straight forward. Associations between patient-centered communication and patient expectations can be confounded in many ways. If a patient wants antibiotics as a treatment for an upper respiratory infection, the patient may not be satisfied with the doctor's refusal of treatment even after the doctor explains the reasons for the refusal. If a doctor interrupts a patient to redirect the patient to gather information necessary for the diagnosis and treatment of the patient's disease, explaining why the patient was interrupted, refocuses the patient's attention on the interruption, and physician interruptions lead to patient dissatisfaction.

4.3 Practical Implications

Diagnostic scripts are written to assist physicians in the development of knowledge networks actively used when making judgments on the effects of additional diagnostic information as physicians generate hypotheses. Unfortunately, most diagnostic scripts are developed using the biomedical approach while seeking bio-psychosocial results. If patient satisfaction is the primary goal of patient-centered medicine, then medical scripts should be constructed to address patient's concerns, as well as gathering pertinent diagnostic information. While patient attentiveness is a stated concern of patient-centered communication, physicians' interruptions of patients during the problem presentation appear to be a greater concern to patients than attentiveness is. Therefore, during physician training and development, physicians need to be habituated, so that doctors become more aware of the effects of physician interruptions and subsequent effects of interruptions on patient satisfaction. The sociolinguistic structure of medical communication needs to be re-examined because the common practice of frequent

interruptions initiated by practitioners deemphasizes patients' concerns to the detriment of medical diagnosis, treatment, and patient satisfaction. Medical communication, as well as its improvement, takes time and careful consideration of patient concerns and expectations. Interruptions, even when explained to the patient, detract from patient-physician interpersonal processes.

4.4 Limitations

A limitation to this study results from the actuality that research participants rated a role-played, doctor-patient interaction. Therefore, study participants did not assess an accurate doctor-patient consultation occurring in an actual clinical setting. In an attempt to control for consistency, nonverbal effects, and gender bias, all four versions of the diagnostic scripts were audio-recorded in standard American-English. The use of these controls resulted in a recording of a female doctor interviewing a female patient about an upper respiratory infection. Studies suggest that physician gender may be an important factor related to patient-centered communication. Female physicians spend greater time with their patients and engage patients in more discussion than male physicians (Roter, Hall, & Aoki, 2002). Female doctors are also more likely to more openly deal with emotions and feelings and encourage patient participation than male doctors. Female physicians interrupt patients less frequently than males, and female patients are interrupted more frequently than male patients.

Interrupters are generally perceived as having more status and power than those they interrupt (West, 1984). Conversational interruptions not only reflect unequal power, but the interruptions may help legitimize unequal power relations. Consequently, it is possible that perceptions of the female physician's interruptions of the female patient may have had a greater effect on the perceptions than if a male physician interrupted a female patient an equivalent number of times. The physician's gender identity is more often associated with that of the male

role model, and nurses' identities are generally associated with that of the female role model. The more masculine a person's gender identity is perceived (regardless of sex), the more frequently the masculine person interrupts the other. At the same time, female physicians are expected to conform to the female role model and interrupt patients (regardless of sex) less often, which may violate patients' conversational expectations. Social status becomes constrained by race and ethnicity, which may provide another confounding effect on the patient-physician social interaction.

An additional limitation to the study occurs because there is limited involvement between the participants and physician behavior. The participants are witnessing a doctor patient interaction second-hand; consequently, the participants are not personally involved in a physician-patient interaction. If the participants were personally vested in the results of the interaction, the participants' responses to the interactions may have been different.

Initial assumptions of the study were predicated on the assumption that cultural expectations would affect participants' perceptions of physician-patient interaction. Unfortunately, only 6 participants (1.7%) identified themselves as Latino/Hispanic; therefore, drawing a reliable conclusion about Latinos/Hispanics from the limited data would be inconclusive. Even if the sample represented a large enough Latino/Hispanic proportion, the study would be limited because the scripts were written and presented in English and not translated and conducted in Spanish.

Assessing participants' responses to doctor-patient interaction is dependent upon context and involves interpretive processes. The defining criteria for differentiating between interruptive acts and attentive acts were attained by the participants listening to an audio-recording of a mock interview. Nonverbal communication skills are as important as verbal skills, if not more so.

Viewing a video-recording of the diagnostic script may have enhanced or detracted from the participants' perceptions of the physician's attentiveness because empathy and concern are portrayed in other ways than by vocal inflection and perceived verbal attentiveness. While attentiveness represents a key factor in perceptions of patient-centered communication, research participants did not clearly understand or perceive attentiveness during the interaction. Attentiveness may be defined by some as being thoughtful and considerate of others, or attentiveness may be defined as simply paying attention to details to others. Consequently, participants may have misunderstood what "attentiveness" means, and additional attempts to clarify the definition of attentiveness may have changed the study's results.

To ensure that the participants had prior understanding of diagnostic/treatment protocols, the diagnostic protocol for upper respiratory infection (the most common illness seen by clinicians) was used. If the diagnostic interview was conducted using a diagnostic protocol for a more sensitive illness/topic, such as a sexually transmitted disease, erectile dysfunction, pregnancy, or a terminal disease, shy or embarrassed patients might prefer more empathetic, informative, or disruptive behaviors on the physician's part to reduce patient anxiety. Replication of this study using diagnostic scripts for other more patient-sensitive illnesses could examine whether specific illness scripts change study outcomes.

Furthermore, the study may have provided a better understanding of the implications of ethnic/cultural concordance if the audio-recordings (or video recordings) were expanded to reflect ethnic and gender differences between the interactants. This would have done a better job of testing concordance assumptions based on race and ethnicity. This study used an audio-recording of a female doctor and a female patient speaking standard American English to limit perceptions of the interaction. Using a video-recording that randomly inserted participants of

majority and minority populations, a better understanding of ethnic, racial, and cultural concordance could have been measured.

4.5 Future Research

Research shows that ethnic and minority patients use fewer healthcare services and are less satisfied with health care treatment than patients from the majority population (Sara, 1999). Ethnic and minority patients seek fewer health care services because they generally have lower incomes and are less likely to be insured than members of majority communities (Levy, 1998; U.S. Census Bureau, 2003). This study examined physician behaviors in relationship to patient satisfaction, but it was unable to identify why minority patients are less satisfied with healthcare because minority participants did not react significantly different to patient interruptions or demonstrations of attentiveness than majority participants. However, this study identified that physician interruptions significantly affect patient satisfaction. This study examined participants' perceptions of physicians' interruptive and attentive behaviors. It was not an actual field study of physician behaviors in actual clinical conditions. However, observations of the studies finding raises two questions that can be developed in future research, (a) Do physicians interrupt minority patients more frequently than majority patients? and (b) Are minority patients more sensitive to interruptions than majority patients? It would be possible to observe patient-physician interactions in actual clinical situations and compare the behaviors of physicians interacting with minority patients to physicians interacting with majority patients and then compare interruptive and attentive behaviors. Then it would be possible to discern whether or not physicians behaved differently between the two groups.

This study specifically examined diagnostic scripts constructed for the diagnosis of an upper respiratory infection. Perhaps repeating the study using diagnostic scripts written for a

different illness would have different results. Patients' expectations and physician behaviors should match if patient satisfaction and trust are desired. A possible follow-up to this study would be to repeat it using diagnostic scripts written for a sensitive medical condition that leads to an embarrassing situation for the patient. Would a clinical encounter, where a script is written to diagnose menopause, incontinence, or erectile dysfunction, provide beneficial interruptions for the patient? Interruptions may be facilitative if they reduce anxiety or embarrassment. Interruptions may be acceptable, if the patient is struggling or embarrassed.

4.6 Conclusion

Physician interruptions negatively affect patient satisfaction. Surprisingly, neither physician attentiveness nor physician explanations of the reasons for the interruptions are able to counter the negative effects of physician interruptions. Provision of information by doctors has been positively related to patient satisfaction (Bales, 1968), but the data in this study indicates that explanations of procedures neither increase perceptions of attentiveness nor patient satisfaction. Other results indicate that when doctor provide orientation to the patient by giving information, (repeating, clarifying, and confirming) during examination positively relates to satisfaction. Future diagnostic scripts could be written to test these assumptions. Diagnostic scripts need to be written, and diagnosticians need to be trained so that interruptions of patients during the patients' statement of problems and concerns may be minimized. Only then can patients' full concerns are realized. Patient expectations must be understood, so patients' social scripts are not violated. A successful diagnostic interview should conclude in a manner that the patient's problems and concerns are fully addressed. Physician interruptions prevent patients from expressing their concerns. Medical diagnostic scripts need to be reexamined and rewritten,

so that at the completion of the medical diagnostic interview, the patient leaves the medical encounter more satisfied with the physician's behavior.

Appendix A Survey Instruments

A.1 Questions for the Collection of Demographic Information

1. Please state your age in years_____.
2. What is your sex? [] Male, [] Female, [] Other.
3. List all of the racial or ethnic groups of which you consider yourself to be a part:
 - a. _____.
 - b. _____.
 - c. _____.
 - d. _____.
 - e. _____.
4. What is your current marital status?
 - a. [] I am now married.
 - b. [] I am a legal member of a civil union or domestic partnership.
 - c. [] I am currently cohabiting with another individual.
 - d. [] I am widowed.
 - e. [] I am divorced.
 - f. [] I have never married.
5. What is the highest degree or level of school that you have completed? (If you are currently enrolled, mark the previous grade or highest degree completed.)
 - a. [] No schooling completed.
 - b. [] Nursery school to 8th grade.
 - c. [] 9th, 10th, or 11th grade.
 - d. [] 12th grade, but no diploma.

- e. High school graduate-high school diploma, or the equivalent (Example: GED).
 - f. Some college credit, but less than one year.
 - g. One or more years of college, but no degree.
 - h. Associate Degree (Examples: AA, AS).
 - i. Bachelor's Degree (Examples: BA, AB, BS).
 - j. Master's Degree (Examples: MA, MS, MEd, MEng, MSW, MBA).
 - k. Professional Degree (Examples: MD, DDS, DVM, LLB, JD).
 - l. Doctorate Degree (Examples: PhD, EdD).
6. What is your current employment status? (Mark one or more boxes.)
- a. Employed for salary/wages.
 - b. Self-employed.
 - c. Out of work, and looking for work.
 - d. Out of work, but not currently looking for work.
 - e. A homemaker.
 - f. A student.
 - g. Retired.
 - h. Unable to work.
7. Please describe your type of work.
- a. Employee for not-for-profit, tax exempt, or charitable organization.
 - b. Employee of a for-profit company or business, or an individual working for wages, salary, or commission.
 - c. Local government employee (City, county, etc.).
 - d. State government employee.

- e. Federal government employee.
 - f. Self-employed in own not-incorporated business, professional practice, or farm.
 - g. Self-employed in own incorporated business, professional practice, or farm.
 - h. Working without pay in family business or farm.
8. My current household income is. . .
- a. Less than \$10,000 per year.
 - b. \$10,000 to \$19,999 per year.
 - c. \$20,000 to \$29,999 per year
 - d. \$30,000 to \$39,999 per year
 - e. \$40,000 to \$49,999 per year
 - f. \$50,000 to \$59,999 per year
 - g. \$60,000 to \$69,999 per year
 - h. \$70,000 to \$79,999 per year
 - i. \$80,000 to \$89,999 per year
 - j. \$90,000 to \$99,999 per year
 - k. \$100,000 to \$149,999 per year
 - l. \$10,000 to \$19,999 per year
 - m. \$150,000 or more per year.
 - n. I prefer not to disclose my income.
9. Do you have health insurance? Yes, No.
10. My health insurance is. . . (Check all that apply).
- a. Provided by my employer.

- b. Provided by my spouse/partner.
 - c. Provided by my parent(s).
 - d. Paid for by myself.
 - e. Provided by Medicare.
 - f. Provided by a state health care plan (Example: Badger Care).
 - g. I am on charity care, or some other non-compensated health care.
11. How often do you see a physician or medical practitioner?
- a. I never see a physician or medical practitioner.
 - b. I hardly ever see a physician or medical practitioner.
 - c. I generally see a physician or medical practitioner at least once a year (annually).
 - d. I generally see a physician or medical practitioner several times a year.
 - e. I see a physician or medical practitioner regularly for the treatment of a medical condition.
12. How long ago was your last visit to see a physician or medical practitioner?
- a. It has been more than a year since I last saw a physician or medical practitioner.
 - b. I saw a physician or medical practitioner more than six months ago, but it was within the last year.
 - c. I have seen a physician or medical practitioner within the last six months, but it has been more than a month since my last visit.
 - d. I have seen a physician or medical practitioner within the last month.
13. My primary source of health care is. . . (Check all that apply).

- a. A walk-in/Urgent Care clinic.
- b. A private physician/health care provider.
- c. A Health Management Organization (HMO) clinic.
- d. A Public health clinic.
- e. A clinic provided by a school or university.
- f. An emergency room at a hospital.
- g. A charitable health care, or neighborhood not-for-profit clinic.
- h. A medical research facility.

Appendix B Post-Test Survey

B.1 Questions for Measuring Socio-emotional Responses

14. Have you gone through a similar experience as the one depicted in the interaction between the patient and Physician?

- a. Yes.
- b. No.
- c. I am not sure?

15. If you have gone through a similar experience, how long ago did the experience occur?

- a. It occurred several years ago.
- b. It occurred about a year, or so, ago.
- c. It occurred more than six months ago, but less than a year ago.
- d. It occurred more than a month ago, but within the past six months.
- e. It occurred within the past month.
- f. I do not know/remember?

For each of the following statements, indicate whether or not you strongly agree, agree, are neutral, disagree, or strongly disagree with the statement

16. The doctor gave the patient a chance to say what was really on his/her mind.

I Strongly agree, agree, am neutral, disagree, strongly disagree with this statement.

17. I think the doctor really understood the patient.

I Strongly agree, agree, am neutral, disagree, strongly disagree with this statement.

18. If I were the patient, after talking to the doctor, I would feel much better about my problem(s) and concerns.

19. I feel the doctor really knew how concerned the patient was about his/her illness.

I Strongly agree, agree, am neutral, disagree, strongly disagree with this statement.

20. The doctor kept interrupting the patient, so the patient could not get his/her point across.

I [] Strongly agree, [] agree, [] am neutral, [] disagree, [] strongly disagree with this statement.

21. If I were in the patient's situation, I would feel comfortable enough with the doctor so that I could talk about my own private thoughts and concerns.

I [] Strongly agree, [] agree, [] am neutral, [] disagree, [] strongly disagree with this statement.

22. Based upon the interaction between the doctor and the patient, I feel the doctor accepted the patient as a "person."

I [] Strongly agree, [] agree, [] am neutral, [] disagree, [] strongly disagree with this statement.

23. Based upon the interaction between the doctor and the patient, I feel the doctor didn't take the patient's problems or concerns seriously enough.

I [] Strongly agree, [] agree, [] am neutral, [] disagree, [] strongly disagree with this statement.

24. The doctor is someone with whom I would trust my life.

I [] Strongly agree, [] agree, [] am neutral, [] disagree, [] strongly disagree with this statement.

25. I don't think that the doctor was acting very friendly with the patient.

I [] Strongly agree, [] agree, [] am neutral, [] disagree, [] strongly disagree with this statement.

Appendix C Medical Diagnostic Scripts

I. Sample Script without Physician Interruptions or without Verbal Attentiveness

Scene: Patient, female, 29 years old sitting on a chair in the doctor's office. There is a knock on the door. The physician enters the room.

Physician: "Ms. Jennings?"

Ms. Jennings: "Yes, please call me Robin?"

Physician: "Hello, I'm Doctor Jones." (Physician shakes Ms. Jennings' hand.)

Physician: "Tell me what's going on, Ms. Jennings?"

Ms. Jennings: "Well about three weeks ago, I caught a cold and started coughing. Now, I just can't seem to shake the cough, and I can't sleep at night because of this cough."

Physician: "Other than your cough, how are you feeling today, Mr. Jennings?"

Ms. Jennings: "I'm okay. I'm just a little tired because I'm not sleeping at night, that's all."

Physician: "So, you say that you've had this cough for three weeks now?" (Doctor is talking while listening to Ms. Jennings' chest.)

Ms. Jennings: "Uh huh." (Ms. Jennings nods his head, yes.)

Physician: "Okay, umm. Can you remember how this cough started?"

Ms. Jennings: "Well, the cough just sort of started one day. You know, I had these cold symptoms, and then I just sort of started coughing, and I really wasn't feeling so good, so I thought that I had better stay home from work, so I could get better. But I really don't feel like I'm getting any better."

Physician: "Right, okay. So . . . You had a cold, and you just started coughing about three weeks ago?"

Ms. Jennings: "Uh, huh."

Physician: "Has it changed at all? Has your coughing changed in the three week period?"

Ms. Jennings: "Not really, yah know, it's sort of a persistent cough, and the coughing keeps me up at night. That's all."

Physician: "Does anything make your cough worse? Or make it more troublesome?"

Ms. Jennings: "Um, not really. I don't know. I'm just coughing all the time, more or less, and it keeps me from getting a good night's sleep."

- Physician: "Okay, is there anything that makes your cough any better?"
- Ms. Jennings: "Well, sometimes. Um, you know, if I'm coughing a lot at night, and I sleep more upright, I don't cough as much, so I try to sleep with my head on several pillows because it makes it easier for me to breath when I sleep upright ."
- Physician: "When you cough, do you cough up any phlegm?"
- Ms. Jennings: "Uh, huh."
- Physician: "What color is your phlegm?"
- Ms. Jennings: "Green."
- Physician: "Your phlegm is green?"
- Ms. Jennings: "Yep." (Ms. Jennings nods her head, "Yes.")
- Physician: "Hmm, have you ever noticed any blood in your phlegm?"
- Ms. Jennings: "Not really. No. Should there be?"
- Physician: "No, Hopefully not. Have you coughed like this before?"
- Mr. Jennings: "Um, you know, sometimes I get an occasional cold, but nothing, like, serious, you know. What do you think the problem is?"
- Physician: "Do you have any problems with your chest?"
- Ms. Jennings: "Well, every winter, I get a chest infection around this time of year."
- Physician: "Do the chest infections always go away without treatment?"
- Ms. Jennings: "No, I usually get antibiotics. Do you think that I should be put on antibiotics, so that I can get rid of this cough?"
- Physician: "So, you've had this cough for three weeks, and you've coughed up green phlegm?"
- Ms. Jennings: "Uh, huh."
- Physician: "Have you had any fever with your cough?"
- Ms. Jennings: "Well, I had a temperature in the beginning, but it went away, but I really feel tired all the time from all the coughing, and I'm not getting any sleep at night."
- Physician: "Any problems with your breathing? Or shortness of breath?"
- Ms. Jennings: "Nope." (Ms. Jennings shakes her head, "No.")

- Physician: “Any pain in your chest?”
- Ms. Jennings: “No, not really.”
- Physician: “And no blood in your sputum?”
- Ms. Jennings: “Nope.” (Ms. Jennings shakes her head, “No.”)
- Physician: “Okay, umm, has anyone else in your home or work environment had any coughing problems, like this?”
- Ms. Jennings: “No one, I can think of.”
- Physician: “And everyone else is okay?”
- Ms. Jennings: “Yep.” (Ms. Jennings nods her head, “Yes.”)
- Physician: “And before you developed your cough, how was your health? Were you well?”
- Ms. Jennings: “Yah, I’m normally fit and well, but I usually get a chest infection every winter.”
- Physician: “Do you have any other significant health history to speak of? Do you have a history of Diabetes, or Rheumatic Fever, or Asthma?”
- Ms. Jennings: “Um, not really. Just minor things, normal things, yah know. When do you think I will get better, so that I can go back to work?”
- Physician: “And what about your parents? Do they have any history of Cancer, or Diabetes, or Rheumatic Fever, or Asthma?”
- Ms. Jennings: “Not really. My grandfather died from a heart attack ten years ago, but my grandmother is as healthy as a mule. I’m really not sure what these questions have to do with my cough?”
- Physician: “Okay, then. Are you taking any tablets or medicine for your cough at the moment?”
- Ms. Jennings: “Um, well, I’m not taking any prescribed medications, but I’m taking Robitussin for my cough, but it doesn’t seem to be working. What do you think I can do so that I can stop coughing, so I can get some sleep?”
- Physician: “Okay, you’re taking Robitussin. Is there anything else that that you purchased over the counter?”
- Ms. Jennings: “Only, Sudafed – That’s all really.”
- Physician: “Are you currently working?”

Ms. Jennings: "Like I said before, I've been off work the past three days because of my cough. My boss told me to go home."

Physician: "And what do you do for employment, Ms. Jennings?"

Ms. Jennings: "I work as a receptionist."

Physician: "You work as a receptionist, and your boss doesn't want you coughing on the customers. Hmm? Do you have any hobbies or interests outside of work?"

Ms. Jennings: "Not really. Do you think that I caught something serious from someone?"

Physician: "Have you recently gone on any trips, or taken a vacation to anywhere exotic?"

Ms. Jennings: "I went to Florida for Spring Break. The weather was lovely, and I had a good time getting away from it all."

Physician: "Did anyone else who went to Florida with you over Spring Break develop a cough?"

Ms. Jennings: (Ms. Jennings shakes her head, "No.") "Everyone else is fine. It was just me who got sick. It seems that developed this cough, and now I can't get to sleep at night, or go to work."

Physician: "By the way, do you smoke?"

Ms. Jennings: "No, not anymore."

Physician: "So, you have smoked in the past?"

Ms. Jennings: "Yah, a long time ago." (Ms. Jennings nods her head, "Yes.")

Physician: "What did you smoke?"

Ms. Jennings: "Cigarettes."

Physician: "When did you stop smoking?"

Ms. Jennings: "About three years ago."

Physician: "And how many cigarettes did you smoke?"

Ms. Jennings: "Quite a few, really."

Physician: "How much is a few?"

Ms. Jennings: "I guess I smoked about ten cigarettes a day for about five years."

Physician: "So, you did very well to give it up. And do you drink alcohol?"

Ms. Jennings: "Well, I drink a little, not very much."

- Physician: "When you say a little, how much is a little? How much do you drink in a week?"
- Ms. Jennings: "Um, well I guess that I drink about two or three glasses of white wine a week."
- Physician: "Two to three glasses of white wine a week?"
- Ms. Jennings: "Uh, huh, or sometimes I drink red wine, but I really haven't had anything to drink since I got sick."
- Physician: "So, let's review your symptoms. You've had a cough for three weeks now?"
- Ms. Jennings: "Yes."
- Physician: "And you're coughing up any green phlegm?"
- Ms. Jennings: "Yep." (Mr. Jennings nods his head, yes.)
- Physician: "And you had a temperature at the beginning, but no fever since then?"
- Ms. Jennings: "Uh, huh."
- Physician: "And you don't have any shortness of breath?"
- Ms. Jennings: "Nope." (Ms. Jennings shakes her head, "No.")
- Physician: "Or any chest pain?"
- Ms. Jennings: "Nope." (Ms. Jennings shakes her head, "No.")
- Physician: "Or breathing problems?"
- Ms. Jennings: "Not really." (Ms. Jennings shakes her head, "No.")
- Physician: "Have you lost any weight at all, recently, without intending to?"
- Ms. Jennings: "Not that I've noticed. But I guess I could lose a couple of pounds. Maybe, I could go on a diet?"
- Physician: "And do you think that your cough is getting worse?"
- Ms. Jennings: "No, it's just not getting any better. I'm just feeling really tired now, and I cannot afford to miss any more time from work."
- Physician: "And what do you think is actually wrong?"
- Ms. Jennings: "Um, I think that I've got a chest infection. I get one every winter."
- Physician: "And your chest infections are usually treated with antibiotics?"
- Ms. Jennings: "Yes, normally I get antibiotics."

Physician: "So, are you looking for antibiotics?"

Ms. Jennings: "I think so because that's what usually happens. What do you think? Don't you think that I need antibiotics?"

Physician: "Okay, I understand."

Ms. Jennings: "And, I haven't been at work the last three days because I've been coughing so much that it keeps me from getting a good night's sleep."

Physician: "Right."

Ms. Jennings: "And I'm feeling really tired because I'm up all night coughing."

Physician: "Okay."

Ms. Jennings: "And I don't know what to do, so that's why I decided to come in and get this cough checked out and maybe get something to get rid of this cough."

Physician: "Okay, I understand now. Thank you, Ms. Jennings."

II. Sample Script with Physician Interruptions, but without Verbal Attentiveness.

Scene: Patient, female, 29 years old sitting on a chair in the doctor's office. There is a knock on the door. The physician enters the room.

Physician: "Ms. Jennings?"

Ms. Jennings: "Yes, please call me Robin?"

Physician: "Hello, I'm Doctor Jones." (Physician shakes Ms. Jennings' hand.)

Physician: "Tell me what's going on, Mr. Jennings?"

Ms. Jennings: "Well about three weeks ago, I caught a cold and started coughing. Now, I just can't seem to shake the cough, and I can't sleep at night because of this cough, and I'm not" (Physician interrupts patient)

Physician: "Other than your cough, how are you feeling today, Ms. Jennings?"

Ms. Jennings: "I'm okay. I'm just a little tired because I'm not sleeping at night, and. . ." (Physician interrupts patient)

Physician: "So, you say that you've had this cough for three weeks now?" (Doctor is talking while listening to Mr. Jennings' chest.)

Ms. Jennings: "Uh huh." (Ms. Jennings nods her head, "Yes.")

Physician: "Okay, umm. Can you remember how this cough started?"

Ms. Jennings: "Well, the cough just sort of started one day. You know, I had these cold symptoms, and then I just sort of started coughing, and I really wasn't feeling so good, so I thought that I had better stay home from work, so I could get better. But I really don't feel any better. . ." (Physician interrupts patient)

Physician: "Right, okay. So . . . You had a cold, and you just started coughing about three weeks ago?"

Ms. Jennings: "Uh, huh."

Physician: "Has it changed at all? Has your coughing changed in the three week period?"

Ms. Jennings: "Not really, yah know, it's sort of a persistent cough, and the coughing keeps me up at night. . ." (Physician interrupts patient).

Physician: "Does anything make your cough worse? Or make it more troublesome?"

Ms. Jennings: "Um, not really. I don't know. I'm just coughing all the time, more or less, and it keeps me from getting a good night's sleep. . ." (Physician interrupts patient)

- Physician: "Okay, is there anything that makes your cough any better?"
- Ms. Jennings: "Well, sometimes. Um, you know, if I'm coughing a lot at night, and I sleep more upright, I don't cough as much, so I try to sleep with my head on several pillows because it makes it easier for me to breath. . ." (Physician interrupts patient).
- Physician: "When you cough, do you cough up any phlegm?"
- Ms. Jennings: "Uh, huh."
- Physician: "What color is your phlegm?"
- Ms. Jennings: "Green."
- Physician: "Your phlegm is green?"
- Ms. Jennings: "Yep." (Ms. Jennings nods her head, "Yes.")
- Physician: "Hmm, have you ever noticed any blood in your phlegm?"
- Ms. Jennings: "Not really. No. Should there be?"
- Physician: "No, Hopefully not. Have you coughed like this before?"
- Ms. Jennings: "Um, you know, sometimes I get an occasional cold, but nothing, like, serious, you know. What do you think the problem is?"
- Physician: "Do you have any problems with your chest?"
- Ms. Jennings: "Well, every winter, I get a chest infection around this time of year."
- Physician: "Do the chest infections always go away without treatment?"
- Ms. Jennings: "No, I usually get antibiotics. Do you think that I should be put on antibiotics, . . .to get rid of this. . ." (Physician interrupts patient)
- Physician: "So, you've had this cough for three weeks, and you've coughed up green phlegm?"
- Mr. Jennings: "Uh, huh."
- Physician: "Have you had any fever with your cough?"
- Ms. Jennings: "Well, I had a temperature in the beginning, but it went away, but I really feel tired all the time from all the coughing and not getting any sleep. . ." (Physician interrupts patient).
- Physician: "Any problems with your breathing? Or shortness of breath?"
- Ms. Jennings: "Not really." (Ms. Jennings shakes her head, "No.")

- Physician: “Any pain in your chest?”
- Ms. Jennings: “No, not really.”
- Physician: “And no blood in your sputum?”
- Ms. Jennings: “Nope.” (Ms. Jennings shakes her head, “No”.)
- Physician: “Okay, umm, has anyone else in your home or work environment had any coughing problems, like this?”
- Ms. Jennings: “No one, I can think of.”
- Physician: “And everyone else is okay?”
- Mr. Jennings: “Yep.” (Ms. Jennings nods her head, “Yes.”)
- Physician: “And before you developed your cough, how was your health? Were you well?”
- Ms. Jennings: “Yah, I’m normally fit and well, but I usually get a chest infection every winter.”
- Physician: “Do you have any other significant health history to speak of? Do you have a history of Diabetes, or Rheumatic Fever, or Asthma?”
- Ms. Jennings: “Um, not really. Just minor things, normal things, yah know. When do you think I will get better, so that I can. . .” (Physician interrupts patient)
- Physician: “And what about your parents? Do they have any history of Cancer, or Diabetes, or Rheumatic Fever, or Asthma?”
- Ms. Jennings: “Not really. My grandfather died from a heart attack ten years ago, but my grandmother is as healthy as a mule. I’m really not sure what these questions have to do with my cough?” (Physician interrupts patient)
- Physician: “Okay, then. Are you taking any tablets or medicine for your cough at the moment?”
- Ms. Jennings: “Um, well, I’m not taking any prescribed medications, but I’m taking Robitussin for my cough, but it doesn’t seem to be working. What do you. . .” (Physician interrupts patient)
- Physician: “Okay, you’re taking Robitussin. Is there anything else that that you purchased over the counter?”
- Ms. Jennings: “Only, Sudafed – That’s all really.”
- Physician: “Are you currently working?”

- Ms. Jennings: “Like I said before, . . .I’ve been off work the past three days. . . because of my cough. My boss told me to go home.”
- Physician: “And what do you do for employment, Ruben?”
- Ms. Jennings: “I work as a receptionist.”
- Physician: “You work as a receptionist, and your boss doesn’t want you coughing on the customers. Hmm? Do you have any hobbies or interests outside of work?”
- Ms. Jennings: “Not really. Do you think that I caught . . .” (Physician interrupts patient)
- Physician: “Have you recently gone on any trips, or taken a vacation to anywhere exotic?”
- Ms. Jennings: “I went to Florida for Spring Break. The weather was lovely. . .” (Physician interrupts patient)
- Physician: “Did anyone else who went to Florida with you over Spring Break develop a cough?”
- Ms. Jennings: (Mr. Jennings shakes his head, no.) “Everyone else is fine. It was just me who got sick. It seems that. . .” (Physician interrupts patient)
- Physician: “By the way, do you smoke?”
- Ms. Jennings: “No, not anymore.”
- Physician: “So, you have smoked in the past?”
- Ms. Jennings: “Yah, a long time ago.” (Ms. Jennings nods her head, “Yes.”)
- Physician: “What did you smoke?”
- Ms. Jennings: “Cigarettes.”
- Physician: “When did you stop smoking?”
- Ms. Jennings: “About three years ago.”
- Physician: “And how many cigarettes did you smoke?”
- Ms. Jennings: “Quite a few, really.”
- Physician: “How much is a few?”
- Mr. Jennings: “I guess, I smoked about ten cigarettes a day for about five years.”
- Physician: “So, you did very well to give it up. And do you drink alcohol?”
- Ms. Jennings: “Well, I drink a little, not very much.”

- Physician: "When you say a little, how much is a little? How much do you drink in a week?"
- Ms. Jennings: "Um, well I guess that I drink about two or three glasses of white wine a week."
- Physician: "Two to three glasses of white wine a week?"
- Ms. Jennings: "Uh, huh, or sometimes I drink red wine, but I really haven't had anything to. . ." (Physician interrupts patient)
- Physician: "So, let's review your symptoms. You've had a cough for three weeks now?"
- Ms. Jennings: "Yes."
- Physician: "And you're coughing up green phlegm?"
- Ms. Jennings: "Yep." (Ms. Jennings nods her head, "Yes.")
- Physician: "And you had a temperature at the beginning, but no fever since then?"
- Ms. Jennings: "Uh, huh."
- Physician: "And you don't have any shortness of breath?"
- Ms. Jennings: "Nope" (Ms. Jennings shakes her head, "No.")
- Physician: "Or any chest pain?"
- Ms. Jennings: "Nope." (Ms. Jennings shakes her head, "No.")
- Physician: "Or breathing problems?"
- Ms. Jennings: "Not really." (Ms. Jennings shakes her head, "No.")
- Physician: "Have you lost any weight at all, recently, without intending to?"
- Ms. Jennings: "Not that I've noticed. But I guess I could lose a couple of pounds. May be I . . ." (Physician interrupts patient)
- Physician: "And do you think that your cough is getting worse?"
- Ms. Jennings: "No, it's just not getting any better. I'm just feeling really tired now. . ." (Physician interrupts patient)
- Physician: "And what do you think is actually wrong?"
- Ms. Jennings: "Um, I think that I've got a chest infection. I get one every winter."
- Physician: "And your chest infections are usually treated with antibiotics?"
- Ms. Jennings: "Yes, normally I get antibiotics."

Physician: "So, are you looking for antibiotics?"

Ms. Jennings: "I think so because that's what usually happens. What do you . . ." (Physician interrupts patient)

Physician: "Okay, I understand."

Ms. Jennings: "And, I haven't been at work the last three days because I've been coughing so much that. . ." (Physician interrupts patient)

Physician: "Right."

Ms. Jennings: "And I'm feeling really tired because I'm up all night coughing. . ." (Physician interrupts patient)

Physician: "Okay."

Ms. Jennings: "And I don't know what to do. . ." (Physician interrupts patient)

Physician: "Okay, I understand now. Thank you, Ms. Jennings."

III. Sample Script without Physician Interruptions, but with Verbal Attentiveness.

- Scene: Patient, female, 29 years old sitting on a chair in the doctor's office. There is a knock on the door. The physician enters the room.
- Physician: "Ms. Jennings?"
- Ms. Jennings: "Yes, please call me Robin?"
- Physician: "Hello Robin, I'm Doctor Jones." (Physician shakes Ms. Jennings' hand.)
- Physician: "Please tell me what's going on, Robin?"
- Ms. Jennings: "Well about three weeks ago, I caught a cold and started coughing. Now, I just can't seem to shake the cough, and I can't sleep at night because of this cough."
- Physician: "I'm sorry the coughing is keeping you up at night. Let's see if we can do something about it. (Pause) Other than your cough, how are you feeling today, Robin?"
- Ms. Jennings: "I'm okay. I'm just a little tired because I'm not sleeping at night, that's all."
- Physician: "So, you say that you've had this cough for three weeks now, and it's keeping you up at night?" (Doctor is talking while listening to Ms. Jennings' chest.)
- Ms. Jennings: "Uh huh." (Ms. Jennings nods her head, "Yes.")
- Physician: "Okay, umm. Can you remember how this cough started?"
- Ms. Jennings: "Well, the cough just sort of started one day. You know, I had these cold symptoms, and then I just sort of started coughing, and I really wasn't feeling so good, so I thought that I had better stay home from work, so I could get better. But I really don't feel any better."
- Physician: "Right, okay, we'll see if we can make you feel better Robin, So, you had a cold, and you just started coughing about three weeks ago?"
- Ms. Jennings: "Uh, huh."
- Physician: "Has it changed at all? Has your coughing changed in the three week period?"
- Ms. Jennings: "Not really, yah know, it's sort of a persistent cough, and the coughing keeps me up at night. That's all."
- Physician: "Does anything make your cough worse? Or make it more troublesome for you?"
- Ms. Jennings: "Um, not really. I don't know. I'm just coughing all the time, more or less, and it keeps me from getting a good night's sleep."

- Physician: “That’s good . . . that your cough isn’t getting any worse. Okay, is there anything that makes your cough any better, so that you can get to sleep at night?”
- Ms. Jennings: “Well, sometimes. Um, you know, if I’m coughing a lot at night, and I sleep more upright, I don’t cough as much, so I try to sleep with my head on several pillows because it makes it easier for me to breath when I sleep upright.”
- Physician: “Robin, when you cough, do you cough up any phlegm?”
- Ms. Jennings: “Uh, huh.”
- Physician: “What color is your phlegm?”
- Ms. Jennings: “Green.”
- Physician: “Your phlegm is green? That may indicate that you have an infection.”
- Ms. Jennings: “Uh huh.” (Ms. Jennings nods her head, “Yes.”)
- Physician: “Hmm, have you ever noticed any blood in your phlegm?”
- Ms. Jennings: “Not really. No. Should there be?”
- Physician: “No, Hopefully not, I’m just asking you questions, so that I can get all the facts so that I can make you feel better. The fact that there is no blood in your sputum is a good indicator that your cough isn’t something more serious. (Pause) Please tell me, Robin, have you coughed like this before?”
- Ms. Jennings: “Um, you know, sometimes I get an occasional cold, but nothing, like, serious, you know. What do you think the problem is?”
- Physician: “I’m not quite sure. I need to ask a few additional questions before I can make a diagnosis. (Pause) Robin, do you have any problems with your chest?”
- Ms. Jennings: “Well, every winter, I get a chest infection around this time of year.”
- Physician: “Do your chest infections generally go away without additional treatment?”
- Ms. Jennings: “No, I usually get antibiotics. Do you think that I should be put on antibiotics, so that I can get rid of this cough?”
- Physician: “Before I give you antibiotics, I need to determine whether your infection is viral or bacterial. If your infection is viral, antibiotics won’t do you any good, and giving them to you when you don’t need them is only wasting your money and may make it more difficult to treat you bacterial infection in the future. So, let me ask you a few more questions so that I can make a reasoned diagnosis. (Pause) So you say that you’ve had this cough for three weeks, and you’ve coughed up green phlegm?”

- Ms. Jennings: “Uh, huh.”
- Physician: “Robin, have you had any fever with your cough?”
- Ms. Jennings: “Well, I had a temperature in the beginning, but it went away, but I really feel tired all the time from all the coughing, and I’m not getting any sleep at night.”
- Physician: “It’s good that your fever has gone away. I’m sorry that you’re not sleeping. I’ll try to do something so that you to reduce your cough so that you can get some sleep. (Pause) Now Ruben, are you having any problems with your breathing? Or shortness of breath?”
- Ms. Jennings: “Nah.” (Ms. Jennings shakes her head, “No.”)
- Physician: “Any pain in your chest?”
- Ms. Jennings: “No, not really.”
- Physician: “And no blood in your sputum?”
- Ms. Jennings: “Nope.” (Ms. Jennings shakes her head, “No.”)
- Physician: “Okay, umm, has anyone else in your home or work environment had any coughing problems, like this?”
- Ms. Jennings: “No one, I can think of.”
- Physician: “And everyone else is okay?”
- Ms. Jennings: “Yep.” (Ms. Jennings nods her head, “Yes.”)
- Physician: “And before you developed your cough, how was your health? Were you well?”
- Ms. Jennings: “Yah, I’m normally fit and well, but I usually get a chest infection every winter.”
- Physician: “Robin, I need to ask some questions about your health history so that I can determine what kinds of medicine, if any I can prescribe you for your cough. (Pause) Please bear with me for a few more questions. (Pause) Do you have any other significant health history to speak of? Do you have a history of Diabetes, or Rheumatic Fever, or Asthma?”
- Ms. Jennings: “Um, not really. Just minor things, normal things, yah know. When do you think I will get better, so that I can go back to work?”
- Physician: “I need to ask a few more questions about your family health before I can make a decision about your diagnosis. Your family medical health is sometimes a good indicator of your health, so let me ask a few questions first about your family health. (Pause) What about your parents? Do they have any history of Cancer, or Diabetes, or Rheumatic Fever, or Asthma?”

- Ms. Jennings: “Not really. My grandfather died from a heart attack ten years ago, but my grandmother is as healthy as a mule.”
- Physician: “Okay, then Robin, I need to find out what you’ve tried so far to treat your cough so that I can determine what to prescribe you for your cough. Are you taking any tablets or medicine for your cough at the moment?”
- Ms. Jennings: “Um, well, I’m not taking any prescribed medications at the moment, but I’m taking Robitussin for my cough, but it doesn’t seem to be working. What do you. . .” (Physician interrupts patient)
- Physician: “Okay, you’re taking Robitussin, but it doesn’t seem to be working. Is there anything else that that you purchased over the counter?”
- Ms. Jennings: “Only, Sudafed – That’s all really.”
- Physician: “Are you currently working?”
- Ms. Jennings: “Like I said before, I’ve been off the past three days. . . because of my cough. My boss told me to go home.”
- Physician: “I’m sorry for asking you again Ruben. I’m just trying to get all the facts so that I can make a determination. And what do you do for employment, Ruben?”
- Ms. Jennings: “I work as a receptionist.”
- Physician: “You work as a receptionist, and your boss doesn’t want you coughing on the customers. I understand. Robin, do you have any hobbies or interests outside of work?”
- Ms. Jennings: “Not really. Do you think that I caught something serious from someone?”
- Physician: “I don’t think so Robin, but I’m just making sure, before I make my diagnosis. You don’t want me to make a decision without knowing all the facts do you? (Pause) Now Robin, have you recently gone on any trips or taken a vacation to anywhere exotic?”
- Ms. Jennings: “I went to Florida for Spring Break.”
- Physician: “Did anyone else who went to Florida with you over Spring Break develop a cough?”
- Ms. Jennings: (Mr. Jennings shakes his head, no.) “Everyone else is fine. It was just me who got sick. It just seems like I developed this cough, and now I can’t get to sleep at night, or go to work.”
- Physician: “It sounds like we can rule out some exotic infection. (Pause) By the way, do you smoke? Smoking can irritate your lungs and aggravate an infection.”
- Ms. Jennings: “No, not anymore.”

- Physician: "So, you have smoked in the past?"
- Ms. Jennings: "Yah, a long time ago." (Ms. Jennings nods her head, "Yes.")
- Physician: "What did you smoke, Robin?"
- Ms. Jennings: "Cigarettes."
- Physician: "When did you stop smoking?"
- Ms. Jennings: "About three years ago."
- Physician: "And how many cigarettes did you smoke?"
- Ms. Jennings: "Quite a few, really."
- Physician: "How much is a few?"
- Ms. Jennings: "I guess I smoked about ten cigarettes a day for about five years."
- Physician: "So, you did very well to give it up. And do you drink alcohol?"
- Ms. Jennings: "Well, I drink a little, not very much."
- Physician: "When you say a little, how much is a little? How much do you drink in a week?"
- Ms. Jennings: "Um, well I guess that I drink about two or three glasses of white wine a week."
- Physician: "Two to three glasses of white wine a week?"
- Ms. Jennings: "Uh, huh, or sometimes I drink red wine, but I really haven't had anything to drink since I got sick."
- Physician: "I just need to know because sometimes alcohol interferes with certain medications. So Ruben, let's review your symptoms. You've had a cough for three weeks now?"
- Ms. Jennings: "Yes."
- Physician: "And you're coughing up green phlegm?"
- Ms. Jennings: "Yep." (Ms. Jennings nods her head, "Yes.")
- Physician: "And you had a temperature at the beginning, but no fever since then?"
- Ms. Jennings: "Uh, huh."
- Physician: "And you don't have any shortness of breath?"
- Ms. Jennings: "Nope." (Ms. Jennings shakes her head, "No.")

- Physician: "Or any chest pain?"
- Ms. Jennings: "No." (Ms. Jennings shakes her head, "No.")
- Physician: "Or breathing problems?"
- Ms. Jennings: "Not really." (Ms. Jennings shakes her head, "No.")
- Physician: "Have you lost any weight at all, recently, without intending to?"
- Ms. Jennings: "Not that I've noticed. But I guess I could lose a couple of pounds. Maybe, I could go on a diet?"
- Physician: "No, your weight is appropriate. And do you think that your cough is getting worse?"
- Ms. Jennings: "No, it's just not getting any better. I'm just feeling really tired now, and I cannot afford to miss any more work."
- Physician: "And what do you think is actually wrong?"
- Ms. Jennings: "Um, I think that I've got a chest infection. I get one every winter."
- Physician: "And your chest infections are usually treated with antibiotics?"
- Ms. Jennings: "Yes, normally I get antibiotics."
- Physician: "So, are you looking for antibiotics?"
- Ms. Jennings: "I think so because that's what usually happens. What do you think I have? So you think that I need to take some antibiotics so that I can get better?"
- Physician: "Okay, I understand."
- Mr. Jennings: "And, I haven't been at work the last three days because I've been coughing so much that it keeps me from getting a good night's sleep."
- Physician: "Right, I'm going to prescribe you something so that you can get some sleep at night."
- Mr. Jennings: "And I'm feeling really tired because I'm up all night coughing. . ." (Physician interrupts patient)
- Physician: "Okay, and I'm going to do something about your cough."
- Ms. Jennings: "And I don't know what to do, so that's why I decided to come in and get this cough checked out, and maybe get something to get rid of this cough."
- Physician: "Okay, I understand now. Thank you, Robin, for being so patient with me."

IV. Sample Script with Physician Interruptions and with Verbal Attentiveness.

- Scene: Patient, female, 29 years old sitting on a chair in the doctor's office. There is a knock on the door. The physician enters the room.
- Physician: "Ms. Jennings?"
- Ms. Jennings: "Yes, please call me Robin?"
- Physician: "Hello Robin, I'm Doctor Jones." (Physician shakes Ms. Jennings' hand.)
- Physician: "Please tell me what's going on, Robin?"
- Ms. Jennings: "Well about three weeks ago, I caught a cold and started coughing. Now, I just can't seem to shake the cough, and I can't sleep at night because of this cough, and I'm not" (Physician interrupts patient)
- Physician: "I'm sorry the coughing is keeping you up at night. Let's see if we can do something about it. (Pause) Other than your cough, how are you feeling today, Robin?"
- Ms. Jennings: "I'm okay. I'm just a little tired because I'm not sleeping at night, and. . ." (Physician interrupts patient)
- Physician: "So, you say that you've had this cough for three weeks now, and it's keeping you up at night?" (Doctor is talking while listening to Mr. Jennings' chest.)
- Ms. Jennings: "Uh huh." (Ms. Jennings nods her head, "Yes.")
- Physician: "Okay, umm. Can you remember how this cough started?"
- Ms. Jennings: "Well, the cough just sort of started one day. You know, I had these cold symptoms, and then I just sort of started coughing, and I really wasn't feeling so good, so I thought that I had better stay home from work, so I could get better. But I really don't feel any better. . ." (Physician interrupts patient)
- Physician: "Right, okay, we'll see if we can make you feel better Robin. . . so, . . . you had a cold, and you just started coughing about three weeks ago? "
- Ms. Jennings: "Uh, huh."
- Physician: "Has it changed at all? Has your coughing changed in the three week period?"
- Ms. Jennings: "Not really, yah know, it's sort of a persistent cough, and the coughing keeps me up at night. . ." (Physician interrupts patient)
- Physician: "Does anything make your cough worse? Or make it more troublesome for you?"

- Ms. Jennings: “Um, not really. I don’t know. I’m just coughing all the time, more or less, and it keeps me from getting a good night’s sleep. . .” (Physician interrupts patient)
- Physician: “That’s good . . . that your cough isn’t getting any worse. Okay, is there anything that makes your cough any better, so that you can get to sleep at night?”
- Ms. Jennings: “Well, sometimes. Um, you know, if I’m coughing a lot at night, and I sleep more upright, I don’t cough as much, so I try to sleep with my head on several pillows because it makes it easier for me to breath. . .” (Physician interrupts patient)
- Physician: “Robin, when you cough, do you cough up any phlegm?”
- Ms. Jennings: “Uh, huh.”
- Physician: “What color is your phlegm?”
- Ms. Jennings: “Green.”
- Physician: “Your phlegm is green? That may indicate that you have an infection.”
- Ms. Jennings: “Yep.” (Ms. Jennings nods her head, “Yes.”)
- Physician: “Hmm, have you ever noticed any blood in your phlegm?”
- Mr. Jennings: “Not really. No. Should there be?”
- Physician: “No, Hopefully not, I’m just asking you questions, so that I can get all the facts so that I can make you feel better. The fact that there is no blood in your sputum is a good indicator that your cough isn’t something more serious. (Pause) Please tell me, Robin, have you coughed like this before?”
- Ms. Jennings: “Um, you know, sometimes I get an occasional cold, but nothing, like, serious, you know. What do you think the problem is?”
- Physician: “I’m not quite sure. I need to ask a few additional questions before I can make a diagnosis. (Pause) Ruben, do you have any problems with your chest?”
- Ms. Jennings: “Well, every winter, I get a chest infection around this time of year.”
- Physician: “Do your chest infections generally go away without additional treatment?”
- Ms. Jennings: “No, I usually get antibiotics. Do you think that I should be put on antibiotics? . . .To get rid of this cough. . .” (Physician interrupts patient)

- Physician: “Before I give you antibiotics, I need to determine whether your infection is viral or bacterial. If your infection is viral, antibiotics won’t do you any good, and giving them to you when you don’t need them is only wasting your money and may make it more difficult to treat your bacterial infection in the future. So, let me ask you a few more questions so that I can make a reasoned diagnosis. (Pause) So you say that you’ve had this cough for three weeks, and you’ve coughed up green phlegm?”
- Ms. Jennings: “Uh, huh.”
- Physician: “Ruben, have you had any fever with your cough?”
- Mr. Jennings: “Well, I had a temperature in the beginning, but it went away, but I really feel tired all the time from all the coughing and not getting any sleep. . .” (Physician interrupts patient)
- Physician: “It’s good that your fever has gone away. I’m sorry that you’re not sleeping. I’ll try to do something so that you to reduce your cough so that you can get some sleep. (Pause) Now Ruben, are you having any problems with your breathing? Or shortness of breath?”
- Ms. Jennings: “Nope.” (Ms. Jennings shakes her head, “No.”)
- Physician: “Any pain in your chest?”
- Ms. Jennings: “No, not really.”
- Physician: “And no blood in your sputum?”
- Ms. Jennings: “Nope.” (Ms. Jennings shakes her head, “No.”)
- Physician: “Okay, umm, has anyone else in your home or work environment had any coughing problems, like this?”
- Ms. Jennings: “No one, I can think of.”
- Physician: “And everyone else is okay?”
- Ms. Jennings: “Yep.” (Ms. Jennings nods her head, “Yes.”)
- Physician: “And before you developed your cough, how was your health? Were you well?”
- Ms. Jennings: “Yah, I’m normally fit and well, but I usually get a chest infection every winter.”
- Physician: “Robin, I need to ask some questions about your health history so that I can determine what kinds of medicine, if any I can prescribe you for your cough. (Pause) Please bear with me for a few more questions. (Pause) Do you have any other significant health history to speak of? Do you have a history of Diabetes, or Rheumatic Fever, or Asthma?”

Ms. Jennings: “Um, not really. Just minor things, normal things, yah know. When do you think I will get better, so that I can. . .” (Physician interrupts patient)

Physician: “I need to ask a few more questions about your family health before I can make a decision about your diagnosis. You family medical health is sometimes a good indicator of your health, so let me ask a few questions first about your family health. (Pause) What about your parents? Do they have any history of Cancer, or Diabetes, or Rheumatic Fever, or Asthma?”

Ms. Jennings: “Not really. My grandfather died from a heart attack ten years ago, but my grandmother is as healthy as a mule.”

Physician: “Okay, then Robin, I need to find out what you’ve tried so far to treat your cough so that I can determine what to prescribe you for your cough. Are you taking any tablets or medicine for your cough at the moment?”

Ms. Jennings: “Um, well, I’m not taking any prescribed medications at the moment, but I’m taking Robitussin for my cough, but it doesn’t seem to be working. What do you. . .” (Physician interrupts patient)

Physician: “Okay, you’re taking Robitussin, but it doesn’t seem to be working. Is there anything else that that you purchased over the counter?”

Ms. Jennings: “Only, Sudafed – That’s all really.”

Physician: “Are you currently working?”

Mr. Jennings: “Like I said before, . . . I’ve been off the past three days. . . because of my cough. My boss told me to go home.”

Physician: “I’m sorry for asking you again Ruben. I’m just trying to get all the facts so that I can make a determination. And what do you do for employment, Ruben?”

Ms. Jennings: “I work as a receptionist.”

Physician: “You work as a receptionist, and your boss doesn’t want you coughing on the customers. I understand. Do you have any hobbies or interests outside of work?”

Ms. Jennings: “Not really. Do you think that I caught . . .” (Physician interrupts patient)

Physician: “I’m just making sure, before I make my diagnosis. You don’t want me to make a decision without knowing all the facts do you? (Pause) Now Ruben, have you recently gone on any trips or taken a vacation to anywhere exotic?”

Ms. Jennings: “I went to Florida for Spring Break.”

Physician: “Did anyone else who went to Florida with you over Spring Break develop a cough?”

- Ms. Jennings: (Mr. Jennings shakes his head, no.) “Everyone else is fine. It was just me who got sick. It seems that. . .” (Physician interrupts patient)
- Physician: “It sounds like we can rule out some exotic infection. (Pause) By the way, do you smoke? Smoking can irritate your lungs and aggravate an infection.”
- Ms. Jennings: “No, not anymore.”
- Physician: “So, you have smoked in the past?”
- Ms. Jennings: “Yah, a long time ago.” (Ms. Jennings nods her head, “Yes.”)
- Physician: “What did you smoke?”
- Ms. Jennings: “Cigarettes.”
- Physician: “When did you stop smoking?”
- Ms. Jennings: “About three years ago.”
- Physician: “And how many cigarettes did you smoke?”
- Ms. Jennings: “Quite a few, really.”
- Physician: “How much is a few?”
- Mr. Jennings: “I guess I smoked about ten cigarettes a day for about five years.”
- Physician: “So, you did very well to give it up. And do you drink alcohol?”
- Ms. Jennings: “Well, I drink a little, not very much.”
- Physician: “When you say a little, how much is a little? How much do you drink in a week?”
- Ms. Jennings: “Um, well I guess that I drink about two or three glasses of white wine a week.”
- Physician: “Two to three glasses of white wine a week?”
- Ms. Jennings: “Uh, huh, or sometimes I drink red wine, but I really haven’t had anything to. . .” (Physician interrupts patient)
- Physician: “I just need to know because sometimes alcohol interferes with certain medications. So Robin, let’s review your symptoms. . . You’ve had a cough for three weeks now?”
- Ms. Jennings: “Yes.”
- Physician: “And you’re coughing up green phlegm?”
- Ms. Jennings: “Yep.” (Mr. Jennings nods his head, yes.)

- Physician: "And you had a temperature at the beginning, but no fever since then?"
- Ms. Jennings: "Uh, huh."
- Physician: "And you don't have any shortness of breath?"
- Ms. Jennings: "Nope." (Ms. Jennings shakes her head, "No.")
- Physician: "Or any chest pain?"
- Ms. Jennings: "Nope." (Ms. Jennings shakes her head, "No.")
- Physician: "Or breathing problems?"
- Ms. Jennings: "Not really." (Ms. Jennings shakes her head, "No.")
- Physician: "Have you lost any weight at all, recently, without intending to?"
- Ms. Jennings: "Not that I've noticed. But I guess I could lose a couple of pounds. May be I . . ." (Physician interrupts patient)
- Physician: "No, your weight is appropriate. And do you think that your cough is getting worse?"
- Mr. Jennings: "No, it's just not getting any better. I'm just feeling really tired now. . ." (Physician interrupts patient)
- Physician: "And what do you think is actually wrong?"
- Ms. Jennings: "Um, I think that I've got a chest infection. I get one every winter."
- Physician: "And your chest infections are usually treated with antibiotics?"
- Mr. Jennings: "Yes, normally I get antibiotics."
- Physician: "So, are you looking for antibiotics?"
- Mr. Jennings: "I think so because that's what usually happens. What do you . . ." (Physician interrupts patient)
- Physician: "Okay, I understand."
- Ms. Jennings: "And, I haven't been at work the last three days because I've been coughing so much that. . ." (Physician interrupts patient)
- Physician: "Right."
- Ms. Jennings: "And I'm feeling really tired because I'm up all night coughing. . ." (Physician interrupts patient)

Physician: "Okay, I'm going to do something about your cough."

Ms. Jennings: "And I don't know what to do. . ." (Physician interrupts patient)

Physician: "Okay, I understand now. Thank you, Robin, for being so patient with me."

Appendix D

Table 2A: (Gender) What is your sex?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	153	44.6	44.7	44.7
Valid Female	186	54.2	54.4	99.1
Valid Other	3	.9	.9	100.0
Valid Total	342	99.7	100.0	
Missing System	1	.3		
Total	343	100.0		

Appendix D**Table 2B: Combined Raw Data on Ethnicity**

Ethnicity	Frequency	Percentage of Total
White; Caucasian; European	198	57.7
Black; African American	32	9.3
Asian	24	7.0
Hmong	16	4.6
Latino; Hispanic	6	1.7
Indian; Native American	8	2.3
Arab; Middle Eastern	5	1.4
Total (All Ethnicity)	343	100

(Categories are not all-inclusive, and may exceed 100%)

Appendix D

Table 2C: Coded Ethnicity and Race

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid White; Caucasian; European	198	57.7	68.3	68.3
Valid Minority	75	21.9	25.9	94.1
Valid Mixed White/minority	17	5.0	5.9	100.0
Valid Total	290	84.5	100.0	
Missing System	53	15.5		
Total	343	100.0		

Table 2D: Income My current household income is . . .

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Less than \$19,999 per year	129	37.6	37.6	37.6
Valid \$20,000 to \$39,999 per year.	62	18.1	18.1	55.7
Valid \$40,000 to \$59,999 per year.	21	6.1	6.1	61.8
Valid \$60,000 to \$79,999 per year.	15	4.4	4.4	66.2
Valid \$80,000 to \$99,999 per year.	29	8.5	8.5	74.6
Valid \$100,000 or more per year.	28	8.2	8.2	82.8
Valid I prefer not to answer.	59	17.2	17.2	100.0
Total	343	100.0	100.0	

Table 2E: Insurance Do you have health insurance?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	293	85.4	85.9	85.9
Valid No	48	14.0	14.1	100.0
Valid Total	341	99.4	100.0	
Missing System	2	.6		
Total	343	100.0		

Appendix D

Table 3A: Descriptive Statistics (Dependent Variable: Bedside Manner)

Attentiveness	Interruption	Mean	Std. Deviation	N
1.00	1.00	13.6579	3.30879	76
	2.00	12.1163	3.49931	86
	Total	12.8395	3.48718	162
2.00	1.00	13.5595	3.62173	84
	2.00	12.2973	3.56440	74
	Total	12.9684	3.63882	158
Total	1.00	13.6063	3.46609	160
	2.00	12.2000	3.51958	160
	Total	12.9031	3.55785	320

(1 = attentive, 2 = non-attentive; 1 = interruption, 2 = no interruption)

Table 3A₁: Tests of Between-Subjects Effects (Dependent Variable: Bedside Manner)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Attentiveness	.136	1	.136	.011	.916
Interruption	156.591	1	156.591	12.760	.000
Attentiveness * Interruption	1.555	1	1.555	.127	.722
Error	3878.104	316	12.272		
Total	57315.000	320			
Corrected Total	4037.997	319			

(1 = attentive, 2 = non-attentive; 1 = interruption, 2 = no interruption)

Appendix D

Table 3A₂: Tests of Between-Subjects Effects (Dependent Variable: Bedside Manner)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Biological Gender	108.981	1	108.981	9.071	.003
Age	20.959	1	20.959	1.745	.188
Birthplace	2.107	1	2.107	.175	.676
Education	9.939	1	9.939	.827	.364
Employment Status	.314	1	.314	.026	.872
Type of Work	24.609	1	24.609	2.048	.153
Income	16.108	1	16.108	1.341	.248
Insurance	22.862	1	22.862	1.903	.169
Consultation Frequency	7.788	1	7.788	.648	.421
Date of Last Consultation	16.124	1	16.124	1.342	.248
Attentiveness	1.771	1	1.771	.147	.701
Interruption	161.822	1	161.822	13.469	.000
Attentiveness * Interruption	1.855	1	1.855	.154	.695
Error	3520.134	293	12.014		
Total	54456.000	307			
Corrected Total	3890.528	306			

Table 3B: Descriptive Statistics (Dependent Variable: Consultation Goals)

Attentiveness	Interruption	Mean	Std. Deviation	N
1.00	1.00	10.0886	4.18235	79
	2.00	12.4157	4.60930	89
	Total	11.3214	4.55219	168
2.00	1.00	10.8690	4.42278	84
	2.00	12.4800	4.28498	75
	Total	11.6289	4.41882	159
Total	1.00	10.4908	4.31244	163
	2.00	12.4451	4.45048	164
	Total	11.4709	4.48360	327

(1 = attentive, 2 = non-attentive; 1 = interruption, 2 = no interruption)

Appendix D

Table 3B₁: Tests of Between-Subjects Effects (Dependent Variable: Consultation Goals)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Attentiveness	14.523	1	14.523	.755	.386
Interruption	315.647	1	315.647	16.401	.000
Attentiveness * Interruption	10.439	1	10.439	.542	.462
Error	6216.277	323	19.245		
Total	49581.000	327			
Corrected Total	6553.474	326			

Table 3B₂: Tests of Between-Subjects Effects (Dependent Variable: Consultation Goals)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Biological Gender	131.372	1	131.372	6.910	.009
Age	50.486	1	50.486	2.656	.104
Birthplace	23.779	1	23.779	1.251	.264
Education	14.039	1	14.039	.738	.391
Employment Status	6.363	1	6.363	.335	.563
Type of work	16.367	1	16.367	.861	.354
Income	60.638	1	60.638	3.190	.075
Insurance	16.081	1	16.081	.846	.358
Consultation Frequency	46.582	1	46.582	2.450	.119
Date of Last Consultation	93.378	1	93.378	4.912	.027
Attentiveness	6.688	1	6.688	.352	.554
Interruption	311.076	1	311.076	16.363	.000
Attentiveness * Interruption	6.649	1	6.649	.350	.555
Error	5665.303	298	19.011		
Total	47857.000	312			
Corrected Total	6295.458	311			

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Table 3C: Descriptive Statistics (Dependent Variable: Patient-Physician Interaction)

Attentiveness	Interruption	Mean	Std. Deviation	N
1.00	1.00	7.0253	2.49602	79
	2.00	8.4045	2.62297	89
	Total	7.7560	2.64801	168
2.00	1.00	7.6000	2.82084	85
	2.00	8.5000	2.75280	78
	Total	8.0307	2.81623	163
Total	1.00	7.3232	2.67673	164
	2.00	8.4491	2.67667	167
	Total	7.8912	2.73146	331

(1 = attentive, 2 = non-attentive; 1 = interruption, 2 = no interruption)

Table 3C₁: Tests of Between-Subjects Effects (Dependent Variable: Patient-Physician Interaction)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Attentiveness	9.265	1	9.265	1.293	.256
Interruption	107.152	1	107.152	14.953	.000
Attentiveness * Interruption	4.736	1	4.736	.661	.417
Error	2343.288	327	7.166		
Total	23074.000	331			
Corrected Total	2462.085	330			

(1 = attentive, 2 = non-attentive; 1 = interruption, 2 = no interruption)

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Table 3C₂: Tests of Between-Subjects Effects (Dependent Variable: Patient-Physician Interaction)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Biological Gender	23.010	1	23.010	3.172	.076
Age	2.282	1	2.282	.315	.575
Birthplace	4.488	1	4.488	.619	.432
Education	.772	1	.772	.106	.744
Employment Status	.183	1	.183	.025	.874
Type of Work	3.047	1	3.047	.420	.517
Income	16.843	1	16.843	2.322	.129
Insurance	9.812	1	9.812	1.353	.246
Consultation Frequency	7.490	1	7.490	1.032	.310
Date of Last Consultation	11.272	1	11.272	1.554	.214
Attentiveness	3.864	1	3.864	.533	.466
Interruption	97.396	1	97.396	13.425	.000
Attentiveness * Interruption	4.650	1	4.650	.641	.424
Error	2183.699	301	7.255		
Total	22254.000	315			
Corrected Total	2349.187	314			

Table 3D: Descriptive Statistics (Dependent Variable: Doctor Expectations)

Attentiveness	Interruption	Mean	Std. Deviation	N
1.00	1.00	5.3165	1.62941	79
	2.00	4.7802	1.61109	91
	Total	5.0294	1.63695	170
2.00	1.00	5.4535	1.75336	86
	2.00	4.9610	1.82412	77
	Total	5.2209	1.79857	163
Total	1.00	5.3879	1.69140	165
	2.00	4.8631	1.70917	168
	Total	5.1231	1.71804	333

(1 = attentive, 2 = non-attentive; 1 = interruption, 2 = no interruption)

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Table 3D₁: Tests of Between-Subjects Effects (Dependent Variable: Doctor Expectations)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Attentiveness	2.093	1	2.093	.721	.396
Interruption	21.926	1	21.926	7.554	.006
Attentiveness * Interruption	.040	1	.040	.014	.907
Error	954.890	329	2.902		
Total	9720.000	333			
Corrected Total	979.952	332			

(1 = attentive, 2 = non-attentive; 1 = interruption, 2 = no interruption)

Table 3D₂: Tests of Between-Subjects Effects (Dependent Variable: Doctor Expectations)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Biological Gender	3.984	1	3.984	1.385	.240
Age	2.835	1	2.835	.985	.322
Birthplace	.824	1	.824	.286	.593
Education	.408	1	.408	.142	.707
Employment Status	1.881	1	1.881	.654	.419
Type of work	4.777	1	4.777	1.660	.199
Income	10.326	1	10.326	3.589	.059
Insurance	.033	1	.033	.011	.915
Consultation Frequency	9.698	1	9.698	3.371	.067
Date of Last Consultation	1.571	1	1.571	.546	.461
Attentiveness	1.079	1	1.079	.375	.541
Interruption	19.176	1	19.176	6.665	.010
Attentiveness * Interruption	.024	1	.024	.008	.928
Error	871.728	303	2.877		
Total	9133.000	317			
Corrected Total	925.527	316			

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Table 3E: Descriptive Statistics (Dependent Variable: Patient-Centeredness)

Attentiveness	Interruption	Mean	Std. Deviation	N
1.00	1.00	137.2658	2.91199	79
	2.00	135.4444	2.99854	90
	Total	136.2959	3.08723	169
2.00	1.00	137.0235	3.16595	85
	2.00	135.7200	3.03831	75
	Total	136.4125	3.16504	160
Total	1.00	137.1402	3.03939	164
	2.00	135.5697	3.01060	165
	Total	136.3526	3.12108	329

(1 = attentive, 2 = non-attentive; 1 = interruption, 2 = no interruption)

Table 3E1: Tests of Between-Subjects Effects (Dependent Variable: Patient-Centeredness)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Attentiveness	.023	1	.023	.002	.960
Interruption	199.828	1	199.828	21.744	.000
Attentiveness * Interruption	5.488	1	5.488	.597	.440
Error	2986.713	325	9.190		
Total	6119972.000	329			
Corrected Total	3195.100	328			

(1 = attentive, 2 = non-attentive; 1 = interruption, 2 = no interruption)

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Table 3E₂: Tests of Between-Subjects Effects (Dependent Variable: Patient-Centeredness)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Biological Gender	140.027	1	140.027	15.935	.000
Age	14.945	1	14.945	1.701	.193
Birthplace	30.908	1	30.908	3.517	.062
Education	.022	1	.022	.003	.960
Employment Status	.224	1	.224	.025	.873
Type of work	5.508	1	5.508	.627	.429
Income	8.797	1	8.797	1.001	.318
Insurance	15.025	1	15.025	1.710	.192
Consultation Frequency	5.112	1	5.112	.582	.446
Date of Last Consultation	1.159	1	1.159	.132	.717
Attentiveness	7.345	1	7.345	.836	.361
Interruption	203.447	1	203.447	23.152	.000
Attentiveness * Interruption	5.082	1	5.082	.578	.448
Error	2636.272	300	8.788		
Total	5837498.000	314			
Corrected Total	3067.414	313			

Table 3F: Descriptive Statistics (Dependent Variable: Care Measures)

Attentiveness	Interruption	Mean	Std. Deviation	N
1.00	1.00	22.7403	11.40799	77
	2.00	28.6067	11.09834	89
	Total	25.8855	11.58652	166
2.00	1.00	25.7647	11.51464	85
	2.00	29.3288	12.37275	73
	Total	27.4114	12.01333	158
Total	1.00	24.3272	11.52843	162
	2.00	28.9321	11.65824	162
	Total	26.6296	11.80302	324

(1 = attentive, 2 = non-attentive; 1 = interruption, 2 = no interruption)

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Table 3F₁: Tests of Between-Subjects Effects (Dependent Variable: Care Measures)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Attentiveness	282.493	1	282.493	2.108	.148
Interruption	1789.933	1	1789.933	13.355	.000
Attentiveness * Interruption	106.692	1	106.692	.796	.373
Error	42889.445	320	134.030		
Total	274758.000	324			
Corrected Total	44997.556	323			

(1 = attentive, 2 = non-attentive; 1 = interruption, 2 = no interruption)

Table 3F₂: Tests of Between-Subjects Effects (Dependent Variable: Care Measures)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Biological Gender	694.406	1	694.406	5.301	.022
Age	292.394	1	292.394	2.232	.136
Birthplace	79.511	1	79.511	.607	.437
Education	30.481	1	30.481	.233	.630
Employment Status	84.544	1	84.544	.645	.422
Type of work	252.837	1	252.837	1.930	.166
Income	400.999	1	400.999	3.061	.081
Insurance	60.634	1	60.634	.463	.497
Consultation Frequency	342.961	1	342.961	2.618	.107
Date of Last Consultation	537.419	1	537.419	4.102	.044
Attentiveness	134.414	1	134.414	1.026	.312
Interruption	1659.027	1	1659.027	12.664	.000
Attentiveness * Interruption	66.798	1	66.798	.510	.476
Error	38647.247	295	131.008		
Total	264311.000	309			
Corrected Total	42492.744	308			

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Table 3G: Descriptive Statistics (Dependent Variable: Powerful-Other Health Control)

Attentiveness	Interruption	Mean	Std. Deviation	N
1.00	1.00	9.2346	3.53649	81
	2.00	10.2418	4.34956	91
	Total	9.7674	4.00781	172
2.00	1.00	9.9167	4.18894	84
	2.00	10.2949	3.75589	78
	Total	10.0988	3.97853	162
Total	1.00	9.5818	3.88567	165
	2.00	10.2663	4.07447	169
	Total	9.9281	3.99108	334

(1 = attentive, 2 = non-attentive; 1 = interruption, 2 = no interruption)

Table 3G₁: Tests of Between-Subjects Effects (Dependent Variable: Powerful-Other Health Control)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Attentiveness	11.247	1	11.247	.708	.401
Interruption	39.936	1	39.936	2.512	.114
Attentiveness * Interruption	8.232	1	8.232	.518	.472
Error	5245.859	330	15.897		
Total	38226.000	334			
Corrected Total	5304.275	333			

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Table 3G₂: Tests of Between-Subjects Effects (Dependent Variable: Powerful-Other Health Control)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Biological Gender	.058	1	.058	.004	.949
Age	139.707	1	139.707	9.672	.002
Birthplace	203.597	1	203.597	14.095	.000
Education	43.658	1	43.658	3.023	.083
Employment Status	61.427	1	61.427	4.253	.040
Type of work	29.486	1	29.486	2.041	.154
Income	1.623	1	1.623	.112	.738
Insurance	4.357	1	4.357	.302	.583
Consultation Frequency	57.372	1	57.372	3.972	.047
Date of Last Consultation	5.838	1	5.838	.404	.525
Attentiveness	3.492	1	3.492	.242	.623
Interruption	67.978	1	67.978	4.706	.031
Attentiveness * Interruption	6.479	1	6.479	.449	.504
Error	4376.610	303	14.444		
Total	37064.000	317			
Corrected Total	5043.192	316			

Table 3H: Descriptive Statistics (Dependent Variable: Internal Health Control)

Attentiveness	Interruption	Mean	Std. Deviation	N
1.00	1.00	19.6341	4.15298	82
	2.00	19.3043	4.09969	92
	Total	19.4598	4.11624	174
2.00	1.00	19.5517	3.77494	87
	2.00	18.6267	3.64941	75
	Total	19.1235	3.73462	162
Total	1.00	19.5917	3.95121	169
	2.00	19.0000	3.90705	167
	Total	19.2976	3.93463	336

(1 = attentive, 2 = non-attentive; 1 = interruption, 2 = no interruption)

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Table 3H₁: Tests of Between-Subjects Effects (Dependent Variable: Internal Health Control)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Attentiveness	12.064	1	12.064	.780	.378
Interruption	32.879	1	32.879	2.125	.146
Attentiveness * Interruption	7.399	1	7.399	.478	.490
Error	5137.567	332	15.475		
Total	130312.000	336			
Corrected Total	5186.238	335			

Table 3H₂: Tests of Between-Subjects Effects (Dependent Variable: Internal Health Control)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Biological Gender	.088	1	.088	.006	.939
Age	56.415	1	56.415	3.833	.051
Birthplace	94.605	1	94.605	6.428	.012
Education	1.757	1	1.757	.119	.730
Employment Status	45.447	1	45.447	3.088	.080
Type of Work	.199	1	.199	.014	.908
Income	10.826	1	10.826	.736	.392
Insurance	4.337	1	4.337	.295	.588
Consultation Frequency	20.385	1	20.385	1.385	.240
Date of Last Consultation	17.209	1	17.209	1.169	.280
Attentiveness	.040	1	.040	.003	.958
Interruption	50.782	1	50.782	3.451	.064
Attentiveness * Interruption	3.914	1	3.914	.266	.606
Error	4503.337	306	14.717		
Total	123536.000	320			
Corrected Total	4956.000	319			

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Table 3I: Descriptive Statistics (Dependent Variable: Health Assertiveness)

Attentiveness	Interruption	Mean	Std. Deviation	N
1.00	1.00	18.2267	4.31081	75
	2.00	17.7865	4.28388	89
	Total	17.9878	4.28865	164
2.00	1.00	17.9136	4.45308	81
	2.00	17.4133	4.01044	75
	Total	17.6731	4.23985	156
Total	1.00	18.0641	4.37394	156
	2.00	17.6159	4.15261	164
	Total	17.8344	4.26115	320

(1 = attentive, 2 = non-attentive; 1 = interruption, 2 = no interruption)

Table 3I₁: Tests of Between-Subjects Effects (Dependent Variable: Health Assertiveness)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Attentiveness	18.532	1	18.532	1.019	.313
Interruption	12.559	1	12.559	.691	.406
Attentiveness * Interruption	1.173	1	1.173	.065	.800
Error	6071.971	334	18.180		
Total	114394.000	338			
Corrected Total	6102.580	337			

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Table 3I₂: Tests of Between-Subjects Effects (Dependent Variable: Health Assertiveness)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Biological Gender	38.590	1	38.590	2.330	.128
Age	89.403	1	89.403	5.398	.021
Birthplace	1.014	1	1.014	.061	.805
Education	13.409	1	13.409	.810	.369
Employment Status	22.504	1	22.504	1.359	.245
Type of Work	6.324	1	6.324	.382	.537
Income	10.589	1	10.589	.639	.425
Insurance	33.535	1	33.535	2.025	.156
Consultation Frequency	42.956	1	42.956	2.594	.108
Date of Last Consultation	93.660	1	93.660	5.655	.018
Attentiveness	3.913	1	3.913	.236	.627
Interruption	20.043	1	20.043	1.210	.272
Attentiveness * Interruption	.136	1	.136	.008	.928
Error	5067.684	306	16.561		
Total	107573.000	320			
Corrected Total	5792.222	319			

Table 3J: Correlation Matrix for Health Care Provider

		Patient-Centeredness	Care Measures	Powerful-Other Health Control	Internal Health Control	Health Assertiveness	Attentiveness	Interruption
My health insurance is provided by my employer.	Pearson Sig. (2-tailed) N	.020 .713 329	-.014 .800 324	-.132 .015 334	.068 .213 336	.062 .254 338	.020 .713 329	-.077 .157 343
My health insurance is provided by my spouse/partner.	Pearson Sig. (2-tailed) N	.052 .350 329	-.036 .518 324	-.132 .563 334	-.005 .923 336	.034 .538 338	.001 .157 343	-.151 .005 343
My health insurance is provided by my parents.	Pearson Sig. (2-tailed) N	-.056 .315 329	-.023 .681 324	.133 .015 334	-.080 .143 336	-.067 .217 338	.151 .005 343	-.020 .709 343
My health insurance is provided by myself.	Pearson Sig. (2-tailed) N	-.016 .779 329	-.015 .789 324	-.031 .570 334	.022 .684 336	.045 .410 338	-.050 .357 343	-.020 .709 343
My health insurance is provided Medicaid/Medicare.	Pearson Sig. (2-tailed) N	.037 .499 329	-.058 .295 324	-.008 .886 334	-.022 .692 336	.052 .337 338	.024 .652 343	.034 .528 343
My health insurance is provided by a state healthcare plan.	Pearson Sig. (2-tailed) N	-.036 .511 329	.028 .617 324	-.076 .168 334	.120 .028 336	.123 .023 338	-.057 .289 343	-.016 .764 343
My health insurance is provided by charity, or other non-compensated plan.	Pearson Sig. (2-tailed) N	-.037 .504 329	.023 .684 324	.092 .094 334	.020 .713 336	-.138 .011 338	-.058 .283 343	-.060 .270 343

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- 1986-87 University of Wisconsin - Stevens Point, WI;
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- 1983-88 Wake Forest University, Winston-Salem, NC;
Master of Arts degree: Communication Theory and Research;
Thesis: *Comparing the Advertising in Traditional and Feminist Magazines: An Interface or Contradiction?*
- 1979-83 University of Wisconsin - Whitewater, WI;
Bachelor of Arts degree: Rhetoric and Public Address;
minor in Cultural Anthropology.
- 1981-82 University of London, England;
Semester Abroad Program in conjunction with an academic scholarship from the University of Wisconsin - Whitewater.

Book Chapters

- Bradford, L., Cooper, E., Allen, M., Stanley, J., & Grimes, D. (2006). Race and the classroom: Interaction and image. In B. Gayle, R. Preiss, N. Burrell, & M. Allen, M. (Eds.), *Classroom communication and instructional processes: Advances through meta-analysis* (pp. 169-184). Mahwah, NJ: Lawrence Erlbaum.

Articles

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Articles

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Allen, M., Ahmad, S., Apmann, L., Chen, L., Ditzler, W., Fox, M.J., Frey, A., Gonnering, R., Grimes, D., Huang, H., Katz, J., Louk, A.C., Lu, S., Lulewicz, A., Lund, A., Maier, M.A., Rankin, E.A., Strharsky, L., van Dyke, E., & Zhang, Y. (Under revision for resubmission). Evaluating doctoral programs in communication on the basis of citations. *Social Influence*.

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Conference Presentations

Kim, S., Lim, T., Herrman, A., Omori, K., Hawkins, J. M., Hirosh, O., Kim, H., Kim, J., England, N., Tenzek, K., Cramer, E., Grimes, D., & Dilbeck, K. (2012, November). I'm too fat, I'm just perfect: Comparing weight estimation among American, Japanese, and Korean Women. Paper submitted to the 98th Annual Communication Convention, Orlando, Florida.

Kim, S., Lim, T., Song, H., Cramer, E. M., Tenzek, K., England, N., Herrman, A., Hawkins, J. M., Kim, H., Ota, H., Kim, J., Omori, K., Grimes, D., & Dilbeck, K. (2012, November). Integrating cultural worldviews into assessment and behavior when a family member is ill. Paper submitted to the 98th Annual Communication Convention, Orlando, Florida.

Maier, M. A., Herrman, A., Kartch, F. F., Omori, K., Tenzek, K. E., Lara C. Stache, L. C., Grimes, D. Dilbeck, K., Glocka, J., Maloney, J., Zoromski, A., & Burrell, N. A. (2011, November). *Managing Conflict while Owning a Small Business: Saving face and figure in a health club*. Paper presented at the National Communication Association Convention, (New Orleans, LA, November 17-20, 2011, November).

Denis Grimes

Conference Presentations

- Grimes, D. (2011, April). *Diagnostic Discourse: Examining Clinical Interviews within the Patient-Provider Paradigm*. Paper presented at the Central States Communication Association, (Milwaukee, WI, 2011, April 6-10).
- Allen, M., Ahmad, S., Apmann, L., Chen, L., Ditzler, W., Fox, M.J., Frey, A., Gonnering, R., Grimes, D., Huang, H., Katz, J., Louk, A.C., Lu, S., Lulewicz, A., Lund, A., Maier, M.A., Rankin, E.A., Strharsky, L., van Dyke, E., & Zhang, Y. (2010, November). *Evaluating doctoral programs in communication on the basis of citations (Awarded Top Paper)*. Paper presented at the National Communication Association Convention, (San Francisco, CA, November 14-17, 2010, November).
- Allen, M., Kim, S., Antos, A., Gattoni, A., Grimes, D., Huang, H., Kim, J., Lu, S., Maier, M., May, A., Omachinski, K., Omori, K., Tenzek, K., Turkiewicz, K.L., & Zhang, Y. (2010, November). *Testing an additive model for the effectiveness of evidence on the persuasiveness of a message*. Paper presented at the National Communication Association Convention, (San Francisco, CA, November 14-17, 2010, November).
- Allen, M., Grimes, D., Hample, J., LaPlant Turkiewicz, K., and Dolan, J. (2009). *Adolescent Decisionmaking about Substance Use: A Meta-Analysis of the Influence of School Activities*. Paper presented at the Annual Meeting of the National Communication Association (95th, Chicago, Illinois, November 12-15, 2009).
- Allen, M., Bradford, L., Grimes, D., Cooper, E., Howard, L., and Howard, U. (1999). *Racial Group Orientation and Social Outcomes: Summarizing Relationships Using Meta-Analysis*. Paper presented at the Annual Meeting of the National Communication Association (85th, Chicago, Illinois, November 4-7, 1999).
- Allen, M., Henry, L., & Grimes, D. (1995). *Racial group orientation and self concept: Examining the relationship using meta-analysis*. Paper presented at the Speech Communication Association Convention, San Antonio, Texas.

Employment

- 2008-Present* University of Wisconsin - Milwaukee, Department of Communication;
Teaching Assistant: Business Communication, Intercultural Communication, and Interviewers and Interviewing.
- 1993-2008* University of Wisconsin - Milwaukee, Department of Communication;
Lecturer: Intercultural Communication, Public Speaking, and Interviewers and Interviewing.

Denis Grimes

Employment

- 2002-08 Gateway Technical College - Racine, WI; Department of General Education; Adjunct Faculty Instructor: Written Communication, Speech, Speaking Principles, Oral-Interpersonal Communication, Pre-College Writing, and College Success Skills.
- 1996-98 Independent Contractor: General Construction.
- 1996-97 University of Wisconsin - Parkside, Department of Communication; Visiting Lecturer: Intercultural Communication, Public Speaking, and Communication and Ethnicity.
- 1988-91 University of Wisconsin - Milwaukee, Department of Anthropology; Doctoral Teaching Assistant: Cultural Anthropology and Physical Anthropology.
- 1986-87 University of Wisconsin - Stevens Point, Department of Communication; Graduate Teaching Assistant: Mass Communication and News Writing; Lab Assistant: Anthropology.
- 1985-86 United States Department of Health, Center for Disease Control; Epidemiologist; Hillsborough County Health Department, Tampa, FL.
- 1983-85 Wake Forest University, Winston-Salem, NC; Graduate Teaching Assistant: Public Speaking.
- 1973-79 X-Cel Tooling, Iron Ridge, WI; Tool and Die Apprentice; Toolmaker.

Professional Affiliations

National Communication Association
 Speech Communication Association
 Intercultural Communication Association
 Central States Communication Association
 American Anthropological Association

Public Service

- 2010-2011 Tech Guru, University of Wisconsin – Milwaukee, Graduate Student Association – Communication Department, University of Wisconsin-Milwaukee, Milwaukee, WI.

Denis Grimes

Public Service

- 2009-2011 Mentor to Keith Dilbeck, Doctoral Student in the Department of Communication, University of Wisconsin-Milwaukee, Milwaukee, WI.
- 2008-2011 Judge, Public Speaking Showcase, Department of Communication, University of Wisconsin-Milwaukee, Milwaukee, WI.
- 2010 96th Annual Meeting of the National Communication Association, San Francisco, CA; Volunteer – Registration Desk.
- 2009 95th Annual Meeting of the National Communication Association, Chicago, IL; Volunteer – CyberCafe.
- 2005-06 Saint Francis, WI; Saint Francis School District, Saint Francis School District Restructuring Committee.
- 1999-2004 Cudahy, WI; Southshore YMCA; Parent Advisory Committee.
- 1996-99 Saint Francis, WI; Saint Francis School District, Deer Creek Elementary School Scholarship Committee.
- 1983-85 Wake Forest University, Winston-Salem, North Carolina; President of the Wake Forest University Graduate Student Association.
- 1979-83 University of Wisconsin - Whitewater;
Student Tenants Union: Director;
Student Government Association - Senator and Parliamentarian;
Tau Kappa Epsilon Fraternity - Treasurer and Vice President.