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Facilitators and Barriers to Communication: An Observational Study of the Long-Term Care Environment

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**Facilitators and Barriers to Communication: An Observational Study of
the Long-Term Care Environment**

by

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Dedication

This project is dedicated to my grandmother Aletha and to my pawpaw Raleigh, who have passed from this world but not from my life.

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Abstract

Facilitators and Barriers to Communication: An Observational Study of the Long-Term Care Environment

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The University of Texas at Austin, 2013

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The impact of the physical environment on communication for residents of long-term care (LTC) facilities has not been examined in depth. No study currently exists which explores environmental influences on communication within the long-term care setting. Investigation of such facilities is important because of the large impact environmental features have on the quality of life of residents due to the often restricted nature of daily routines and reduced level of cognitive and/or physical function of residents. A definition of environment is needed in order to create a methodology for assessment and treatment of residents in LTC facilities. This study investigates what factors contribute to a positive communication environment in long-term care facilities and how the physical environment should be assessed. Observational data was obtained for three LTC residents with different types of physical and communicative impairments to determine what environmental factors inhibit or support communication. Barriers and facilitators to communication are identified, and recommendations for assessment of the long-term care environment are made. Contributions from the fields of aphasiology, environmental gerontology, and environmental psychology are described in order to contribute to the understanding of what contributes to a positive communication environment. Study results included support for: participant observation as a component of resident assessment, assessment of multiple environments, the importance considering individual needs during assessment, and assessment of resident perception of environment. Furthermore, this study presents a checklist to be used to guide observational assessments.

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Introduction

This investigation explores environmental factors in long-term care facilities that contribute to a communication-friendly environment, and the influence of negative environmental factors (barriers) and positive environmental factors (facilitators) on everyday communication. Specifically, (a) What environmental factors are observed to affect communication, (b) What environmental factors are perceived to affect communication, and (c) What is the most appropriate way to assess the environment? Qualitative data was gathered through observation of three individuals living in long term care facilities. These observations add new information about the day to day interactions of individuals with their environment and how these interactions affect their ability to successfully communicate needs and desires, socialize, and direct their personal care. Howe, Worrall, and Hickson (2008) observed non-institutionalized individuals to identify environmental barriers and facilitators for communication, but no such study has been conducted with individuals in long-term care settings. The data acquired may be used to inform the methodology for environmental assessment, and shape interventions that create a communication-friendly environment and facilitate everyday life participation of residents. While this project is primarily intended for professionals within the field of speech-language pathology, the results will inform any field that has the aim to improve the independence, self-determination, and quality of life of individuals living with cognitive-communication impairments.

The report first reviews perspectives from the fields of aphasiology, environmental psychology, and environmental gerontology, which add to the

understanding of what constitutes a positive communication environment and provide a rationale for assessment and treatment of the environment. Social approaches to the assessment and treatment of aphasia consider the evaluation and targeting of the environment appropriate for individuals with aphasia. These approaches theorize that the identification of physical and social factors in an individual's environment that provide a barrier to or facilitate communication should be targeted to increase life participation. The field of environmental gerontology explores interactions between the physical environment and aging adults. This approach examines how aspects of the physical environment can improve quality of life for older adults through compensation for reduced or lost competencies. The field of environmental psychology explores the relationship between the individual and the surrounding sociocultural and physical environment and how the environment influences human experience and behavior. Each of these fields provides information about how the physical environment impacts an individual's ability to participate in daily activities, and environmental effects on quality of life.

A review of the concept of environment will be examined to address the question: What constitutes a positive communication environment? A consistent definition of environment is not agreed upon; however a review of existing information about potential factors helps guide the identification of potential barriers or facilitators to communication. Also, a review of existing assessment tools is provided to aid in the identification of negative and positive characteristics of the physical environment.

A Rationale for Study of the Environment: Theoretical Perspectives

THE ENVIRONMENT AND REHABILITATION

The Long-term Care Environment

Long-term care (LTC) facilities are a special type of environment which house individuals with physical and/or cognitive impairments who have a limited ability to influence, control, or navigate their immediate physical surroundings. Whether an individual lives in such a facility short or long term, this environment is often perceived negatively. Lubinski, Morrison and Rigrodsky (1981) investigated the importance of the environment for individuals living in long-term care facilities. One of their observations was that little spoken communication occurred within such settings. Personal interviews with residents revealed that several factors contributed to what they labeled a “communication-impaired environment” (p. 412), including limited access to desired communication partners, limited functions of communication, lack of privacy, and negative views about living in an institutional setting. In addition, Chapey (2008) stated that effective communication is dependent on physical access to a positive communication environment, including access to communication partners and activities of choice that generate the desire to communicate.

Individuals living in long-term care facilities often present with physical, sensory, and cognitive changes related to acquired communication disorders that affect the ability

to effectively communicate. Also, age-related changes such as presbycusis, arthritis, and low vision affect one's ability to interact with and navigate their physical environment. However, data regarding the manner in which the long-term care environment affects resident quality of life and participation are lacking. The awareness of physical barriers is crucial for impaired individuals as many caregivers may not be aware of how the environment is affecting their communication. Lubinski and colleagues (1981) suggested that speech-language pathologists should identify environments that encourage communicative interactions for individuals with communication impairment.

Social Approaches to Intervention

The Life Participation Approach to Aphasia (LPAA) and the Environmental Approach are social models of aphasia assessment and intervention that place an emphasis on the long term, real-life needs of a person with aphasia and incorporates family and/or caregivers in the process. This approach highlights the participation of the individual and those around them in the rehabilitative process and considers the impact of the environment as an integral part of this approach (Kagan et. al, 2008, Kagan & Simmons-Mackie, 2007). This approach is founded in part upon the World Health Organization's definition of health as a "state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" (Kagan & Simmons-Mackie, 2007, p. 310).

Social approaches state that intervention in speech-language pathology should not only work on the disease process but also on increasing access to participation in

healthcare and social activities encountered in daily life and maximizing quality of life (Kagan & Simmons-Mackie, 2007). Speech-language pathologists typically create goals which target discrete skills to improve expressive and/or receptive communication. However, the Environmental Approach to intervention, as described by Lubinski (Chapey, 2008), extends these goals into the environment of the individual and encourages generalization of skills learned in therapy (Chapey, 2008). The Environmental Approach to Intervention cites the physical environment as a key element of assessment and treatment of a communication-impaired individual. The individual cannot be separated from the physical and social influences the environment has on interactions during everyday life, therefore environment should be included in assessment and intervention. In the Environmental Approach, facilitators to communication should be identified, developed and/or reinforced, and barriers removed if possible (Chapey, 2008). If communicative barriers are removed and facilitators provided, an individual is more likely to perceive desired activities as accessible and physically access them, thereby allowing for an improved level of life participation.

THE INDIVIDUAL IN THE ENVIRONMENT

Environmental Gerontology

The relationship between an individual and the environment should be understood in order to identify facilitators and barriers to communication. Environmental gerontology seeks to understand this relationship, specifically between the environment

and older adults. Individuals with communication impairment are often older and experience physical and communicative barriers as similar to aging individuals. Therefore, findings from environmental gerontology inform assessment and treatment of individuals with acquired communication disorders. This field acknowledges the role of the socio-physical environment, or the inter-relatedness of physical features of the environment and the accompanying social and cultural features. As people age, the physical location where they reside matters more, therefore health, cognitive, and functional abilities are increasingly influenced by the environment (Wahl & Gitlin, 2007; Wahl & Weisman, 2003). As people age, they tend to spend more time in the home environment, and in LTC facilities, individuals may rarely leave. Therefore, the LTC environment may be more closely linked to quality of life.

Other focuses of research in environmental gerontology include how physical features compensate for reduced abilities in older persons, and that optimal person-environment fit maximizes functional performance (Wahl & Gitlin, 2007; Lawton, Windley & Byerts, 1982; Devlin & Arneill, 2003; Lawton, 1989). An exploration of how physical features may compensate for lost abilities assists the clinician in identifying potentially facilitative environmental factors. The environment supports an individual through the presence of features that compensate for reduced or lost functional abilities (Wahl et al., 2003). Environmental modification can help compensate for functional loss, and by doing so potentially slow or stop the disablement process. The disablement process is the process by which physical and mental actions are made more difficult due to functional limitations caused by a physical and/or mental impairment (Wahl & Gitlin, 2007). Therefore, modification of the environmental factors that contribute to disability

may increase an individual's functional competence. In cases where an individual impairment is not possible to reverse, for example for an individual with a chronic or degenerative condition, the modification of external environmental factors may be the most important way to decrease the level of disability.

During assessment, the clinician should also take into account the possibility that person-environment interactions change based on an individual's competencies and type of environment, therefore interactions within environments that are specific to the individual should be assessed (Wahl & Gitlin, 2007). Person-environment fit is defined as a pairing of an individual with environmental circumstances in which that person has the highest possible level of functioning. At the lowest level of functioning, the person is most susceptible to their surroundings because of limited possible adaptations of the environment. For example, for some individuals in institutionalized settings, long distances within the facility undermine social relationships and thus behavioral autonomy (Wahl & Gitlin, 2007). Lawton and Nahemow's competence-environmental press model (Lawton, Windley & Byerts, 1982) states that "environmental press accounts for a greater proportion of behavioral outcomes as personal competence diminishes," and those individuals will become more docile as they encounter more environmental barriers (Devlin & Arneill, 2003, p. 684). The degree of press will affect the way in which individuals cope with stress and how they interact with the environment. Negative presses tend to reduce participation while positive presses tend to increase participation (Lawton et al., 1982). A negative press may be a long distance to travel to a desired location within the facility or lack of mobility, while a positive press may be utilization of an AAC device for communication or a low level of background noise for a resident with

hearing impairment. Individuals with more needs or a higher degree of impairment will be the most constrained by the physical environment, while those with fewer needs may not be hindered by an unsupportive environment (Degenholtz, Miller, Kane & Cutler, 2006). These findings suggest that the identification of barriers and facilitators to communication are most important for communication-impaired individuals; the environment potentially will exert a higher degree of press upon them, resulting in poor behavioral outcomes given a lower degree of competence.

The field of environmental design has also adopted the idea of person-environment fit. Topf (1984) created a framework for studying the negative physical factors of the environment, including noise, temperature, lighting, and density. He studied the idea of control versus perceived control of the environment. Lawton's model of environmental press supports this view in that following environmental modifications that increase an individual's control supports autonomy, and may improve one's ability to perform daily tasks of living (Devlin & Arneill, 2003).

Environmental Psychology

Environmental psychology explores the influence of environment on human experience, behavior, and well-being, and the influence the individual has on the environment (Steg, van den Berg & Groot, 2012). Findings from the field of environmental psychology emphasize the importance of exploring how the physical environment influences each person differently. The clinician should not assume that one environment impacts every person in the same way. Specifically, one physical feature

may be facilitative for one individual but not for another. These observer differences are influenced by factors such as culture and life experiences, educational level, and income level.

Research in environmental psychology also explores how the individual's influence on their surroundings affects their relationship with the environment (e.g. Devlin & Arneill, 2003). For example, patient control over environmental features may influence medical outcomes. Individual control over features such as lighting or temperature addresses the issue of person-environment fit. Devlin and Arneill (2003) conducted a study that examined the role of the environment in the healing process. They theorized that patient loss of control and resulting depersonalization when hospitalized could produce psychological, cognitive, behavioral and emotional consequences that affect recovery. The authors concluded that while effects on healthcare outcomes are still unclear, a patient-centered model of healthcare which emphasizes patient control may improve outcomes by reducing stress.

A DEFINITION OF ENVIRONMENT

A definition of environment is needed to determine what environmental factors should be assessed. Some agencies and researchers have proposed broad, overarching frameworks that define environment, and others have sought to provide more detailed information on precisely what physical aspects of the environment contribute to the construct of person-environment fit. Broad frameworks provide for the overall scope of assessment while individual assessment tools add detail about specific aspects to

consider. However, given that what constitutes a communication-friendly environment varies from person to person, it may not be possible to create single definition of positive communication environment. Furthermore, as research from environmental gerontology suggests (e.g., Wahl & Gitlin, 2007) multiple environments should be assessed because interactions will change from one environment to the next. The following review assisted in the creation of a checklist of potential influential environment characteristics that can be used to assess each individual separately in a variety of environments, allowing for individual variation and assessment of different environments.

The International Classification of Functioning, Disability and Health (ICF)

The World Health Organization (WHO) established a conceptual framework for health and health-related domains. The WHO's International Classification of Functioning, Disability and Health (ICF) is a classification system which functions as the international standard to describe and measure health and disability. The ICF has played an important role in rehabilitation by helping transition health care from a strict medical model to a biopsychosocial model (Kagan, Simmons-Mackie, Rowland, Hujbregts, Shumway, McEwen, Threats & Sharp, 2008). The ICF framework implies that the presence of an environment that is facilitative both physically and in attitudes towards those with communication disorders is an important part of the rehabilitative goal (Threats & Worrall, 2004).

The framework creates common system for assessment and treatment and can be used by multiple disciplines to streamline communication about individuals with

disabilities. Threats and Worrall (2004) suggest that the ICF can be used by professionals in healthcare fields for “increased research geared towards Environmental Factors in the habilitation and rehabilitation process.” The collection of observational data regarding what constitutes a positive communication environment will add to the knowledge base regarding assessment and treatment of an individual within the framework of the ICF.

The ICF is divided into two parts: 1) Functioning and Disability; 2) Contextual Factors. The Functioning and Disability component is comprised of body functions and structures, and activities and participation. The Contextual Factors component is comprised of Environmental Factors and Personal Factors. Environmental Factors are defined as, the “physical, social, and attitudinal environment in which people live and conduct their lives” (Threats & Worrall, 2004, p. 56). The ICF further divides Environmental Factors into three “levels”: immediate personal environment, services, and cultural/legal systems, and into the following chapters: Products and technology; natural environment and human made changes to environment; support and relationships; attitudes; and services, systems and policies. In addition, the American Speech-Language Association (ASHA), the national credentialing association for speech-language pathologists, has incorporated the ICF into its practice guidelines and states: “Contextual factors interact with each other and with the health conditions and may serve as facilitators or barriers to functioning.“ (ASHA, 2013) (See Figure 1).

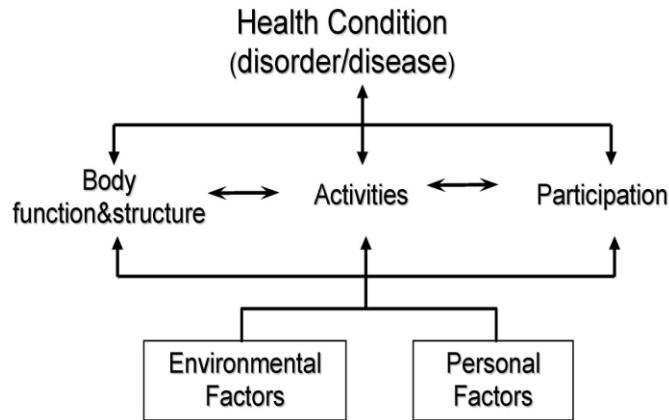


Figure 1 The ICF framework (World Health Organization, 2001)

An evaluation framework called Living with Aphasia: Framework for Outcome Measurement (A-FROM), was developed by Kagan and colleagues (2008). This framework draws from the ICF framework. Kagan and Simmons-Mackie (2007) state that the A-FROM addresses the challenges in outcome measurement from a life participation approach to assessment and intervention. The A-FROM is composed of four domains related to quality of life including: impairment, participation, environment, and personal factors. According to this framework, the environment has the potential to increase life participation, and should be taken into consideration. While the model provides a basic framework for evaluation, it does not provide information about what constitutes a positive communication environment for individuals with aphasia. The creators of this model acknowledge that few tools are available to measure life participation, and that qualitative measures are recommended in place of a formal assessment tool (Kagan & Simmons-Mackie, 2007).

Other Definitions of Environment

Apart from the ICF's broad classification system, a small body of research exists which provides additional definitions of environment. Each definition was taken into consideration during the creation of a checklist used during observations for this study. Factors identified included physical and perceived aspects of the environment.

Chapey (2008) defined environment as the physical context in which individuals function, and includes the surroundings as perceived through the senses, the built environment (man-made constructs) and the use of time and space. In addition to tangible physical features, a key aspect of how an individual interacts with the environment is based on how accessible or desired they perceive the environment to be. Factors such as distance, sensory abilities and the sociocultural environment may create barriers to or may facilitate positive interaction with others. In an Environmental Approach to intervention, as discussed by Lubinski (as cited in Chapey, 2008), the environment is conceptualized in terms of the external environment and individual environment. The external environment encompasses physical and sensory characteristics, social milieu and societal support. The individual environment includes personal characteristics and the social role of an individual. While the social factors of environment are an important part of this approach, the physical environment is the focus of this study.

O'Halloran, Hickson and Worrall (2008) reviewed the literature on environmental factors that facilitate or create barriers for communication within acute care hospitals. Their review focused on the concept that within an acute care setting, communication-

impaired individuals may not be able to communicate with healthcare providers, which could directly compromise their health, healthcare, and right to participate in decisions about their own care. Although this study focused on acute care settings, similar challenges may present in LTC settings. Residents of LTC facilities will be less medically-fragile, however barriers may become more ingrained over time in such facilities during longer duration of stay, and may potentially inhibit communication. The O'Halloran et al. (2008) study identified physical barriers to communication as: inadequate signage, high levels of background noise, poor lighting, lack of visual display boards, lack of assistive listening devices, availability of communication boards, having access to visual and verbal information, availability of a speech-generating device, and difficulty accessing and using call buzzers.

Howe, Worrall, and Hickson (2004) reviewed existing research to define an “aphasia-friendly” environment. They found that limited research was available, and that the limited data collected thus far focused on the workplace environment or the hospital setting. In addition, they discovered that with the exception of studies on the role of background noise, that little research has been conducted on the physical, or the natural environment and human-made changes to the environment as referred to by the ICF. In addition, few studies used participant observation as a research method. The researchers suggest that the direct observation of the individual within their environment may provide an alternative perspective on the environmental factors of a setting.

Degenholtz, Miller, Cane and Cutler (2006), sought to construct a typology of the nursing home environments that residents experience daily. They defined the term

environment as the “fixed, semi-fixed and permanent components of the physical structure, and the furnishings, fixtures, decor and equipment in the building” (p. 7). They examined the far or the common spaces, and the near, or the individual room occupied by the resident. An extensive checklist of potential environmental factors was developed and utilized for this study. A primary conclusion drawn from their investigation was that an emphasis should be placed on determining which environment (near or far) is the most important for that individual. A focus on the assessment of the most important environment will have the highest impact on functional outcomes.

ENVIRONMENTAL ASSESSMENT TOOLS

While environmental assessment tools exist which can be used by a practitioner to assess a nursing home environment, completion of such an extensive evaluation may not be practical due to time constraints. However, use of a short checklist combined with observation may be more useful. Furthermore, observation is often necessary when the individual is unable to effectively or reliably communicate their needs due to a communication disorder.

Contributions from Aphasiology

Moose and Lemke (1996) developed The Multiphasic Environmental Assessment Procedure (MEAP) to evaluate the social and physical environment of residential settings of older adults (Miranne, 1997). The MEAP assesses the effects of architectural features

on the social climate of a facility. In particular, the Physical and Architectural Features Checklist (PAF) evaluates the physical resources of elderly group residential settings. The procedure estimates an individual's fit within the setting when combined with information about the resident (Cutler, Kane, Degenholtz, Miller & Grant, 2006). While this instrument has an extensive list of features to be analyzed, and was developed primarily to compare and contrast facilities, and may be limited in its ability to evaluate how the individual interacts with the environment.

The Assessment of Life Habits (LIFE-H) is an instrument that documents the quality of social participation by assessing the person's performance in daily activities and social roles. This instrument was developed as a result of the effort to implement social participation as part of a rehabilitation or social program (Fougeyrollas, Noreau, Bergeron, Cloutier, Dion & St-Michel, 1998). The LIFE-H documents the degree of accomplishment of life habits in terms of the difficulty and assistance required. This measure is based on two elements, the level of difficulty in carrying out activities in the actual environment, and the type of assistance required to do so, including technical assistance, physical arrangements and human assistance (Noreau, Desrosiers, Robichaud, Fougeyrollas, Rochette & Viscogliosi, 2004; Fougeyrollas et al., 1998). Noreau et al. (2004) investigated the validity of this instrument for older individuals living at home, in a private nursing home or in a long-term care center. The LIFE-H could be a valuable guide for assessing what are facilitators and barriers for a person either to communicate or gain access to desired communicative situations. For example, a response such as "performed with difficulty with no assistance" could indicate a situation where a barrier is present while "performed with no difficulty with technical and human assistance"

indicates a situation where a facilitator is present. The level of assistance needed to complete daily tasks and the level of difficulty to complete such tasks were noted during participant observation for this study.

Study of the Healthcare Environment

Cutler, Kane, Degenholtz, Miller and Grant (2006) developed a procedure to assess nursing home environments at three levels: the resident's room, the nursing unit, and the facility as a whole. Forty facilities in five states were assessed using three separate observational checklists, one for each type of environment. Environmental features determined to be barriers included: lack of lounge space, overcrowding in large shared bathrooms, long distances between individual room environments and bathrooms or other spaces, corridor clutter, noise, and general absence of "life-enhancing features." Furthermore, features that negatively impacted quality of life outcomes such as dignity, privacy, comfort, security and functional competence included inadequate ventilation, low light, poor switches and controls and improper use of storage areas. While this study effectively calculated what features are either present or not present, no distinction in importance was placed on certain features based on individual needs. The researchers stated that further research is needed to connect features in an environment directly to the resident's outcomes. They also acknowledged the difficulty for a clinician to complete such an extensive assessment battery and that some suggested changes might not be possible due to expense or overall design of the facility. Nevertheless, this study highlights how a careful assessment of a nursing home resident's environment can add information to what factors impact quality of life.

Participant Observation of the Environment

Howe, Worrall, and Hickson (2008) conducted a qualitative descriptive study exploring environmental factors that hinder or support community participation of adults with aphasia. Participants included individuals with aphasia living independently in the community. Physical barriers encountered included inanimate or acoustic aspects of the immediate environment. Five subtypes of physical barriers included were object characteristics, objects, acoustic characteristics, visual characteristics, and spatial characteristics. Each of these subtypes was included during the formation of the checklist used during this study. While the interactions of individuals living in the community are different from those living in a nursing home environment, this study demonstrates that participant observation can be an effective way of identifying barriers and facilitators to communication for individuals with aphasia.

A CHECKLIST FOR EVALUATION

Based on a review of existing assessment tools and studies, a checklist was created for the purpose of this study. This checklist provided a framework for observation, which was used during each data collection session. (See Table 1)

	Facilitators	Barriers
Lighting	Presence of natural lighting/ windows Ability to control lighting	Inadequate/ poorly controlled lighting Inability to control lighting
Background Noise	Noises in environment do not impede communication Noise in environment creates pleasant atmosphere Uses assistive device	Poor acoustics, people talking in the background
Visual Cues	Visual cues serve to orient person to environment, guide to preferred areas	Visual cues are confusing/ inaccessible
Physical layout	Able to navigate structure to access preferred settings, communication partners	Confusing design, lengthy hallway, stairway, floor covering difficult to traverse, corridor clutter
Temperature	Able to control temperature, comfort level	Unable to control temperature, uncomfortable temperature
Appropriate space for specified use (private v. group)*	Resident chooses their location; private spaces available when needed/ desired	Chosen for efficiency of care, decided by caregiver without resident consultation
Furnishings (design, placement)	Personal items, furniture, photos if desired Provides multi-sensory cues about time, place	Lack of personal items, visual cues for time, place
Proximity	Appropriate physical proximity to speaker, facing speaker	Inadequate proximity to speaker, not facing speaker
Presence of life- enhancing features*	Present	Not present
Most influential environment (near or far)	*Depends on individual	*Depends on individual
Level of difficulty in carrying out activity, assistance provided (technical, physical, human)*	Not difficult, or appropriate support provided to carry the task out	Difficult, or inappropriate support provided to carry the task out

*Indicates that barrier or facilitator may be actual or perceived

Table 1. Checklist for Environmental Assessment

Method

A RATIONALE FOR THE COLLECTION OF OBSERVATIONAL DATA

The collection of observational data is a form of qualitative data collection, during which human perception and understanding are used to refine theories and experiments. While quantitative measurements are an important component of assessment, intervention, and progress monitoring, choices made during each of these stages is often reached through interpretation (Stake, 2010).

Limitations and Strengths of Qualitative Research

The subjective nature of qualitative research is a widely stated weakness. Results are not often measurable, and therefore make progress within a field slow and may do little to advance practice. There is risk in assuming that what the researcher perceives as understanding is true understanding, as in fact it may be misunderstanding, or incomplete understanding (Stake, 2010). Furthermore, qualitative data is time-consuming and results can take a very long time to fully understand (Stake, 2010; Miles & Huberman, 1994). Adequacy of sampling when only a few cases can be managed may affect the generalizability and credibility of findings (Miles & Huberman, 1994). Qualitative data can allow the investigator to see what events lead to other events, integrate data, and generate and revise conceptual frameworks. Qualitative research enables the clinician to integrate practical, clinical and professional knowledge with personal experience as opposed to depending only on quantitative measurements (Stake, 2010). Observational study allows the researcher a view of what “real life” looks like through the examination

of ordinary events that occur in natural settings, in context. The identification of causal factors is fundamental to the task of assessment and intervention. Direct observations of the interactions between people with communication impairment and their environment may provide an alternative perspective on environmental factors that is not gained through other methods often employed such as interview, focus groups, surveys and questionnaires.

RECRUITMENT/IDENTIFICATION OF PARTICIPANTS

Therapy department staff at area long term care (LTC) facilities identified participants for the present study. Both facilities selected for participant recruitment had existing relationships with the University of Texas at Austin. Staff identified individuals with communication impairment who might be willing to participate. Facility staff provided general information regarding the participants' diagnoses and communication difficulties, and also provided initial introductions to each participant. Participants were selected in such a way as to provide a diversity of speech/language, cognitive, and physical deficits. Two of the three participants resided at the same facility. If the participant was deemed by therapy staff as unable to make decisions for themselves, their responsible party was contacted regarding consent for participation in the project. Once the participant and/or their responsible party agreed to participate, a brief case history was obtained, and the researcher provided a schedule of visits to each participant. An effort was made by the researcher to observe the participant in their environment at various times of the day on weekdays and weekends in order to gain a the most complete

picture of what the daily routines and interactions were for each individual. Participants were contacted when possible when any scheduling changes were made.

DESCRIPTION OF PARTICIPANTS

Participant 1 (P1) is an 85 year old female who suffered a left hemisphere stroke three months prior to her participation in the study and presented with nonfluent aphasia and right hemiparesis. Prior to her admission to a long-term care facility following her stroke, she was living in an assisted-living facility with her husband. Her husband lived at an assisted living facility on the same property and visited her daily. She completed college and worked as a teacher and a secretary. Her stroke resulted in severe language deficits including reduced verbal output. Her auditory comprehension was a relative strength. P1 demonstrated occasional emotional lability and was not consistently alert during observations. She used a wheelchair for ambulation due to physical deficits, notably right-sided hemiparesis of the arm and leg. The extension of her right arm and fingers was very restricted and she wore a brace on her right arm. She also wore a wheelchair lap guard which suggested that she may be impulsive and lacked awareness of her deficits and safety precautions.

P1 presented as pleasant and willing to communicate, however appeared easily discouraged by her physical and communication difficulties. Frustration was most likely caused by her awareness of difficulties as evidenced by attempts to self correct utterances. Despite her ability to communicate in short phrases and sentences, she usually used gestures and facial expressions to convey her needs and desires to

caregivers. For example, she would reach out to get attention, shake or nod her head in response to questions, or decline to reply. She rarely initiated verbal communication. Little use of verbal communication limited her ability to direct her care and arrangement of her environment, and appeared to contribute to caregivers anticipating her needs and deciding her location in the facility.

Participant 2 (P2) was a 64 year old male diagnosed with multiple sclerosis (MS). MS is a neuromuscular disease in which an individual's immune system attacks the myelin in the brain causing diffuse symptoms. Symptoms are variable and may include fatigue, numbness, difficulty walking, incontinence, difficulty with vision and balance, cognitive dysfunction, emotional changes, and spasticity ("About MS" 2013). He was wheelchair-dependent, had poor trunk control and was only able to move his arms, neck and head. He required maximum assistance with toileting, bathing, and transferring. P1 received a MS diagnosis 21 years prior to participation in this study. He lived independently for approximately nine years following his diagnosis until he moved into a long-term facility due to physical decline. He had lived in the current facility for 12 years at the time of the study. P2 received a master's degree and worked as a pharmacist. His speech was mildly dysarthric, and was 90-100% intelligible to an unfamiliar listener. Mild deficits were noted in the area of pragmatics and emotional regulation. P2 tended to dominate most conversations and made little eye contact during social interactions with the researcher. He occasionally produced loud vocalizations during moments of frustration. He otherwise demonstrated appropriate topic selection and maintenance and was friendly and personable.

P2 was a very verbal, willing conversationalist and easily talked about his situation and life. He actively asked questions of the clinician and was actively engaged with formal caregivers. While he appeared to enjoy conversation, he did not appear interested in forming relationships with other residents, and valued his privacy. He said he enjoyed going on occasional group outings for lunch, but was thinking about discontinuing doing so because he didn't find the other residents very interesting. While this researcher concluded that P2 was in general a reliable reporter, he may have been more frail than he described. For example, he had two minor illnesses over approximately two weeks of observation, both of which caused him to rely heavily on caregivers for daily tasks, even feeding. In addition, any physical barriers he encountered quickly frustrated him, which most often had to do with his wheelchair.

Participant 3 (P3) was a 49 year old female who suffered a traumatic brain injury (TBI) from a motorcycle accident six years prior to participation in this study. TBIs are the results of abrupt external forces acting on the skull and the brain and can lead to a variety of symptoms including physical and cognitive deficits depending on the type and extent of the injury (Brookshire, 2007). P3 had lived in the current long-term care facility for two years but had lived in several other facilities since her accident. She had severe physical limitations as a result of her accident. Her motor movement presented as spastic and she was only able to use her right arm and lift up her head a few degrees. She had difficulty grasping objects with her hand, her facial expression is limited, but she was able to smile, shake her head "no" and use eye movements to communicate. She approximated a few rote words, however used primarily nonverbal vocalizations. Auditory comprehension was one of P3's strengths, and she almost always responded

appropriately to questions and comments with different communication partners. She used a letter board to communicate and is able to spell out words in utterances as long as five to six words. An electronic augmentative and alternative communication (AAC) system was provided to her, however she had difficulty using the system due to difficulty controlling fine motor movements for selection of items on the screen. P3 presented with perseverative nonverbal and verbal behavior with her AAC board and was at times difficult to redirect. She depended on caregivers for all care and wheelchair mobility. Her mother and boyfriend were her primary caregivers other than facility staff. They visited her several days a week and were her primary outlet for socialization. P3 was asked by staff to stop attending group activities such as BINGO due to inappropriate vocalizations that were reportedly disruptive for other residents.

P3 was a pleasant woman who presented as highly-motivated to communicate with others. She especially enjoyed a good sense of humor, however occasionally made self-deprecating remarks. In most cases, the researcher was not able to observe without interacting with P3. She showed a strong desire to communicate, and became agitated at attempts to disengage or leave. P3 relied heavily on her boyfriend and mother for social interactions as no other social outlets are available. Her formal caregivers were not observed to converse with her using the letter board, and did not provide a communicative outlet. Her severe physical deficits and impulsive vocalizations limited her ability to participate in traditional activities offered in the facility and caused P3 to spend much of her day alone.

DATA ANALYSIS

Mixed methods including observation and interviewing were the primary means for data collection. When possible, both the caregivers and the participants were interviewed regarding what was observed and/or to gain information that was not observable by the investigator. Multiple steps were completed in order to improve the credibility of the evidence by confirming or disconfirming observations, and gain information about events and interactions during times when the researcher was not present. This project took the form of microanalysis, or the investigation of what an individual experiences (Stake, 2010). Data collection focused on individual experiences as opposed to those of a larger population. Qualitative research primarily calls for this individual oriented research and is based on situational thinking versus universal thinking (Stake, 2010). The following steps were taken in order to analyze data:

Review/ re-read notes taken during each observation; use checklist to guide analysis of observations

Identify physical barriers/facilitators to communication

Identify perceived barriers/facilitators to communication

Separate out “other factors” from “environmental factor” (factors not related to environment)

Results/Discussion

Results of data analysis are first discussed on an individual basis, and then broader observations about similarities or differences between participants are discussed. Each participant was observed over a period of two weeks and was seen at least once during a different time of the day. Each observation lasted anywhere from 20 minutes to an hour. See Table 2 for the analyses of the near environment and the far environment. A summary of facilitators and barriers identified for each participant are shown in Table 3.

Participant Code	Environments Observed	Total time spent with participant	Average time per session	Number of visit with each participant
P1	private room, dining room, common room	4.5 hours	38 minutes	7
P2	private room, dining room	3.5 hours	37 minutes	6 (2 cancelled by participant)
P3	private room	5.5 hours	47 minutes	7

Table 2. Observation Summary

		P1	P2	P3
		Facilitator (F)/ Barrier (B)/ No influence (NI)	Facilitator (F)/ Barrier (B)/ No influence (NI)	Facilitator (F)/ Barrier (B)/ No influence (NI)
Common Room	Lighting	F	N/A	N/A
	background noise	F		
	visual cues	NI		
	physical layout	NI		
	temperature	NI		
	appropriate space	B		
	appropriate comm. partner	B		
	furnishings	NI		
	proximity	NI		
Dining Room	lighting	F	NI	N/A
	background noise	F	NI	
	visual cues	NI	F	
	physical layout	NI	NI	
	temperature	NI	NI	
	appropriate space	B	NI	
	appropriate comm. partner	B	B	
	furnishings	NI	NI	
	proximity	NI	NI	
Individual Room	lighting	B	NI	B
	background noise	F	NI	F
	visual cues	B	F	F
	physical layout	B	B	F
	temperature	NI	NI	NI
	appropriate space	NI	F	B
	appropriate comm. partner	NI	NI	B
	furnishings	NI	F	F
	proximity	F	NI	B
	presence of life-enhancing features	B	F	F

Table 3. Environmental Barriers and Facilitators Checklist Summary

IDENTIFICATION OF ENVIRONMENTAL BARRIERS AND FACILITATORS

P1

P1 was observed seven times for an average of 38 minutes per observation session. She was observed in her room, during meals and during time spent in the common area. Facilitators to communication for P1 included: talking one-on-one and face to face, use of visual cues during communication, and minimizing environmental distractors such as background noise and multiple communication partners. Barriers included lack of choice in daily routines, physical distance from communication partners, lack of appropriate communication partners, and background noise.

The Far Environment

The far environment consisted of a large common area and the dining room. The common area had windows along one side, and was open to a large hallway on the other side. The common room was carpeted, both natural and fluorescent light was provided, and appeared able to accommodate up to 30 or more people. There were five armchairs at the back of the room for individuals who were not wheelchair dependent. A large television was located at the front of the room and a nursing station was located in the open hallway across from the room. The presence of natural light and a low level of fluorescent lighting were considered facilitative as previous researchers have stated that this type of lighting allows for sufficient light to view others and the surroundings. Lack of individual control of lighting was not considered a barrier, as this type of control is usually not possible in shared spaces. The presence of little background noise was

facilitative and allowed for communication between individuals. While some residents appeared to be watching TV, P1 was seated approximately 20-30 feet behind the TV on the 3rd or 4th row of residents, and was not observed to watch the movie or interact with others. This arrangement was a barrier for communication as P1 was not observed to be given a choice about her placement, and there was a lack of appropriate communication partners. Although she was within close proximity to others, it appeared that this arrangement had no influence on communication for P1 because she did not communicate with other residents in this setting. However, she may have been more willing or able to communicate given a smaller room with more appropriate communication partners.

P1 ate her meals in the dining room for residents requiring assistance and/ or supervision with feeding. Ten tables with two to four residents each were present in this dining room. The room was carpeted and had a combination of natural and fluorescent light, which are generally facilitative. The dining room was facilitative for P1 in that in general there was a low level of background noise apart from intermittent noise from the kitchen, or loud vocalizations from other residents. Table decorations were considered a life-enhancing feature that made the dining experience more pleasant and provided visual cues for orientation. P1's proximity to tablemates was potentially facilitative to communication as she faced her tablemates who were three to four feet away, however her tablemates did not appear to be appropriate communication partners. One tablemate was observed to attempt to communicate with P1, but her language was not comprehensible, possibly due to dementia. Another tablemate did not make any communication attempts with P1, rather focused on getting the attention of the aides in

the room or talking to of other resident's visitors. P1 was not observed to initiate communicative interactions during meals and primarily used gesture to communicate with aides about her desire to leave.

The Near Environment

The near environment consisted of P1's individual room and adjoining private bathroom. The room was carpeted, had a window and a television was installed on the wall above the dresser across from her bed. Few personal belongings or decorations were present, which was considered a barrier as few life-enhancing features were present. There appeared to be ample space for her wheelchair, and minimal furnishings, which included her bed, a bedside table, a chair and a dresser. Furnishings were adequate and appropriate for her physical needs, but were not observed to have an affect on her ability to communicate. The smaller room size was a facilitator as it placed others in close proximity with P1 and therefore were more likely to communicate with her face to face. P1 was not able to control lighting (overhead or natural), temperature, or her television due to her limited mobility. She did not self-propel her wheelchair to use the light switch or open/close the blinds, and her remote control was out of reach on her bedside table. The researcher was unable to determine if she perceived to have control over these factors due to P1's limited verbal output. Inability to control these features indicates lack of a supportive environment. No modifications were made to support her loss of mobility and therefore potentially affect her quality of life. P1 was only observed once to request an environmental change ("keep the door open"), and that request was made of the researcher. Caregivers reported that they usually anticipate her needs, such as toileting

or controlling the television. The researcher observed that caregivers anticipated her needs within her room as well. However, when the researcher asked the client if she would prefer any changes (e.g. lights on, TV on), she reported she did not. This indicates that while she was not observed to make choices regarding her environment, P1 may have previously communicated these needs to her caregiver and thus there was no need for her to request them again.

Physical Limitations

P1's inability to self-propel her wheelchair was a barrier to communication. While her dependence on others for mobility facilitated access to potential communicative situations, she was not easily able to direct her mobility, choose a preferred environment, or how to be situated in that environment. After breakfast and lunch meals, P1 was routinely moved to the common area along with a large group of residents with a low level of physical and verbal function. Although the researcher was not able to spend extended periods of time to make direct observations, conversations with staff indicated that P1 often spent a period of 2 consecutive hours or more in the common areas, particularly on the weekends when therapy and other activities were not planned. In addition, P1 reported during one observation session that she liked to attend activities in the afternoons during the week, although she was observed to be in her room on a weekday afternoon by the researcher. Contradictory findings between patient report and clinician observation make it difficult to determine her preferences. More direct observations could have clarified the nature of P1's day to day choices.

P2

P2 was observed six times for an average of 37 minutes per observation. Two observation sessions with this participant were missed, one time because the participant was showering, and once due to illness. One observation session was shortened because P2 stated he preferred the researcher return at another time, as he was too frustrated with his wheelchair to talk. In general, a greater proportion of observation sessions were spent in conversation with P2 than with the other two participants. This is due to the fact that P2 did not have difficulty with communicating other than slightly slurred speech due to mild dysarthria, and expressed the desire to converse with the researcher. Thus, more information about his daily interactions was gained through interview than observation. P2's primary barrier to positive communication environments was his limited physical mobility and perceived difficulty in accessing environments. He was entirely wheelchair dependent and weakness in his arms made propelling his wheelchair difficult. The presence of life enhancing features and personalization of his room was a primary facilitator.

The Far Environment

The Far Environment for P2 consisted of the dining room and the larger community. Only the dining room environment was observed by the researcher. P2 ate his meals in a small independent dining room. The dining room had eight tables with three to four residents per table. The room was carpeted, had table and wall decorations, and fluorescent lighting. Quiet background music was playing during mealtime. Visual

cues and light-enhancing features such as art and table decorations contributed to a positive communication environment. Prior to obtaining a smaller, more lightweight wheelchair, P2 was brought to meals by an aide, but during observations by the researcher, he was able to self-propel his wheelchair. Therefore, physical distance to the dining room was not a barrier for P2, but was not necessarily facilitative in that he still had to exert a somewhat large amount of effort to get there. Some quiet conversation was present between diners and staff. While a low level of background noise was potentially facilitative, P2 was not observed to converse during mealtime and therefore did not influence his communication during mealtime. P2 was not observed to converse with his tablemates. According to P2's report, he did not consider them to be appropriate communication partners, so he just "keeps to himself." His negative perception of available communication partners in his environment is a barrier to communication.

The Near Environment

The near environment for P2 was his private room and adjoining bathroom. The near environment was the most important for P2 as he reported he spent most of his time there. He reported to only leave his room to attend a special event at the facility, go on a group lunch outing, or eat lunch with his daughter. The clinician observed P2's preference for his room environment as well, as he was never observed outside of his room, other than when he was eating. P2's room environment appeared to be well arranged for him in that he was able to access his remote control to watch TV and movies, and many personal items and pictures were present. Thus, the presence of visual cues, life-enhancing personalized features, appropriate furnishings and availability of the

private space were all considered facilitators for communication. For example, decorations provided multiple topics of conversation to discuss with the researcher. But, because P2 did not have visitors other than immediate family members, other communication may not happen in his room, and thus limits his communication with others. Even though his desired environment did not facilitate communication with a wide range of individuals, his room nevertheless appeared to be P2's preferred environment. Despite personalization of his room, P2 demonstrated difficulty moving his wheelchair around in the relatively small room. These difficulties were evidenced by scratches on many of the walls, especially near the bathroom. Thus, the small room size in comparison to his wheelchair presented a barrier for P2.

Perceived Barriers

In general, P2's perceived difficulty in navigating the facility was observed to play a large role in his ability to access desired communicative situations. He stated that he often became frustrated with his wheelchair. The researcher observed him on multiple occasions to make loud grunts/yells while propelling his wheelchair. During the course of this study, he received a lighter weight wheelchair that appeared to greatly reduce his frustration and allowed him propel the wheelchair with greater ease. Therefore, use of a more appropriate mobility device was an important facilitator for communication for P2. With the lighter and smaller wheelchair, he was observed to propel himself to meals as opposed to a staff member propelling him, thus allowing him to converse with other residents along the way.

P3

P3 was observed seven times for an average of 47 minutes per session. P3 was only observed in her room, as she was never observed or reported to occupy other environments. Her boyfriend and mother reported that they often visited and took her around the facility, however the researcher did not observe these visits. Facilitative characteristics of her environment included the presence of personalized, life-enhancing features, and use of a communication board. P3's primary barrier was her physical impairment which severely limited her access to communication environments. Several other environmental factors were identified in relation to use of her AAC device.

The Near Environment

P3's bed was located next to her window. She had a small dresser and TV across from her bed, and a small bedside table. Her wheelchair and another unoccupied single bed took up the rest of the room. A private bath was adjoined to her room. P3's room was decorated with photographs, wall hangings, and cards. Overall, the personalization of the room appeared to contribute to P3's quality of life and therefore had the potential to create an atmosphere for positive communication. Natural lighting was available, and is generally considered facilitative. Background noise was present as the TV or radio were often on, but were at appropriate levels and were not observed to limit communication. Barriers included lack of control over environmental features such as lighting and temperature, lack of choice of location, limited availability of appropriate communication partners, and lack of appropriate proximity. P3 was entirely unable to

control her surroundings, which were often decided by caregivers. This was particularly true of formal caregivers who were not observed to consult P3 regarding her desires. A general lack of appropriate communication partners was observed. Interacting with P3 required proactive use of her communication board, and the ability to interpret gestures and eye movements. Only her boyfriend and mother routinely used her letter board to communicate with her. Also, formal caregivers often did not face P3 when communicating with her, further limiting their interactions.

Use of Communication Board

Several barriers and facilitators to communication were identified that were specific to P3's AAC letter board. The researcher never observed facility staff using the communication board with P3. This was a significant barrier for P3 as she depended heavily on the use of the board to communicate. Once the researcher questioned a staff member who was feeding her if she ever used the communication board with P3; she reported she did not know about the board. She then attempted to communicate with P3 using the board, but quickly abandoned use to focus on feeding. During P3's more successful interactions with her boyfriend, mother, and with the researcher, P3 often threw the communication board on the floor, possibly unintentionally. P3 depended on the caregiver to position the board correctly, and required prompting to lift up her finger between words. The result of not using the AAC board was that staff appeared to anticipate P3's needs and preferences, or just decide for her. P3 communicated that she does not choose the TV or radio station. Given that staff did not regularly utilize the AAC board with P3, they most likely rarely asked about her preferences about lighting or

temperature either. P3 was able to make such requests when presented with the board, as evidenced by the fact that during one visit she asked the researcher for socks and a blanket using her letter board. P3's communication was impaired due to her dependency on an AAC system, facial expressions and nodding for communication. She was also entirely dependent on others for mobility. However, the facilitators noted improvement in her ability to direct care, express needs, and participate in one on one activities of choice.

Conclusion

This study sought to add new information about evaluation of the environment for residents of long-term care (LTC) facilities. The identification and provision of an optimal environment for communication may greatly improve quality of life, especially for residents with severe physical and communication impairments. Observational data collected during the course of this study demonstrated the importance of individual assessment of multiple environments for LTC residents. Three participants with diverse deficits were selected for this study in order to explore how environmental factors may affect the communication of individuals with different needs in different ways.

This study sought to answer the questions: What constitutes a positive communication environment? What are facilitators and barriers to communication? Some environmental factors contributed to a positive communication environment for all participants while other factors depended on individual needs. Life-enhancing features and control of environment will improve quality of life for all participants, despite their differences. They reduce stress levels and provide for optimal person-environment fit. These features improved all participants' quality of life because they provided a general sense of well-being and comfort in the environment, which in turn provided for positive communicative interactions. Furthermore, a lack of life-enhancing features or control of features may cause an individual to encounter other barriers. For example, if one is not able to control lighting, caregivers may anticipate preferences, and deny the resident the opportunity to make the choice. This lack of choice deprives the individual of a chance for functional communication of wants and desires. In addition, pleasurable environmental characteristics of a dining room such as soft music and appropriate

decorations may cause the individual to perceive dining as a pleasurable activity. Presence of such features may encourage a resident to attend group meals or attend group activities, which may provide opportunities for communication.

Results of this study support that direct observation must be included as part of the assessment process. Completion of a checklist is not sufficient to determine if a positive communication environment exists because the influence of environmental features depends on individual needs and perceptions. The presence of a facilitative environmental feature does not guarantee communication. For P1 and P2, although they were in close proximity to other residents during mealtime, the fact that they were not seated with appropriate communication partners nullified the potentially positive influence of such a physical arrangement. Differences in physical capabilities may also affect how influential an environmental factor is. Even if visual cues are present that assist in navigating a facility, if the individual is unable to self-propel, these cues are no longer relevant. Also, some factors may be more significant for one individual than for another. In the case of P3, the use of her AAC system was critical for the creation of a positive communication environment. Use of her letter board allowed for a range of communication interactions, from playing games to requesting clothing items. Lack of the board almost entirely denied her the ability to communicate with others. Clinicians should be aware that some characteristics of environment may be much more influential than others. In this case, targeting one influential factor in therapy would be more beneficial than trying to target several features that may have very little influence.

The perception of environmental factors as positive or negative was not influential for all participants. However, when perception was negative, it was observed to strongly influence interactions with the environment. P1 and P3 were the most severely communication-impaired, and therefore it was more difficult to determine their perceptions of their environment. Also, the severity of impairments had a direct effect on whether they were able to communicate or not, as opposed to more subtle attitudes about desirable versus undesirable environments. However, for P3, the negative perception of some environmental features was a primary barrier for accessing communicative environments. In particular, a negative attitude towards his heavier wheelchair greatly impacted his desire to try and leave his room at all. Relating to other residents due to his younger age and relatively higher level of cognitive function was difficult for P3. An individual's perception of their environment should be part of an environmental assessment given the potential impact perception may contribute to interactions.

While overall the methodology of environmental assessment employed for this study may be beneficial to the clinician, it may not be practical. Observations are time-consuming and information may be more readily obtained through patient or caregiver interview. Nevertheless, especially for severely-impaired individuals who may not be able to self-report and need special modifications, observation provides an understanding of the reality of daily interactions and challenges. An investigation into the success of caregiver training is one possible future direction for research in the field of environmental assessment. Caregiver training is one type of intervention that has the potential to improve quality of life for these severely-impaired individuals. For example, caregiver training on use of the AAC device for P3 has the potential to improve her

quality of life. Formal caregivers interact the most with residents of LTC facilities and often have the most impact on their day to day lives. Time spent training staff and formal caregivers may provide needed environmental supports for communication-impaired individuals.

Several items could have improved the quality of this study. The inclusion of formal language testing results would have provided a common measure of comparison between participants, and with participants in other studies. Also, more detailed information about patient history may have led to a better overall understanding of current needs and abilities. The inclusion of more participants would have provided higher quality data and allowed for more generalizable results. While the verbal communication of some of the participants in this study was limited, in a similar study, it would be beneficial to provide direct patient quotes. Direct quotes would enhance the reader's understanding of the patient's point of view and validate the investigator's interpretation of what is said. There is a continued need for similar studies of environmental effects on communication for aphasic and other communication-impaired individuals. Future studies should seek to further operationalize the definition of a positive communication environment and build a common methodology for assessment.

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